Business Education — Learning Outcomes
Business and Work Study
School District U-46

Course (Standards)									
Information Technology — NBEA Communication IV, Information IV, Information Technology II, IV, V, VI, VII, IX, XVI, Career Development I, III, Common Core ELA Speaking and Listening, Common Core Mathematics, ISTE.NETS (1-6)	Identify and use productivity software appropriate for specific tasks	Integrate functions of word processing, databases, spreadsheets and presentation applications into various workplace simulations	Select and apply a variety of input technologies to maximize productivity	Create multimedia content and prepare it for delivery	Trouble shoot and resolve hardware and software problems	Prepare projects that include a variety of media (i.e. images, text, video, audio)	Enhance documents through the use of advanced layout, design, and graphics production software and scanning hardware		Address ethical issues regarding the use of digitally generated information including plagiarism and copyright issues
Entrepreneurship — NBEA Accounting I, II, III, IV, V, VI, Business Law IV, Communication I, II, III, IV, Information Technology I, XVI, Economics V, VI, VII, VIII, Entrepreneurship I, II, III, IV, V, VI, VII, VIII, IX, Management I, III, IV, V, VIII, Marketing I, II, III, IV, V, VI, International Business XV, XVI, Common Core ELA Reading, Writing, Language, Speaking and Listening, Common Core Mathematics, ISTE.NETS (1-6)	Identify characteristics of successful entrepreneurs	Compare how forms of business ownership, government regulations and business ethics affect business	Analyze customer groups and develop a plan to identify, reach, and maintain relationships with customers in a specific target market / Analyze how laws and government regulations affect business	Apply economic concepts when making business decisions	Utilize financial competencies needed in business	Employ accounting skills to establish, maintain, and analyze financial decisions	Create a business plan	Develop a management plan for a business	Analyze the effect of cultural differences, export/import opportunities and business and business trends in a global market

All Business students will develop, use, and transfer skills to ensure success in post secondary education, the workplace, and our technologically driven global society.

All Business students will use networking, problem solving, critical thinking and evaluation skills to analyze and synthesize situations necessary for college, career, and life success.

Business Education Learning Outcomes
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Category								
Communication (NSBE Communication I, II, III, Common Core ELA Reading, Writing, Language, Speaking and Listening)	Demonstrate effective verbal and non-verbal communication	Model active listening	Apply learned concepts using critical thinking skills	Analyze and evaluate information	Formulate a plan of action to express learned ideas	Exhibit proofreading & editing skills	Format & compose documents	Prepare industry-specific documents/media
	Articulate context and content clearly and concisely	Model professional presentation skills	Work independently and collaboratively in groups	Exhibit effective facilitation skills within groups	Adapt communication to audience and situation (inform and persuade)	Demonstrate creativity through brainstorming and problem-solving		
Interpersonal Skills (NSBE Communication I, II, III, Career Development I, III, V, VI, Common Core ELA Speaking and Listening)	Demonstrate effective verbal and non-verbal interpersonal skills	Communicate with people from diverse cultures and backgrounds	Demonstrate a positive work ethic	Demonstrate and accept accountability	Identify and apply the skills needed to build effective relationships (networking)	Assess personal skills, abilities, aptitudes and strengths as well as recognize personal weaknesses (self-awareness and reflection)	Evaluate and reconcile feedback	Work productively with others who are different from oneself
	Develop strategies for adapting to changes in personal and workplace environments							
Career and Technical Literacy (NSBE Communication I, III, Career Development I, II, III, Economics I, II, III, Computation I, II, III, IV, V, VI, Information Technology I, VIII, Common Core ELA Speaking and Listening, Common Core Mathematics)	Read for meaning	Follow directions	Predict outcomes	Identify and use technical vocabulary	Identify and apply leadership skills	Analyze and develop effective workplace skills	Demonstrate values and skills needed to make ethical decisions including cyber ethics	Demonstrate problem solving skills
	Evaluate and predict business trends and the effects on the economy	Develop and use time management, planning, and organizational skills	Analyze the effectiveness of online information resources to support research, collaborative tasks, and productivity	Identify and use resources to explore career opportunities	Build awareness of the job search process	Transfer skills and knowledge to and from other content areas	Apply reading and math skills in business settings	Apply steps in the decision making process and evaluate consequences of those decisions

Common Core Standards

Reading

Reading Standards for Grades 9-10

- Reading Literature
- Reading Informational
  - ✓ Key Ideas and Details
  - ✓ Craft and Structure
  - ✓ Integration of Knowledge and Ideas
  - ✓ Range of
  - ✓ Reading and Level of Text Complexity

Writing and Listening and Speaking Standards for Grades 9-10

  - ✓ Text Types and Purpose
  - ✓ Comprehension and Collaboration
  - ✓ Production and Distribution of Writing
  - ✓ Presentation of Knowledge and Ideas
  - ✓ Research to Build/Present Knowledge

Language Standards for Grades 9-10

  - ✓ Conventions of Standard English
  - ✓ Knowledge of Language
  - ✓ Vocabulary Acquisition and Use

Reading Standards for Grades 11-12

- Reading Literature
- Reading Informational
  - ✓ Key Ideas and Details
  - ✓ Craft and Structure

- ✓ Integration of Knowledge and Ideas
- ✓ Range of Reading and Level of Text Complexity

Writing and Listening and Speaking Standards for Grades 11-12

- ✓ Text Types and Purpose
- ✓ Comprehension and Collaboration
- ✓ Production and Distribution of Writing
- ✓ Presentation of Knowledge and Ideas
- ✓ Research to Build/Present Knowledge
- ✓ Range of Writing

Language Standards for Grades 11-12

- ✓ Conventions of Standard English
- ✓ Knowledge of Language
- ✓ Vocabulary Acquisition and Use

Reading and Writing Standards for Grades 9-10 Science

Reading and Writing Standards for Grades 11-12 Science

Reading and Writing Standards for Grades 9-10 Social Studies

Reading and Writing Standards for Grades 11-12 Social Studies

Reading Standards for Grades 9-10

Anchor Standards : Reading	Reading Literature: 9-10	Reading Informational: 9-10
Key Ideas and Details	**Key Ideas and Details**	**Key Ideas and Details**
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text details; provide an objective summary of the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.	3. Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
Craft and Structure	**Craft and Structure**	**Craft and Structure**
4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.	4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	5. Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	5. Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
6. Assess how point of view or purpose shapes the content and style of a text.	6. Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.	6. Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
Integration of Knowledge and Ideas	**Integration of Knowledge and Ideas**	**Integration of Knowledge and Ideas**
7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.*	7. Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's *Landscape with the Fall of Icarus*).	7. Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.	8. (Not applicable to literature)	8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take:	9. Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).	9. Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity	Range of Reading
10. Read and comprehend complex literary and informational texts independently and proficiently.	10. By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9–10 text complexity band independently and proficiently.	10. By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9–10 text complexity band independently and proficiently.

Writing and Listening and Speaking Standards for Grades 9-10

Anchor Standards for Writing	Writing: 9-10	Anchor Standards for Listening and Speaking	Listening and Speaking: 9-10
Text Types and Purposes	Text Types and Purposes	Comprehension and Collaboration	Comprehension and Collaboration
1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counter claims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively	1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues,* building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed. c. Propel conversations by posing and responding to questions that relate th...

		d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. **e.** Provide a concluding statement or section that follows from and supports the argument presented	current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. **d.** Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented. 2. Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
2. Write informative/ explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	2. Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. **a.** Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. **b.** Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. **c.** Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. **d.** Use precise language and domain-specific vocabulary to manage the complexity of the topic. **e.** Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. **f.** Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

	3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole. d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Production and Distribution of Writing

	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 on page 54.)	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

	3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.	3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.

Presentation of Knowledge and Ideas

	4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.	4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
	5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.	5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.	9. Draw evidence from literary or informational texts to support analysis, reflection, and research. *a. Apply grades 9–10 Reading standards* to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]"). *b. Apply grades 9–10 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning").

6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.	6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9–10 Language standards 1 and 3 on pages 54 for specific expectations.)

Range of Writing	Range of Writing
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Language Standards for Grades 9-10

Anchor Standards for Language	Language Standards Grades 9-10
Conventions of Standard English	**Conventions of Standard English**
1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use parallel structure.* b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.
Knowledge of Language	**Knowledge of Language**
3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.	3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian's *Manual for Writers*) appropriate for the discipline and writing type.
Vocabulary Acquisition and Use	**Vocabulary Acquisition and Use**
4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.	4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *analyze, analysis, analytical; advocate, advocacy*). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.	5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. **a.** Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text. **b.** Analyze nuances in meaning of words with similar denotations.
6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression	6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Reading Standards for Grades 11-12

Anchor Standards : Reading	Reading Literature: 11-12	Reading Informational: 11-12
Key Ideas and Details	**Key Ideas and Details**	**Key Ideas and Details**
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	2. Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.	2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.	3. Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).	3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
Craft and Structure	**Craft and Structure**	**Craft and Structure**
4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.	4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.	4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines *faction* in *Federalist* No. 10).
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	5. Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.	5. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
6. Assess how point of view or purpose shapes the content and style of a text.	6. Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).	6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
Integration of Knowledge and Ideas	**Integration of Knowledge and Ideas**	**Integration of Knowledge and Ideas**
7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.*	7. Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)	7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.	8. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy. (e.g., *The Federalist*, presidential addresses).	8. (Not applicable to literature)
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	9. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.	9. Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
Range of Reading and Level of Text Complexity	**Range of Reading**	**Range of Reading and Level of Text Complexity**
10. Read and comprehend complex literary and informational texts independently and proficiently.	10. By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11–CCR text complexity band independently and proficiently.	10. By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–CCR text complexity band independently and proficiently.

Writing and Listening and Speaking Standards for Grades 11-12

Anchor Standards for Writing	Writing: 11-12	Anchor Standards for Listening and Speaking	Listening and Speaking: 11-12
Text Types and Purposes	Text Types and Purposes	Comprehension and Collaboration	Comprehension and Collaboration
1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner	1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively	1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 11–12 topics, texts, and issues,* building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.

b. Work with peers to promote civil, democratic discussions and decision making, set clear goals and deadlines, and establish individual roles as needed.

c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

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2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

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that anticipates the audience's knowledge level, concerns, values, and possible biases.

c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

e. Provide a concluding statement or section that follows from and supports the argument presented.

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2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

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2. Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

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2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

	e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).		**Presentation of Knowledge and Ideas** 3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.	3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.	
Production and Distribution of Writing 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	**Production and Distribution of Writing** 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	**Presentation of Knowledge and Ideas** 4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.	4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

Speaking and Listening

5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.	5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.	6. Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 on page 54 for specific expectations.)

Writing

5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12 on page 54.)
6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grades 11–12 Reading standards* to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics"). b. Apply *grades 11–12 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional

principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., *The Federalist*, presidential addresses]").	
Range of Writing	
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Language Standards for Grades 11-12

Anchor Standards for Language	Language Standards Grades 11-12
Conventions of Standard English	**Conventions of Standard English**
1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. b. Resolve issues of complex or contested usage, consulting references (e.g., *Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage*) as needed.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Observe hyphenation conventions. b. Spell correctly.
Knowledge of Language	**Knowledge of Language**
3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.	3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Vary syntax for effect, consulting references (e.g., Tufte's *Artful Sentences*) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
Vocabulary Acquisition and Use	**Vocabulary Acquisition and Use**
4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.	4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 11-12 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *conceive, conception, conceivable*). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.

	d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.	5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression	6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Reading and Writing Standards for Grades 9-10 Science

Anchor Standards for Reading	Reading: Science	Anchor Standards for Writing	Writing: Science
Key Ideas and Details	**Key Ideas and Details**	**Text Types and Purposes**	**Text Types and Purposes**
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	1. Write arguments focused on *discipline-specific content.* a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	2. Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.	2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.
d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.
e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.

3. Not applicable as a separate requirement)

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9–10 texts and topics*.

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Column 1	Column 2	Column 3	Column 4
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	5. Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
6. Assess how point of view or purpose shapes the content and style of a text.	6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.	6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
Integration of Knowledge and Ideas	**Integration of Knowledge and Ideas**	**Research to Build/Present Knowledge**	**Research to Build/Present Knowledge**
7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.*	7. Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	7. Conduct short as well as more sustained research projects to answer a question (including a self generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.	8. Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.	8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts	9. Draw evidence from literary or informational texts to support analysis, reflection, and research.	9. Draw evidence from informational texts to support analysis, reflection, and research.

Range of Reading and Level of Text Complexity	Range of Writing	Range of Reading and Level of Text Complexity	Range of Writing
10. Read and comprehend complex literary and informational texts independently and proficiently.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	10. By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently	10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Reading and Writing Standards for Grades 11-12 Science

Anchor Standards for Reading	Reading: Science	Anchor Standards for Writing	Writing: Science
Key Ideas and Details	**Key Ideas and Details**	**Text Types and Purposes**	**Text Types and Purposes**
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	1. Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	1. 1. Write arguments focused on *discipline-specific content.* a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	2. Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.	2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations; or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).			3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.
3. Not applicable as a separate requirement)	3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.	3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.	**Craft and Structure**
Production and Distribution of Writing	**Production and Distribution of Writing**	**Craft and Structure**	4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings; and analyze how specific word choices shape meaning or tone.
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11–12 texts and topics...*	

5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	5. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.	5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.	6. Assess how point of view or purpose shapes the content and style of a text.
Research to Build /Present Knowledge	**Research to Build/Present Knowledge**	**Integration of Knowledge and Ideas**	**Integration of Knowledge and Ideas**
7. Conduct short as well as more sustained research projects to answer a question (including a self generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.	7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.*
8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	8. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Draw evidence from informational texts to support analysis, reflection, and research.	9. Draw evidence from literary or informational texts to support analysis, reflection, and research.	9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.	9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range of Reading and Level of Text Complexity	Range of Writing	Range of Reading and Level of Text Complexity	Range of Writing
10. Read and comprehend complex literary and informational texts independently and proficiently.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	10. By the end of grade 12, read and comprehend science/technical texts in the grades 11–12 text complexity band independently and proficiently	10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Reading and Writing Standards for Grades 9-10 Social Studies

Anchor Standards for Reading — Key Ideas and Details	Reading: Social Studies — Key Ideas and Details	Anchor Standards for Writing — Text Types and Purposes*	Writing: Science — Text Types and Purposes*
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	1. Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.	1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	1. Write arguments focused on *discipline-specific content.* a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.	2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.	3. Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.	3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.
Production and Distribution of Writing	**Production and Distribution of Writing**	**Craft and Structure**	**Craft and Structure**
3. Not applicable as a separate requirement)			
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	4. Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social studies.	4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings; and analyze how specific word choices shape meaning or tone.
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	5. Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.	5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

Reading (6)	Reading (6)	Writing (6)	Writing (6)
6. Assess how point of view or purpose shapes the content and style of a text	6. Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.	6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
Integration of Knowledge and Ideas	**Integration of Knowledge and Ideas**	**Research to Build/Present Knowledge**	**Research to Build/Present Knowledge**
7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.*	7. Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.	7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	7. Conduct short as well as more sustained research projects to answer a question (including a self generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.	8. Assess the extent to which the reasoning and evidence in a text support the author's claims.	8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	9. Compare and contrast treatments of the same topic in several primary and secondary sources.	9. Draw evidence from literary or informational texts to support analysis, reflection, and research.	9. Draw evidence from informational texts to support analysis, reflection, and research.
Range of Reading and Level of Text Complexity	**Range of Reading and Level of Text Complexity**	**Range of Writing**	**Range of Writing**
10. Read and comprehend complex literary and informational texts independently and proficiently.	10. By the end of grade 10, read and comprehend history/social studies texts in the grades 9–10 text complexity band independently and proficiently.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Reading and Writing Standards for Grades 11-12 Social Studies

Anchor Standards for Reading	Reading: Social Studies	Anchor Standards for Writing	Writing: Science
Key Ideas and Details	**Key Ideas and Details**	**Text Types and Purposes**	**Text Types and Purposes**
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	1. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.	1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	1. Write arguments focused on *discipline-specific content.* a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.	2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	3. Not applicable as a separate requirement)

Production and Distribution of Writing

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.	3. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.

Production and Distribution of Writing

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Craft and Structure

4. Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines *faction* in *Federalist No. 10*).

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	5 Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.	5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	6. Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence	6. Assess how point of view or purpose shapes the content and style of a text.
Research to Build /Present Knowledge	**Research to Build/Present Knowledge**	**Integration of Knowledge and Ideas**	**Integration of Knowledge and Ideas**
7. Conduct short as well as more sustained research projects to answer a question (including a self generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.	7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.*
8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	8. Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.	8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Draw evidence from informational texts to support analysis, reflection, and research.	9. Draw evidence from literary or informational texts to support analysis, reflection, and research.	9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.	9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range of Reading and Level of Text Complexity	Range of Writing	Range of Writing
10. Read and comprehend complex literary and informational texts independently and proficiently.	10. Write routinely over extended time frames (time for research, reflection, and revision), and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	10. By the end of grade 12, read and comprehend history/social studies texts in the grades 10–12 text complexity band independently and proficiently.
		10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Common Core Standards

Mathematics

Mathematics Standards for Grade 7

Mathematics Standards for Grade 8

Mathematics for High School

- Number and Quantity Number
- Algebra
- Functions
- Modeling
- Geometry
- Statistics and Probability

Mathematics Standards for Grade 7

Ratios and Proportional Relationships 7.RP
Analyze proportional relationships and use them to solve real-world and mathematical problems.

1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.*
2. Recognize and represent proportional relationships between quantities.
   a. Decide whether two quantities are in a proportional relationship,e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
   b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
   c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*
   d. Explain what a point *(x, y)* on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
3. Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

The Number System 7.NS
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
   a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*
   b. Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
   c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
   d. Apply properties of operations as strategies to add and subtract rational numbers.
2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
   a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
   b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real world contexts.
   c. Apply properties of operations as strategies to multiply and divide rational numbers.
   d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
3. Solve real-world and mathematical problems involving the four operations with rational numbers.1

Expressions and Equations 7.EE
Use properties of operations to generate equivalent expressions.

1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*
4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
   a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the

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sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*

b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Geometry 7.G

Draw, construct, and describe geometrical figures and describe the relationships between them.

1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

3. Describe the two-dimensional figures that result from slicing three dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Statistics and Probability 7.SP

Use random sampling to draw inferences about a population.

1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from t... book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Draw informal comparative inferences about two populations.

3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*

4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*

Investigate chance processes and develop, use, and evaluate probability models.

5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*

7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*

b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*

8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.

c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

Mathematics Standards for Grade 8

The Number System 8.NS
Know that there are numbers that are not rational, and approximate them by rational numbers.
1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

Expressions and Equations 8.EE
Work with radicals and integer exponents.
1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.*
2. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.*
4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Understand the connections between proportional relationships, lines, and linear equations.
5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

Analyze and solve linear equations and pairs of simultaneous linear equations.
7. Solve linear equations in one variable.
    a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
    b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8. Analyze and solve pairs of simultaneous linear equations.
    a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
    b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.*
    c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

Functions 8.F
Define, evaluate, and compare functions.
1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.1
2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*
3. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*

Use functions to model relationships between quantities.
4. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation

it models, and in terms of its graph or a table of values.

5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Geometry 8.G
Understand congruence and similarity using physical models, transparencies, or geometry software.
1. Verify experimentally the properties of rotations, reflections, and translations:
    a. Lines are taken to lines, and line segments to line segments of the same length.
    b. Angles are taken to angles of the same measure.
    c. Parallel lines are taken to parallel lines.
2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two dimensional figures, describe a sequence that exhibits the similarity between them.
5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*

Understand and apply the Pythagorean Theorem.
6. Explain a proof of the Pythagorean Theorem and its converse.
7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Statistics and Probability 8.SP
Investigate patterns of association in bivariate data.
1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

Mathematics for High School - Number and Quantity Number

The Real Number System N - RN
Extend the properties of exponents to rational exponents.
1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define 51/3 to be the cube root of 5 because we want (51/3)3 = 5(1/3)3 to hold, so (51/3)3 must equal 5.*
2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.
Use properties of rational and irrational numbers.
3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

Quantities N - Q
Reason quantitatively and use units to solve problems.
1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
2. Define appropriate quantities for the purpose of descriptive modeling.
3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

The Complex Number System N - CN
Perform arithmetic operations with complex numbers.
1. Know there is a complex number i such that $i2 = -1$, and every complex number has the form $a + bi$ with a and b real.
2. Use the relation $i2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.
Represent complex numbers and their operations on the complex plane.
4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. *For example, $(-1 + \sqrt{3} i)3 = 8$ because $(-1 + \sqrt{3} i)$ has modulus 2 and argument 120°.*
6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.
Use complex numbers in polynomial identities and equations.
7. Solve quadratic equations with real coefficients that have complex solutions.
8. (+) Extend polynomial identities to the complex numbers. *For example, rewrite $x2 + 4$ as $(x + 2i)(x - 2i)$.*
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

Vector and Matrix Quantities N - VM
Represent and model with vector quantities.
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v, $|v|$, $\|v\|$, v).
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.
Perform operations on vectors.
4. (+) Add and subtract vectors.
   a. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.
   b. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.
   c. Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w, with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.
5. (+) Multiply a vector by a scalar.
   a. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(vx, vy) = (cvx, cvy)$.
   b. Compute the magnitude of a scalar multiple cv using $\|cv\| = |c|v$. Compute the direction of cv knowing that when $|c|v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).
Perform operations on matrices and use matrices in applications.
6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.

7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.

8. (+) Add, subtract, and multiply matrices of appropriate dimensions.

9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.

10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.

11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.

12. (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.

Mathematics for High School - Algebra

Seeing Structure in Expressions A-SSE

Interpret the structure of expressions

1. Interpret expressions that represent a quantity in terms of its context.

    a. Interpret parts of an expression, such as terms, factors, and coefficients.

    b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)n$ as the product of P and a factor not depending on P.*

2. Use the structure of an expression to identify ways to rewrite it. *For example, see $x4 - y4$ as $(x2)2 - (y2)2$, thus recognizing it as a difference of squares that can be factored as $(x2 - y2)(x2 + y2)$.*

Write expressions in equivalent forms to solve problems

3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression

    a. Factor a quadratic expression to reveal the zeros of the function it defines.

    b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

    c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression $1.15t$ can be rewritten as $(1.151/12)12t \approx 1.01212t$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*

4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.*

Arithmetic with Polynomials and Rational Expressions A -APR

Perform arithmetic operations on polynomials

1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Understand the relationship between zeros and factors of polynomials

2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.

3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

Use polynomial identities to solve problems

4. Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity $(x2 + y2)2 = (x2 - y2)2 + (2xy)2$ can be used to generate Pythagorean triples.*

5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.1

Rewrite rational expressions

6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

Creating Equations A - CED

Create equations that describe numbers or relationships

1. Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law $V = IR$ to highlight resistance R.*

Reasoning with Equations and Inequalities A - RE I

Understand solving equations as a process of reasoning and explain the reasoning

1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Solve equations and inequalities in one variable

3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
4. Solve quadratic equations in one variable.

   a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x-p)2 = q$ that has the same solutions. Derive the quadratic formula from this form.

b. Solve quadratic equations by inspection (e.g., for $x2 = 49$), taking square roots, completing the square, the quadratic formula and/ factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.

Solve systems of equations

5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x2 + y2 = 3$.*
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.
9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).

Represent and solve equations and inequalities graphically

10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
11. Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.
12. Graph the solutions to a linear inequality in two variables as a halfplane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Mathematics for High School - Functions

Interpreting Functions F- IF
Understand the concept of a function and use function notation
1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.*

Interpret functions that arise in applications in terms of the context
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.* ★
6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

Analyze functions using different representations
7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
   a. Graph linear and quadratic functions and show intercepts, maxima, and minima.
   b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
   c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
   d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
   e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
   a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
   b. Use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as $y = (1.02)t$, $y = (0.97)t$, $y = (1.01)12t$, $y = (1.2)t/10$, and classify them as representing exponential growth or decay.*
9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

Building Functions F- BF
Build a function that models a relationship between two quantities
1. Write a function that describes a relationship between two quantities. ★
   a. Determine an explicit expression, a recursive process, or steps for calculation from a context.
   b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*
   c. (+) Compose functions. *For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.*
2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★

Build new functions from existing functions
3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*
4. Find inverse functions.

a. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example, $f(x) = 2 x3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.*

    b. (+) Verify by composition that one function is the inverse of another.

    c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.

    d. (+) Produce an invertible function from a non-invertible function by restricting the domain.

5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents. Linear, Quadratic, and Exponential Models ★ F -LE

Construct and compare linear, quadratic, and exponential models and solve problems

1. Distinguish between situations that can be modeled with linear functions and with exponential functions.

    a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

    b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

    c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

4. For exponential models, express as a logarithm the solution to $abct = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.

Interpret expressions for functions in terms of the situation they model

5. Interpret the parameters in a linear or exponential function in terms of a context.

Trigonometric Functions F-TF

Extend the domain of trigonometric functions using the unit circle

1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.

2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x, where x is any real number.

4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

Model periodic phenomena with trigonometric functions

5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.

7. (+) Use inverse functions to solve trigonometric equations that arise

    in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. ★

Prove and apply trigonometric identities

8. Prove the Pythagorean identity $\sin2(\theta) + \cos2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.

9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

Mathematics for High School—Modeling

Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social, and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.

A model can be very simple, such as writing total cost as a product of unit price and number bought, or using a geometric shape to describe a physical object like a coin. Even such simple models involve making choices. It is up to us whether to model a coin as a three-dimensional cylinder, or whether a two-dimensional disk works well enough for our purposes. Other situations—modeling a delivery route, a production schedule, or a comparison of loan amortizations—need more elaborate models that use other tools from the mathematical sciences. Real-world situations are not organized and labeled for analysis; formulating tractable models, representing such models, and analyzing them is appropriately a creative process. Like every such process, this depends on acquired expertise as well as creativity.

Some examples of such situations might include:
- Estimating how much water and food is needed for emergency relief in a devastated city of 3 million people, and how it might be distributed.
- Planning a table tennis tournament for 7 players at a club with 4 tables, where each player plays against each other player.
- Designing the layout of the stalls in a school fair so as to raise as much money as possible.
- Analyzing stopping distance for a car.
- Modeling savings account balance, bacterial colony growth, or investment growth.
- Engaging in critical path analysis, e.g., applied to turnaround of an aircraft at an airport.
- Analyzing risk in situations such as extreme sports, pandemics, and terrorism.
- Relating population statistics to individual predictions.

In situations like these, the models devised depend on a number of factors: How precise an answer do we want or need? What aspects of the situation do we most need to understand, control, or optimize? What resources of time and tools do we have? The range of models that we can create and analyze is also constrained by the limitations of our mathematical, statistical, and technical skills, and our ability to recognize significant variables and relationships among them. Diagrams of various kinds, spreadsheets and other technology, and algebra are powerful tools for understanding and solving problems drawn from different types of real-world situations.

One of the insights provided by mathematical modeling is that essentially the same mathematical or statistical structure can sometimes model seemingly different situations. Models can also shed light on the mathematical structures themselves, for example, as when a model of bacterial growth makes more vivid the explosive growth of the exponential function.

The basic modeling cycle is summarized in the diagram. It involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions, and approximations are present throughout this cycle.
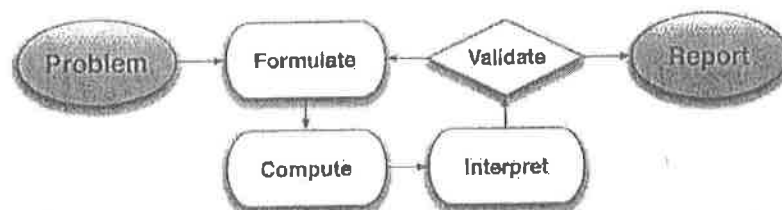
In descriptive modeling, a model simply describes the phenomena or summarizes them in a compact form. Graphs of observations are a familiar descriptive model— for example, graphs of global temperature and atmospheric CO2 over time. Analytic modeling seeks to explain data on the basis of deeper theoretical ideas, albeit with parameters that are empirically based; for example, exponential growth of bacterial colonies (until cut-off mechanisms such as pollution or starvation intervene) follows from a constant reproduction rate. Functions are an important tool for analyzing such problems. Graphing utilities, spreadsheets, computer algebra systems, and dynamic geometry software are powerful tools that can be used to model purely mathematical phenomena (e.g., the behavior of polynomials) as well as physical phenomena. Modeling Standards *Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards*

Mathematics for High School – Geometry

Congruence G-CO

Experiment with transformations in the plane

1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Understand congruence in terms of rigid motions

6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

Prove geometric theorems

9. Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
10. Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
11. Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*

Make geometric constructions

12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

Similarity, Right Triangles, and Trigonometry G-SRT

Understand similarity in terms of similarity transformations

1. Verify experimentally the properties of dilations given by a center and a scale factor:
   a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
   b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

Prove theorems involving similarity

4. Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*
5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Define trigonometric ratios and solve problems involving right triangles

6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
7. Explain and use the relationship between the sine and cosine of complementary angles.
8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. ★

Apply trigonometry to general triangles

9. (+) Derive the formula $A = 1/2\ ab\ \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.

11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Circles G-C

Understand and apply theorems about circles

1. Prove that all circles are similar.
2. Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
4. (+) Construct a tangent line from a point outside a given circle to the circle.

Find arc lengths and areas of sectors of circles

5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Expressing Geometric Properties with Equations G-GPE

Translate between the geometric description and the equation for a conic section

1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
2. Derive the equation of a parabola given a focus and directrix.
3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.

Use coordinates to prove simple geometric theorems algebraically

4. Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.*
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★

Geometric Measurement and Dimension G-GMD

Explain volume formulas and use them to solve problems

1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*
2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.☆

Visualize relationships between two-dimensional and three dimensional objects

4. Identify the shapes of two-dimensional cross-sections of three dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Modeling with Geometry G-MG

Apply geometric concepts in modeling situations

1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder)☆
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). ☆
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).☆

Mathematics for High School – Statistics and Probability ★

Interpreting Categorical and Quantitative Data S-ID

Summarize, represent, and interpret data on a single count or measurement variable

1. Represent data with plots on the real number line (dot plots, histograms, and box plots).
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.

Summarize, represent, and interpret data on two categorical and quantitative variables

5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
   a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.*
   b. Informally assess the fit of a function by plotting and analyzing residuals.
   c. Fit a linear function for a scatter plot that suggests a linear association.

Interpret linear models

7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
8. Compute (using technology) and interpret the correlation coefficient of a linear fit.
9. Distinguish between correlation and causation.

Making Inferences and Justifying Conclusions S-IC

Understand and evaluate random processes underlying statistical experiments

1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*

Make inferences and justify conclusions from sample surveys, experiments, and observational studies

3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
6. Evaluate reports based on data.

Conditional Probability and the Rules of Probability S-CP

Understand independence and conditional probability and use them to interpret data

1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").
2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.
4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.*
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.*

Use the rules of probability to compute probabilities of compound events in a uniform probability model

6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.

7. Apply the Addition Rule, P(A or B) = P(A) + P(B) − P(A and B), and interpret the answer in terms of the model.

8. (+) Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.

9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.

Using Probability to Make Decisions S-MD

Calculate expected values and use them to solve problems

1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. *For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.*

4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. *For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?*

Use probability to evaluate outcomes of decisions

5. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.
   a. Find the expected payoff for a game of chance. *For example, find the expected winnings from a state lottery ticket or a game at a fast food restaurant.*

   b. Evaluate and compare strategies on the basis of expected values. *For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.*

6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

The ISTE NETS and Performance Indicators for Students (NETS·S)

1. **Creativity and Innovation**

   Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:
   a. apply existing knowledge to generate new ideas, products, or processes
   b. create original works as a means of personal or group expression
   c. use models and simulations to explore complex systems and issues
   d. identify trends and forecast possibilities

2. **Communication and Collaboration**

   Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:
   a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
   b. communicate information and ideas effectively to multiple audiences using a variety of media and formats
   c. develop cultural understanding and global awareness by engaging with learners of other cultures
   d. contribute to project teams to produce original works or solve problems

3. **Research and Information Fluency**

   Students apply digital tools to gather, evaluate, and use information. Students:
   a. plan strategies to guide inquiry
   b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
   c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks
   d. process data and report results

4. **Critical Thinking, Problem Solving, and Decision Making**

   Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:
   a. identify and define authentic problems and significant questions for investigation
   b. plan and manage activities to develop a solution or complete a project
   c. collect and analyze data to identify solutions and/or make informed decisions
   d. use multiple processes and diverse perspectives to explore alternative solutions

5. **Digital Citizenship**

   Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:
   a. advocate and practice safe, legal, and responsible use of information and technology
   b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
   c. demonstrate personal responsibility for lifelong learning
   d. exhibit leadership for digital citizenship

6. **Technology Operations and Concepts**

   Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:
   a. understand and use technology systems
   b. select and use applications effectively and productively
   c. troubleshoot systems and applications
   d. transfer current knowledge to learning of new technologies

National Standards for Business Education

The National Standards for Business Education are based on a comprehensive curriculum model that integrates 11 content areas. The standards are a synthesis of what students should know and be able to do in business. Listed below are the content areas integrated in the U-46 Business Curriculum. (Not all standards are covered at the high school level; therefore, numbers may appear out of sequence).

Accounting
- I. The Accounting Profession
- II. Financial Reports
- III. Financial Analysis
- IV. Accounting Principles
- V. Accounting Process
- VI. Interpretation and Use of Data

Business Law
- IV. Business Organizations

Career Development
- I. Self-Awareness
- II. Career Research
- III. Workplace Expectations
- IV. Career Strategy
- V. School-to-Career Transition
- VI. Lifelong Learning

Communication
- I. Foundations of Communication
- II. Societal Communication
- III. Workplace Communication
- IV. Technological Communication

Computation
- I. Mathematical Foundations
- II. Number Relationships and Operations
- III. Patterns, Functions, and Algebra
- IV. Measurements
- V. Statistics and Probability
- VI. Problem Solving Applications

Economics and Personal Finance
- V. Market Structures
- VI. Productivity
- VII. The Role of Government
- VIII. Global Economic Concepts

Entrepreneurship
- I. Entrepreneurs and Entrepreneurial Opportunities
- II. Marketing
- III. Economics
- IV. Finance
- V. Accounting
- VI. Management
- VII. Global Markets
- VIII. Legal
- IX. Business Plans

Information Technology
- I. Impact on Society
- II. Hardware
- IV. Input Technologies
- V. Productivity Software
- VI. Interactive Multimedia
- VII. Web Development and Design
- VIII. Information Retrieval and Synthesis
- IX. Database Management Systems
- XV. Ethical and Legal Issues
- XVII. Information Technology and Business Functions

International Business
- XV. Foundations of International Business
- XVI. The Global Business Environment

Management
- I. Management Functions
- III. Business Organization
- IV. Personal Management Skills
- V. Ethics and Social Responsibility
- VII. Technology and Information Management.

Marketing
- I. Foundations of Marketing
- II. Consumers and Their Behavior
- III. External Factors
- IV. The Marketing Mix
- V. Marketing Research
- VI. The Marketing Plan

National Business Education Association
Accounting Standards

ACCOUNTING is the language of business and an integral aspect of all business activities. Mastery of fundamental accounting concepts, skills, and competencies is essential to making informed business decisions. Regardless of students' chosen course of study or career path, accounting prepares them to be educated business professionals and informed consumers.

The accounting standards reflect the importance of being able to understand, interpret, and use accounting information to make financial decisions. In particular, the standards focus on the ability to

- read, interpret, and analyze financial information
- apply generally accepted accounting principles
- understand how the accounting system provides business information
- recognize the various users of accounting information
- understand the dynamic nature of the business environment in which accounting information is used

The accounting standards also focus on the skills and competencies students need to acquire and develop as they further their education, prepare to enter the workforce, and pursue their chosen career path. These skills include

- strategic and critical thinking
- risk analysis
- problem solving and decision making
- communication
- team work and leadership
- the ability to employ and use technology
- an awareness of the legal and regulatory environment, with an emphasis on ethical responsibility

The accounting standards identify the knowledge and skills appropriate for courses at both the high school and two-year college levels.

I. The Accounting Profession
Achievement Standard: Understand the role that accountants play in business and society.
Achievement Standard: Describe career opportunities in the accounting profession.
Achievement Standard: Demonstrate the skills and competencies required to be successful in the accounting profession and/or in an accounting-related career.

II. Financial Reports
Achievement Standard: Develop an understanding and working knowledge of an annual report and financial statements.

III. Financial Analysis
Achievement Standard: Assess the financial condition and operating results of acompany and analyze and interpret financial statements and information to make informed business decisions.

IV. Accounting Applications
Achievement Standard: Identify and describe generally accepted accounting principles (GAAP), explain how the application of GAAP impacts the recording of financial transactions, and the preparation of financial statements.

V. Accounting Process
Achievement Standard: Complete the steps in the accounting cycle in order to prepare the financial statements.

VI. Interpretation and Use of Data
Achievement Standard: Use planning and control principles to evaluate the performance of an organization and apply differential analysis and present-value concepts to make decision.

VII. Compliance
Achievement Standard: Develop a working knowledge of individual income tax procedures and requirements to comply with tax laws and regulations.

National Business Education Association
Business Law Standards

BUSINESS LAW addresses statutes and regulations affecting businesses, families, and individuals in their related roles. A knowledge of business law is useful for all students, because all students eventually assume roles as citizens, workers, and consumers in their communities and in society at large.

Businesses operate in an increasingly global environment where the laws of different governments and judicial systems might conflict. Thus, business students must include in their academic preparation a basic knowledge of the legal system and how business law impacts commerce in their own country and abroad (i.e., the impact of globalization). They must also understand that state, territory, province, or federal law must sometimes work in conjunction with international law. Each component of the business law standards therefore includes performance expectations related to the laws of different countries. The standards also challenge students to distinguish unethical from illegal behavior and to understand the rising importance of social responsibility as an important aspect of corporations and organizations as global citizens.

By far the most crucial recent changes in business law involve attempts by the courts and the legislature to deal with how technology has impacted the law, particularly with respect to computers and the Internet. Computer law has been added as a separate topic in these standards because of its emerging importance in the workplace. Specifically, this area of the standards addresses

- intellectual property law, with an increased focus on patents, trade secrets, trademarks, and copyright law;
- contract law, including legislation related to electronic transactions;
- statutes dealing with the impact of computers on privacy; and
- crimes and torts related to computers.

Although the standards related primarily to secondary and postsecondary students, standards for elementary and middle school are also included to give students at those levels a basic understanding of law, the legal system, and what it means to exhibit ethical behavior.

I. Basics of the Law
Achievement Standard: Analyze the relationship between ethics and the law and describe sources of the law, the structure of the court system, different classifications of procedural law, and different classifications of substantive law.

II. Contract Law, Law of Sales, and Consumer Law
Achievement Standard: Analyze the relationships between contract law, law of sales, and consumer law.

III. Agency and Employment
Achievement Standard: Analyze the role and importance of agency law, and employment law as they relate to the conduct of business in the national and international marketplaces.

IV. Business Organizations
Achievement Standard: Describe the major types of business organizations, including sole proprietorships, partnerships, corporations, and limited liability companies, operating within the socioeconomic arena of the national and international marketplace.

V. Property Law
Achievement Standard: Explain the legal rules that apply to personal property, [and] real property and intellectual property.

VI. Negotiable Instruments, Secured Transactions, Bankruptcy
Achievement Standard: Analyze the functions of negotiable instruments, insurance, secured transactions, and bankruptcy.

VII. Computer Law
Achievement Standard: Explain how advances in computer technology impact such areas as intellectual property, contract law, criminal law, tort law, and international law.

VIII. Environmental Law and Energy Regulation
Achievement Standard: Explain the legal rules that apply to environmental law and energy regulation.

IX. Family Law
Achievement Standard: Explain the legal rules that apply to marriage, divorce, and child custody.

X. Wills and Trusts
Achievement Standard: Determine the appropriateness of wills and trusts in estate planning.

National Business Education Association
Career Development Standards

CAREER DEVELOPMENT differs from other curriculum areas in that it encompasses an individual's total lifestyle—education, occupation, social responsibility, and leisure activities. Consequently career education is best integrated into the entire curriculum rather than being viewed as an isolated unit of instruction studied at a specific time. When students begin career exploration at an early age, they gain a developmental understanding of their own strengths and weaknesses, the ever-evolving requirements of the workplace, and the relationship of lifelong learning to career success.

Because businesses increasingly view career development as an employee's rather than a company's responsibility, learning to conduct a career search and to identify career pathways has become an important part of every student's education. Profound business and economic changes now underway in the United States and other industrialized countries are radically altering the workplace, including how workers shape their careers. For example, rather than charting a career path toward a single, long-term goal, individuals will explore multiple career paths and their interrelatedness—the traditional "career ladder" in effect becomes a "career lattice." Workers will make career choices across the lifespan. Many of these career choices will be in virtual work environments.

This shift from the career ladder to the career lattice model will enable individuals to meet the needs of employers who are assembling workforces that are not only technically skilled and cross-trained but flexible and cost-effective. In this framework an individual who wants to enjoy a quality standard of living must be prepared to make wise career transitions and to continuously learn new skills.

The Career Development Standards accordingly focus on the following skills:

- Assessing personal skills, abilities, and aptitudes for making a good "career fit."
- Using career resources to explore career opportunities in both domestic and international markets.
- Developing expectations for workplace-related values, such as a strong work ethic, good working relationships, ability to succeed in culturally diverse environments, strong communication skills, continual skill improvement, and competence in managing one's career.
- Managing the school-to-work transition, including job-search strategies and opportunities for personal and professional growth.

Whether the methodology includes informational interviewing, Internet searches, mentoring, job shadowing, school-to-career initiatives, or cooperative education, these career development standards are appropriate for all students and all program areas and play an increasingly important role in the entire educational system.

I. Self-Awareness
Achievement Standard: Assess personal skills, abilities, and aptitudes and personal strengths and weaknesses as they relate to career exploration and development.

II. Career Research
Achievement Standard: Utilize career resources to develop a career information database that includes international career opportunities.

III. Workplace Expectations
Achievement Standard: Relate the importance of workplace expectations to career development.

IV. Career Strategy
Achievement Standard: Apply knowledge gained from individual assessment to a comprehensive set of goals and an individual career plan.

V. School-to-Career Transition
Achievement Standard: Develop strategies to make an effective transition from school to career.

VI. Lifelong Learning
Achievement Standard: Relate the importance of lifelong learning to career success.

National Business Education Association
Communication Standard

THE AMERICAN ECONOMY is based on a private enterprise system in which the millions of individual choices made by consumers, workers, and citizens, in sum, affect the decisions made by business owners and government officials.

The preservation and effectiveness of such a system depends on the ability of individuals to make wise economic decisions related to their personal financial affairs, the successful operation of organizations, and the economic activities of the country. To make these informed decisions, individuals must understand how the system operates as well as their own role in the system.

The concepts contained in these standards are important for the successful management of personal financial and business activities. They link to basic economic concepts that all students should master, such as the following:

- Scarcity, choice, and opportunity costs
- Productivity
- Supply and demand
- Economic systems, institutions, and incentives
- Exchange, money, and interdependence
- Markets, prices, and competition
- Supply and demand
- The roles of consumers, governments, and citizens

The growing emphasis on financial literacy has highlighted the need for students to learn how to navigate the financial decisions they must make, and how to make informed decisions related to managing finances and budgeting, saving and investing, living independently, earning and reporting income, buying goods and services, using credit, banking, and protecting against risk. The standards have been updated to reflect this emphasis.

Knowing and understanding these concepts offers the necessary analytical tools for addressing economic issues, both personal and societal. Understanding economic principles and developing sound financial literacy skills provide the basis for responsible citizenship, financial solvency, and career success

I. Foundations of Communication
Achievement Standard: Communicate in a clear, complete, concise, correct, and courteous manner on personal and professional levels.

II. Societal Communication
Achievement Standard: Apply basic social communication skills in personal and professional situations.

III. Workplace Communication
Achievement Standard: Incorporate appropriate leadership and supervision techniques, customer service strategies, and personal ethics standards to communicate effectively with various business constituencies.

IV. Technological Communication
Achievement Standard: Use technology to enhance the effectiveness of communication.

National Business Education Association
Computation Standard

A HALLMARK of the business education curriculum is its relevance to everyday applications. As such, the curriculum, as a whole, and the development of computation skills, in particular, are essential in helping students fulfill their future roles as citizens, consumers, employees, employers, investors, inventors, and entrepreneurs. Computation skills, as defined in these standards, are more than just the skills needed to make quantitative and precise calculations. Rather, these skills encompass the ability to

- solve mathematical problems,
- analyze and interpret data, and
- apply sound decision-making skills.

These abilities are an important component of what it takes to succeed in all areas of business and finance in our technology- and data-driven society.

The computation standards demonstrate a developmental approach to the acquisition of computation skills. The first five standards address the development of general mathematical skills. In the sixth standard, these skills are applied to analyze and solve business problems.

The business curriculum offers multiple opportunities to develop, use, and integrate computation skills at all levels, including how to choose and use the technology resources available for calculation, computation, analysis, and interpretation of data. In addition, specific courses in business, personal finance, and applied mathematics help students develop the computation skills needed to solve business-, personal finance-, and economics-related problems.

I. Mathematical Foundations
Achievement Standard: Apply basic mathematical operations to solve problems.

II. Number Relationships and Operations
Achievement Standard: Solve problems involving whole numbers, decimals, fractions, percents, ratios, averages, and proportions.

III. Patterns, Functions, and Algebra
Achievement Standard: Use algebraic operations to solve problems.

IV. Measurements
Achievement Standard: Use common international standards of measurement when solving problems.

V. Statistics and Probability

Achievement Standard: Analyze and interpret data using common statistical procedures.

VI. Problem-Solving Applications

Achievement Standard: Use mathematical procedures to analyze and solve business problems.

National Business Education Association
Economics & Personal Finance Standard

THE AMERICAN ECONOMY is based on a private enterprise system in which the millions of individual choices made by consumers, workers, and citizens, in sum, affect the decisions made by business owners and government officials.

The preservation and effectiveness of such a system depends on the ability of individuals to make wise economic decisions related to their personal financial affairs, the successful operation of organizations, and the economic activities of the country. To make these informed decisions, individuals must understand how the system operates as well as their role in the system.

The concepts contained in these standards are important for the successful management of personal financial and business activities. They link to basic economic concepts that all students should master, such as the following:

- scarcity, choice, and opportunity costs;
- productivity;
- economic systems, institutions, and incentive;
- exchange, money, and interdependence;
- markets, prices, and competition;
- supply and demand;
- the roles of consumers, governments, and citizens.

The growing emphasis on financial literacy has highlighted the need for students to learn how to navigate the financial decisions they must make and how to make informed decisions related to managing finances and budgeting, saving and investing, living independently, earning and reporting income, buying goods and services, using credit, banking, and protecting against risk. The standards reflect this emphasis.

Knowing, understanding, and applying these concepts offers the necessary analytical tools for addressing economic issues, both personal and societal. Understanding economic principles and developing sound financial literacy skills provide the basis for responsible citizenship, financial solvency, and career success.

Economics

I. Allocation of Resources
Achievement Standard: Assess opportunity costs and trade-offs involved in making choices about how to use scarce economic resources.

II. Economic Systems
Achievement Standard: Explain why societies develop economic systems, identify the basic

features of different economic systems, and analyze the major features of the U.S. economic system.

III. Economic Institutions and Incentives
Achievement Standard: Analyze the role of core economic institutions and incentives in the U.S. economy.

IV. Markets and Prices
Achievement Standard: Analyze the role of markets and prices in the U.S. economy.

V. Market Structures
Achievement Standard: Analyze the different types of market structures and the effect they have on the price and the quality of the goods and services produced.

VI. Productivity
Achievement Standard: Explain the importance of productivity and analyze how specialization, division of labor, investment in physical and human capital, and technological change affect productivity and global trade.

VII. The Role Of Government
Achievement Standard: Analyze the role of government in economic systems, especially the role of government in the U.S. economy.

VIII. Global Economic Concepts
Achievement Standard: Examine the role of trade, protectionism, and monetary markets in the global economy.

IX. Aggregate Supply and Aggregate Demand
Achievement Standard: Analyze how the U.S. economy functions as a whole and describe selected macroeconomic measures of economic activity.

Personal Finance

I. Personal Decision Making
Achievement Standard: Use a rational decision-making process as it applies to the roles of citizens, workers, and consumers.

II. Earning and Reporting Income
Achievement Standard: Identify various forms of income and analyze factors that affect income as a part of the career decision-making process.

III. Managing Finances and Budgeting
Achievement Standard: Develop and evaluate a spending/savings plan.

IV. Saving and Investing
Achievement Standard: Evaluate savings and investment options to meet short- and long-term goals.

V. Buying Goods and Services
Achievement Standard: Apply a decision-making model to maximize consumer satisfaction when buying goods and services.

VI. Banking and Financial Institutions
Achievement Standard: Evaluate services provided by financial deposit institutions to transfer funds.

VII. Using Credit
Achievement Standard: Analyze factors that affect the choice of credit, the cost of credit, and the legal aspects of using credit.

VIII. Protecting Against Risk
Achievement Standard: Analyze choices available to consumers for protection against risk and financial loss.

National Business Education Association
Entrepreneurship Standard

ENTREPRENEURSHIP focuses on recognizing a business opportunity, starting a business based on the recognized opportunity, and operating and maintaining that business. All students benefit from developing an appreciation for and understanding of entrepreneurship in our economy: most of the jobs (both professional and technical) created in recent years have been in the small business sector. Forecasts indicate that this trend will continue.

Entrepreneurial skills are necessary not only for students who will become entrepreneurs, but also for individuals working in the increasingly competitive corporate world. Entrepreneurship is a natural fit for business education because entrepreneurship integrates the functional areas of business—accounting, finance, marketing, and management—and the legal and economic environments in which any new venture operates.

Today, entrepreneurial ventures are particularly impacted by the development of technology and by the Internet and the rise of e-commerce. These updated standards reflect this impact with their inclusion of performance expectations related to

- recognizing the importance of technology to business operations and performance;
- surveying the range of electronic tools now available for business record keeping; and
- using interactive Internet technologies (blogs, webcasts, etc.) to identify and solve various business problems, including developing a business "presence" on the Internet.

As indicated in these standards, instruction in entrepreneurship begins with developing an appreciation for the "entrepreneurial mindset" and for the fundamentals of beginning a new business venture in students in intermediate and middle school grades, and then advancing to more abstract applications at the upper educational levels. Considering the ever-changing nature of the workplace, few subjects provide knowledge that is more valuable to all students across all curriculum areas, regardless of their career orientation

I. Entrepreneurs and Entrepreneurial Opportunities
Achievement Standard: Recognize that entrepreneurs possess unique characteristics and evaluate the degree to which one possesses those characteristics.

II. Marketing
Achievement Standard: Analyze customer groups and develop a plan to identify, reach, and keep customers in a specific target market.

III. Economics
Achievement Standard: Apply economic concepts when making decisions for an entrepreneurial venture.

IV. Finance
Achievement Standard: Use the financial concepts and tools needed by the entrepreneur in making business decisions.

V. Accounting
Achievement Standard: Recognize that entrepreneurs must establish, maintain, and analyze appropriate records to make business decisions.

VI. Management
Achievement Standard: Develop a management plan for an entrepreneurial venture.

VII. Global Markets
Achievement Standard: Analyze the effect of cultural differences, export/import opportunities, and trends on an entrepreneurial venture in the global marketplace.

VIII. Legal
Achievement Standard: Analyze how forms of business ownership, government regulations, and business ethics affect entrepreneurial ventures.

IX. Business Plans
Achievement Standard: Develop a business plan.

National Business Education Association
Information Technology Standard

INFORMATION TECHNOLOGY is radically changing the landscape of business and the global society. Once viewed as an area only for computer programmers, engineers, and scientists, the information technology field is now viewed as an indispensable resource for organizational and personal productivity—that is, for achieving an organization's business goals, and for facilitating the attainment of an individual's life and career goals.

Mastery of technology tools is a requirement rather than an option for enhancing academic, business, and personal performance. To prepare students to be successful in today's global business environment, which is increasingly dependent on—and defined by—technology tools, educators must focus on the use of technology as a tool for facilitating business functions.

Accordingly, business educators should:

- coordinate information technology instruction in business education and across the curriculum;
- teach students to value information technology and the impact it has on their lives;
- develop students' ability to analyze, synthesize, evaluate, and apply technologies to solve problems, increase productivity, and
- improve their quality of life;
- foster the development of interpersonal and service quality skills;
- encourage ethical, legal, and responsible behavior;
- emphasize information technology as a common thread throughout all areas of business;
- encourage students to respect intellectual property, personal privacy, and information security; and
  be catalysts for change.

I. Impact on Society
Achievement Standard: Assess the impact of information technology in a global society.

II. Hardware
Achievement Standard: Describe current and emerging hardware; configure, install, and upgrade hardware; diagnose problems; and repair hardware.

III. Operating Systems and Utilities
Achievement Standard: Identify, evaluate, select, install, use, upgrade, customize, and diagnose and solve problems with various types of operating systems and utilities.

IV. Input Technologies
Achievement Standard: Use various input technologies to enter and manipulate information appropriately.

V. Productivity Software
Achievement Standard: Identify, evaluate, select, install, use, upgrade, and customize productivity software; diagnose and solve software problems.

VI. Interactive Media
Achievement Standard: Use multimedia software to create media rich projects.

VII. Web Development and Design
Achievement Standard: Design, develop, test, implement, update, and evaluate web solutions.

VIII. Information Retrieval and Synthesis
Achievement Standard: Gather, evaluate, use, cite, and disseminate information from technology sources.

IX. Database Management Systems
Achievement Standard: Use, plan, develop, and maintain database management systems.

X. Systems Analysis and Design
Achievement Standard: Analyze and design information systems using appropriate development tools.

XI. Programming and Application Development
Achievement Standard: Design, develop, test, and implement programs.

XII. Telecommunications and Networking Infrastructures
Achievement Standard: Develop the skills to design, deploy, and administer networks and telecommunications systems.

XIII. Information Technology Planning and Acquisition
Achievement Standard: Plan the selection and acquisition of information technologies.

XIV. Security, Privacy, and Risk Management
Achievement Standard: Design and implement security, privacy, and risk management policies and procedures for information technology.

XV. Ethical and Legal Issues
Achievement Standard: Describe, analyze, develop, and follow policies for managing ethical and legal issues in organizations and in a technology-based society

XVI. Technical Support and Training
Achievement Standard: Develop the technical and interpersonal skills and knowledge to train and support the user community.

XVII. Information Technology and Business Functions
Achievement Standard: Describe the information technology components of business functions and explain their interrelationships.

XVIII. Information Technology Careers
Achievement Standard: Explore positions and career paths in information technology.

National Business Education Association
International Business Standard

INTERNATIONAL BUSINESS commands center stage in today's global economy. The international business standards focus on:

- raising awareness of the interrelatedness of one country's political policies and economic practices on another;
- learning to improve international business relations through appropriate communication strategies;
- understanding the global business environment--that is, the interconnected-ness of cultural, political, legal, economic, and ethical systems;
- exploring basic concepts underlying international finance, management, marketing, and trade relations; and
- identifying forms of business ownership and international business opportunities.

Students may find this content area complex and confusing if political and business events are presented as separate and random occurrences. A more effective approach is to help students understand the concept of the "political economy"--that is, to see how one phenomenon creates another and how one event starts a "ripple effect" throughout the world. In this way, students gain the ability to analyze world economic trends and their impact on financial and business decisions with a reasonable degree of accuracy.

The study of international business is best implemented early in students' educational backgrounds and should be steadily reinforced to ensure that students graduate with the ability to use these skills effectively in global organizations. The standards provide for this structure, allowing students to build on previous knowledge and to enhance, apply, and integrate international concepts into other business content areas.

I. Foundations of International Business
Achievement Standard: Explain the role of international business; analyze how it impacts business at all levels, including the local, state, national, and international levels.

II. The Global Business Environment
Achievement Standard: Describe the interrelatedness of the social, cultural, political, legal, and economic factors that shape and impact the global business environment.

III. International Business Communication
Achievement Standard: Apply communication strategies necessary and appropriate for effective and profitable international business relations.

IV. Global Business Ethics and Social Responsibility
Achievement Standard: Describe the factors that define what is considered ethical and socially responsible business behavior in a global business environment.

V. Organizational Structures for International Business Activities
Achievement Standard: Identify forms of business ownership and entrepreneurial opportunities available in international business.

VI. International Trade
Achievement Standard: Relate balance of trade concepts to the import/export process.

VII. International Management
Achievement Standard: Analyze special challenges in operations, human resources, and strategic management in international business.

VIII. International Marketing
Achievement Standard: Apply marketing concepts to international business situations.

IX. International Finance
Achievement Standard: Explain the concepts, role, and importance of international finance and risk management.

National Business Education Association
Management Standard

MANAGEMENT is the process of using organizational resources effectively and efficiently to achieve organizational goals through planning, organizing, leading/directing, and evaluating/controlling. Management education helps students understand and analyze various management theories and apply them to the workplace. Management education also helps students understand basic management functions, their interrelationships, and the organization's competitive niche.

Successful managers are able to maximize the utilization of human resources. They are leaders who understand the benefits of teamwork and consensus building inside and outside an organization's operations. They recognize the importance of technology and information management in the decision-making process and the value of ethics and social responsibility in building and maintaining business relationships. And like entrepreneurs, successful managers know that the ability to discern and respond quickly to changing economic conditions and new business opportunities is crucial to remaining viable in the marketplace.

These revised standards therefore reflect:

- an increased emphasis on the higher-level thinking skills required to successfully manage people and businesses,
- a recognition of the role change management plays in today's organizations,
- an appreciation for the importance of ethical and corporate responsibility, and
- the necessity of incorporating global perspectives in business today.

The study of management is an essential component in the design and delivery of the business education curriculum. The standards outlined in this section provide a solid framework for helping students build a strong knowledge base and develop effective management skills. Mastery of these standards will help students lay the groundwork for managerial competence in the global marketplace.

I. Management Functions
Achievement Standard: Analyze the management functions and their implementation and integration within the business environment.

II. Management Theories
Achievement Standard: Analyze management theories and their application within the business environment.

III. Business Organization
Achievement Standard: Analyze the organization of a business.

IV. Personal Management Skills
Achievement Standard: Develop personal management skills to function effectively and efficiently in a business environment.

V. Ethics And Social Responsibility
Achievement Standard: Examine the role of ethics and social responsibility in decision making.

VI. Human Resource Management
Achievement Standard: Describe human resource functions and their importance to an organization's successful operation.

VII. Organized Labor
Achievement Standard: Describe the role of organized labor and its influence on government and business.

VIII. Technology and Information Management
Achievement Standard: Utilize information and technology tools to conduct business effectively and efficiently.

IX. Industry Analysis
Achievement Standard: Analyze a business organization's competitive position within the industry.

X. Financial Decision Making
Achievement Standard: Analyze financial data influenced by internal and external factors in order to make short-term and long-term decisions.

XI. Operations Management
Achievement Standard: Apply operations management principles and procedures to the design of an operations plan.

XII. Global Perspective
Achievement Standard: Examine the issues of corporate culture and managing in the global environment.

National Business Education Association
Marketing Standard

MARKETING education introduces students to the processes and functions involved in providing products or services that meet consumers' wants and needs. As a major business function, marketing impacts both the domestic and International economies.

Marketing exists within a dynamic environment of rapidly evolving technology and constant change, emerging interdependent nations and their economies, and increasing demands for ethical and social responsibility. These themes are fully developed and integrated within the major elements of marketing presented in these standards.

The development of new marketing technologies (for example, fingerprint authentication and loyalty cards) is having a profound effect on how marketing is conducted and on how marketing plans are created. Internet technologies in particular have allowed companies to use one-on-one advertising and promotion to customers who register with their Web sites. The global economy (and the influence of the emerging economies) is also changing marketers' perceptions about the role culture plays in marketing products. Despite these changes, there are at least two major principles related to marketing that all students should understand:

- General marketing concepts are important to everyone, because they impact individuals, business, and society.
- Even though marketing practices continue to change, the conceptual framework, which is built upon a consumer orientation, should not be noticeably altered.

The study of marketing in grades K–14 can help students gain a clearer picture of how key business functions are directly related to marketing activities. In addition, taking marketing courses may inspire students to study marketing at a more advanced level, which can be a springboard for a challenging and lucrative career.

I. Foundations of Marketing
Achievement Standard: Recognize the customer-oriented nature of marketing and analyze the impact of marketing activities on the individual, business, and society.

II. Consumers and Their Behavior
Achievement Standard: Analyze the characteristics, motivations, and behaviors of consumers.

III. External Factors
Achievement Standard: Analyze the influence of external factors on marketing.

IV. The Marketing Mix
Achievement Standard: Analyze the elements of the marketing mix, their interrelationships, and how they are used in the marketing process.

V. Marketing Research
Achievement Standard: Analyze the role of marketing research in decision making.

VI. The Marketing Plan
Achievement Standard: Describe the elements, design, and purposes of a marketing plan.

Middle School Course Descriptions and Goals
Business

Computer Exploration I
Grade Level: 7   Length: 9 weeks
Prerequisite: None

Content: In this course, students will develop technical skills using word processing and presentation software. Students will connect and apply their literacy and problem-solving skills with computer-based activities. Students will efficiently search the Internet to locate specific information, demonstrate knowledge of computer vocabulary, and utilize file management skills.

Computer Exploration II
Grade Level: 8   Length: 9 weeks
Prerequisite: Computer Exploration 1

Content: In this course, students will enhance skills leaned in Computer Exploration I. Students will analyze and use their literacy and problem-solving skills with computer-based activities. Projects will be introduced incorporating file management, Internet research, computer vocabulary, word processing, data management, and presentation skills.

Computer Exploration I Goals:
1. Use the personal computer as a tool.
2. Create and edit word processing documents.
3. Create and edit presentation documents.
4. Define and apply computer vocabulary.

Computer Exploration II Goals:
1. Use the personal computer as a tool.
2. Create, edit and manipulate word processing documents.
3. Create, edit and manipulate data management documents.
4. Create, edit and manipulate presentations.

Introduction to Global Business

(formerly Orientation to Business)
Grade level: 9, 10, 11, 12
Prerequisite: None

Credits: 1
Length: Semester

Content: Students will be introduced to business concepts and their relationship to a global economy. Students will learn business and economic skills and preview careers and new technologies used in businesses today. Technology will be used to research and examine the job market, employment opportunities, and necessary career qualifications. Topics of study include the different forms of business, business finance, marketing, management, entrepreneurship, consumerism, and business globalization.

Accounting

(formerly Accounting 1-2)
Grade level: 10, 11, 12
Prerequisite: None

Credits: 2
Length: Full Year

Content: Through hands on integration and technology, students will develop an understanding and working knowledge of accounting and financial principles. Students will develop the skills necessary to prepare the financial statements for a business organization used in the accounting cycle. Practical experience is provided in recording and analyzing financial information through the completion of accounting projects and simulations. This course is beneficial to those students who are interested in becoming college business majors or who are undecided and want to explore the accounting field.

College Accounting

(formerly Accounting 3-4)
Grade level: 11, 12

Credits: 2
Length: Full Year

Content: Through the interpreting and analyzing of financial data, students will gain an understanding of various activities necessary for efficient business management and decision making. Departmental and corporate accounting will be studied in depth. College bound accounting, business administration, and finance majors will acquire an invaluable background for post secondary education.

Marketing

(formerly first semester Marketing 1-2)
Grade level: 10, 11, 12
Prerequisite: None

Credits: 1
Length: Semester

Content: This course exposes students to the customer orientated nature of business and marketing. Students will analyze the impact of marketing activities on the individual, business, and society. In addition, they will analyze the elements of the marketing mix, sales and customer relations and how these relationships interact in the business process. Students will examine the role of ethics and social responsibility in decision making.

Management & Entrepreneurship

(formerly second semester Marketing 1-2)   Credits: 1
Grade level: 10, 11, 12   Length: Semester
Prerequisite: None

Content: Students will gain an understanding of the concepts and processes associated with successful entrepreneurial practices. Students will analyze fundamental business concepts and strategies that effect business decision making. Students will use the financial concepts and tools needed by the entrepreneur in making business decisions to develop an entrepreneurial venture. This course will culminate with the design and development of a business plan.

Entrepreneurial Internship

(In place of Computer Applications)   Credits: 1
Grade level: 11, 12   Length: Semester
Prerequisite: Successful completion of two semesters of business courses with a C or better

Content: This integrated class offers students the opportunity to manage and operate a small business within the school. Students will acquire the skills necessary to become successful business managers and entrepreneurs through in class study of advanced business topics and mastery of skills acquired in previous business courses. Opportunities for students to participate in internships and build relationships with local community business mentors will be provided. This course may be repeated with added entrepreneurial responsibilities.

Cooperative Internship 1-2   Credits: 4

(formerly Work Study)
Grade level: 11, 12   Length: Full Year
Prerequisite: Must have transportation to training station   Length: Full Year

Content: Designed for junior and senior students to experience entry-level job and/or career interests through integrated classroom instruction and job training. Students will assess personal skills, abilities, and aptitudes along with personal strengths and weaknesses as they relate to career exploration and development. Special emphasis is given to developing communication, interpersonal, supervisory and human relations skills. Classroom instruction focusing on personal qualities related to employability, work ethic, diversity, and technical and financial management skills will prepare students for college and future careers. Specific projects will be incorporated to meet individual student career interests. Instruction is enhanced by related, paid job training outside the school setting. Written training

agreements and individual student training plans are developed and agreed upon by the employer, student, and coordinator. The coordinator, student, and employer assume compliance with federal, state, and local laws and regulations. Students should enroll in the section that best matches their career interests and goals. This course may be repeated for credit with advanced instruction and an intensified job experience.

C.W.T. (Cooperative Work Training)

Content: Designed for students who want to develop job skills while gaining practical work experience.

Family Consumer Science (FCS) Cooperative Education
(formerly HERO (Home Economics Related Occupations 1-2/3-4)
Prerequisite: Family and Consumer Science course or approval of instructor.

Content: Designed for students interested in careers in Fashion, Apparel Design, Textiles, Interior Design, Education, Child Care, Nutrition, Culinary Arts, Restaurant Management and Hospitality.

Business, Management and Administration, Marketing Cooperative Education
(formerly Marketing Education 1-2/3-4 and Office Education)
Prerequisite: Business course or approval of instructor.

Content: Designed for students interested in careers in marketing, sales, finance, accounting, office administration, and computer applications.

Computer Applications
(formerly Keyboarding)   Credits: 1
Grade Level: 9, 10, 11, 12   Length: Semester
Prerequisite: None

Content: In this course, students will improve their ability to create quality Word, Excel, and PowerPoint documents for personal, educational, and professional use. Students will also develop skills in touch keyboarding techniques, proofing and editing, and analysis of on-line resources to support research, collaborative tasks, and productivity. Integrated projects offer opportunity to practice and develop skills that students use across content areas. This course supports secondary, post-secondary and career success. MicroSoft® Office 2010 is the current software used in this course. Articulated credit available at ECC.

Advanced Computer Applications
(formerly Advanced Computer Software Applications)   Credits: 1
Grade Level: 9, 10, 11, 12   Length: Semester
Prerequisite: Computer Applications

Content: This course offers classroom and online learning, hands-on labs, cutting-edge resources, and collaboration tools. Students will master skills in Word, Excel, PowerPoint, Access, and Publisher. Advanced skill development supports college readiness for all students. Students are given the opportunity to earn professional certification by electing to test for Microsoft Office certifications. Professional certification enhances employment opportunities and advancement in the workplace.

Multimedia and Design Presentation

(formerly Technology Production and Publishing)   Credits: 1
Grade Level: 9, 10, 11, 12   Length: Semester
Prerequisite: Computer Applications

Content: This course uses presentation software to teach students the basics of multimedia design and presentation. Students will use software and hardware to create and integrate graphics, sound, and motion video for use with social and digital media. Topics include image formats, input technologies, image editing software, audio and video formats, software recording and playback, gaming and multimedia streaming on the web. This course supports the development of effective communication skills necessary for college and career success.

Web and Media Design

(formerly Internet Concepts and Web Development)   Credits: 1
Grade Level: 10, 11, 12   Length: Semester
Prerequisite: Computer Applications

Content: This project-based course provides students with the opportunity to work with industry-standard publishing and web design software. Students first learn HTML, basic design layout and design elements using Microsoft Word 2010, and then transfer these skills into creating and designing web pages. Students also use these skills to create professional business publications such as flyers, print advertisements, invitations, magazine covers, newsletters, business cards, brochures and websites. Flash and Dreamweaver will be introduced.

Advanced Web and Media Design

(formerly Advanced Web Development)   Credits: 1
Grade Level: 10, 11, 12   Length: Semester
Prerequisite: Web and Media Design

Content: In this project-based course, students use skills acquired in Web and Media Design to build web pages and create documents and websites using industry-standard software such as Flash and Dreamweaver. Students explore and/or produce many types of websites, such as .com, .gov, .edu, .org and personal, incorporating more advanced features as the semester progresses. Students will produce documents and/or websites for events within their school or community. Students may enroll in a maximum of two semesters. Different projects are required each semester.

MIDDLE SCHOOL BUSINESS ROTATION
Computer Exploration I Learning Outcomes

1. Use the personal computer as a tool.

   1.1   Organize and maintain folders/directories and files.
   1.2   Identify hardware components appropriate for specific tasks.
   1.3   Use the Internet to access and retrieve reliable information.
   1.4   Efficiently develop proper input techniques including ergonomic strategies to avoid repetitive strain injury.
   1.5   Understand the differences between open, save, and save as.
   1.6   Set margins, page orientation, and line spacing.
   1.7   Apply text formats (e.g., font style, font size, text enhancements, alignment).
   1.8   Insert headers and footers.
   1.9   Insert and format tables.
   1.10   Properly format a letter.
   1.11   Demonstrate proper use of print preview, printer selection and print functions.

2. Format, edit and produce spreadsheets.

   2.1   Identify the basic parts of a spreadsheet (columns, rows, and cell references).
   2.2   Format cells (e.g., merging, borders, shading, alignment, formatting text, row height and column width).
   2.3   Create formulas (e.g., sum, average, maximum, minimum).
   2.4   Create a chart including chart and axes titles, legend and data labels.

3. Format, edit and produce presentations.

   3.1   Apply appropriate slide layouts (e.g., title, content and blank).
   3.2   Develop slide content using clear and concise language.
   3.3   Select and apply appropriate design/color themes and backgrounds.
   3.4   Insert appropriate graphics.
   3.5   Apply appropriate custom animation.
   3.6   Apply appropriate transitions.
   3.7   Insert appropriate sounds.

MIDDLE SCHOOL BUSINESS ROTATION
Computer Exploration II Learning Outcomes

1. Use the personal computer as a tool.

   1.1. Organize and maintain folders/directories and files.
   1.2. Use the Internet to access and retrieve reliable information.
   1.3. Use proper input techniques including ergonomic strategies to avoid repetitive strain injury.
   1.4. Apply text formats (e.g., font style, font size, text enhancements, alignment).
   1.5. Insert and format graphics.
   1.6. Insert and manipulate drawing objects.
   1.7. Apply basic desktop publishing features to documents (e.g., borders, shading, drop caps, text boxes, columns, text wrapping).
   1.8. Demonstrate proper use of zoom, print preview, printer selection and print functions.
   1.9. Demonstrate ability to export/import data from one application to another and integrate the use of software applications.

2. Format, edit and produce presentations.

   2.1. Apply appropriate slide layouts (e.g., title, content and blank).
   2.2. Develop slide content using clear and concise language.
   2.3. Demonstrate structure and continuity throughout presentation.
   2.4. Select and apply appropriate design/color themes and backgrounds.
   2.5. Apply appropriate transitions.
   2.6. Apply appropriate custom animation.
   2.7. Insert hyperlinks.

BUSINESS EDUCATION

Introduction to Global Business
June 5, 2011

1. Analyze various factors that affect/influence the development of global business.

   1.1. Understand that various functions of a business are not separate but are interrelated and that each one impacts the other.
   1.2. Understand the global business environment, i.e. interconnectedness of cultural, political, legal, economic and ethical systems.
   1.3. Determine the advantages/disadvantages of different economic systems
   1.4. Analyze the availability of resources and economic potential of a county
   1.5. Relate balance of trade concepts to the import/export process.
   (See cumulative activity International Business Travel Project)

2. Analyze the structure and organization of businesses in a global society.

   2.1. Compare and contrast various structures of business (large, small, product, service, manufacturing, and mass production), organizations (sole proprietorship, partnership, and corporation) and entrepreneurial opportunities in global business.
   2.2. Analyze challenges in operations, human resources, marketing and strategic management in global business.
   2.3. Utilize career resources to evaluate career opportunities that include global opportunities.

3. Explore the roles and uses of technology in global business.

   3.1. Evaluate various communication strategies necessary and appropriate for effective and profitable international business relations.
   3.2. Explore the role of technology in facilitating management and communication in global businesses.

4. Describe the factors that define what is considered ethical and socially responsible business behavior in a global business environment.

   4.1. Identify distinctive social cultural factors that affect business activities including: time, workday, workweek, schedules and holidays.
   4.2. Assess the impact of information technology on global business.

BUSINESS EDUCATION

Management and Entrepreneurship
June 2011

1. Develop a business plan for a planned business incorporating information needed for successful entrepreneurial opportunities.

    1.1. Identify characteristics of successful entrepreneurs and startup procedures.
        1.1.1. Assess one's personal qualifications to become an entrepreneur.
        1.1.2. Describe an entrepreneurial opportunity and formulate the steps in establishing a business oriented toward that opportunity.
        1.1.3. Select the most appropriate form of business ownership for a planned business.
        1.1.4. Assess specific franchising opportunities.
        1.1.5. Research the feasibility of ideas generated (SWOT analysis).
        1.1.6. Assess start-up requirements.
        1.1.7. Analyze potential business opportunities in relation to personal preferences, financial worthiness, and perceived risks.
        1.1.8. Describe processes used to acquire adequate financial resources for venture creation/start-up.
        1.1.9. Analyze factors in determining a venture's human resource needs.
        1.1.10. Compile external resources to supplement entrepreneurial expertise.
        1.1.11. Evaluate risk-taking opportunities.
        1.1.12. Plan and evaluate methods/processes for organizing work flow.
    1.2. Analyze customer groups and develop a plan to identify, reach, and keep customers in a specific target market.
        1.2.1. Identify new product/service opportunities.
        1.2.2. Determine a customer profile.
        1.2.3. Estimate market share for a specific product or service.
        1.2.4. Design strategies for maintaining customer loyalty.
        1.2.5. Discuss modification of marketing plans based on customer feedback.
        1.2.6. Research competition.
    1.3. Create a promotional strategy.
        1.3.1. Identify how to get potential customers to buy product.
        1.3.2. Develop a sales strategy.
        1.3.3. Describe the channel of distribution.
        1.3.4. Research various advertising medias.
        1.3.5. Compare and contrast two medias for the business.
        1.3.6. Create two advertisements.
    1.4. Determine financing needed to start a business.
        1.4.1. Project the total cash needed to start a business, start-up costs, ongoing operational expenses, and cash reserves.
        1.4.2. Discuss types of funding (mortgage, short-term loan, long-term loan, angel network, investors, and credit line).

      1.4.3.   Describe why the analysis of financial statements is important for the business.

      1.4.4.   Calculate sales needed to make a profit using break-even analysis.

      1.4.5.   Evaluate appropriate levels of insurance for a planned business.

1.5. Create a mission statement for a planned business.

      1.5.1.   Establish goals and objectives for a planned business.

      1.5.2.   Develop the strategies for achieving the vision for a planned business.

      1.5.3.   Plan human resource needs and determine the type of employees required.

      1.5.4.   Create an organization chart.

      1.5.5.   Develop job descriptions for positions in a planned business.

      1.5.6.   Determine company policies for a planned business.

1.6. Identify legal issues facing entrepreneurs.

      1.6.1.   Acquire the information necessary to comply with governmental regulations affecting a planned business.

      1.6.2.   Identify strategies that facilitate ethical behavior in a small business.

      1.6.3.   Develop a code of ethics for a small business.

BUSINESS EDUCATION

Accounting
May 5, 2011

1. Demonstrate an understanding of the complete accounting cycle for a service business operated as a sole proprietorship.

    1.1. Define accounting terms including: assets, liabilities, equity, revenue, expenses, gains, losses, debits and credits.
    1.2. Record transactions for accounts receivable.
    1.3. Record transactions for accounts payable.
    1.4. Record equity related transactions.
    1.5. Record revenue related transactions.
    1.6. Record expense related transactions.
    1.7. Distinguish between revenue and gains.
    1.8. Distinguish between expenses and losses.
    1.9. Record transactions resulting in gains and losses.
    1.10. Understand the purpose of journals and ledgers and their relationship.
    1.11. Use technology to simulate accounting practices.
    1.12. Analyze and demonstrate how business transactions impact the accounting equation.
    1.13. Apply double-entry system accounting to record business transactions and prepare a trial balance.
    1.14. Describe and record adjusting and closing entries.
    1.15. Post to ledger accounts.
    1.16. Prepare financial statements for service businesses operated as a sole proprietorship.
    1.17. Prepare a post-closing trial balance.
    1.18. Describe how accounting information facilitates management decision making.
    1.19. Explain and complete bank reconciliations.
    1.20. Describe and explain the conceptual framework of an accounting system and generally accepted accounting principles.

2. Demonstrate an understanding of the complete accounting cycle for a merchandising business operated as a corporation.

    2.1. Determine the cost of inventory for merchandising.
    2.2. Explain the purpose of cost allocation.
    2.3. Prepare payroll records including payroll checks, withholding taxes, and employee deductions.
    2.4. Journalize and post payroll transactions related to employee and employer responsibilities.

2.5.   Compare and contrast corporations and sole proprietorships.

2.6.   Record transactions into special journals including: purchase journal, cash payment journal, sales journal, cash receipt journal, and expanded use of the general journal.

2.7.   Post from special journals to general ledgers and subsidiary ledgers.

2.8.   Understand the process of distributing dividends to stockholders.

2.9.   Master the use of an eight column worksheet.

2.10. Analyze and discuss the process of recording inventory adjustments.

2.11. Record the allowance for uncollectible accounts adjustments.

2.12. Analyze and record depreciation adjustments.

2.13. Explain the steps involved in calculating federal income tax for a corporation.

2.14. Prepare and analyze an income statement.

2.15. Prepare a statement of stockholders equity.

2.16. Prepare a balance sheet.

2.17. Analyze and explain the use of adjusting and closing entries to prepare a post-closing trial balance.

BUSINESS EDUCATION

College Accounting
Revised May 2011

1. Describe generally accepted accounting principles and the objectives of financial reporting.

    1.1. Explain how and why the conceptual framework of accounting and generally accepted accounting principles provide guidance and structure for preparing financial statements.
    1.2. Describe the information provided in each financial statement and how the statements articulate with each other.
    1.3. Identify business ownership structures.
    1.4. Explain the role of management and the auditor in preparing and issuing an annual report.
    1.5. Describe the relationship between assets, liabilities and equity on the balance sheet.
    1.6. Identify and explain the classifications within assets, liabilities, and equity.
    1.7. Define and calculate the current ratio and debt-equity ratio.
    1.8. Describe the information presented in an income statement.
    1.9. Calculate return on sales (net profit margin) and return on equity.
    1.10. Identify and explain the three phases of the management cycle.
    1.11. Identify and explain the four business processes.
    1.12. Explain and calculate the operating cycle (accounts receivable turnover and inventory turnover).
    1.13. Explain how internal control procedures are used to safeguard assets.
    1.14. Prepare a bank reconciliation.

2. Evaluate the operating results of a company.

    2.1. Identify the activities in the three operating processes.
    2.2. Identify and explain variable costs, fixed costs, and mixed costs.
    2.3. Use high-low analysis to determine variable costs, fixed costs, and mixed costs.
    2.4. Calculate break-even point and perform cost-volume-profit (CVP) analysis.
    2.5. Apply sensitivity analysis to CVP analysis.
    2.6. Determine selling price using sensitivity analysis and CVP analysis.
    2.7. Describe the process of determining selling prices and demonstrate how various strategies are used to determine selling price.
    2.8. Describe the differences among product and non-product costs.
    2.9. Identify and explain product costs: direct/indirect materials, direct/indirect labor, manufacturing overhead.
    2.10. Analyze a make-or-buy decision.

3. Complete the steps in the accounting cycle in order to prepare the financial statements through the use of accounting software.

    3.1. Describe the purpose of the accounting system.
    3.2. Describe the purpose of journals and ledgers and their relationship.
    3.3. Analyze and describe how business transactions impact the accounting equation.
    3.4. Apply the double-entry system of accounting to record business transactions and prepare a trial balance.
    3.5. Explain the need for adjusting entries and record adjusting entries.
    3.6. Prepare the financial statements for the different types of business operations and ownership structures.
    3.7. Explain the purposes of the closing process and record closing entries.
    3.8. Complete the steps in the accounting cycle and prepare financial statements.
    3.9. Calculate payroll taxes.

4. Apply generally accepted accounting principles to the purchasing (inventory) process for merchandising companies, to the sales and collection process, and to the inventory and cost of goods sold using accounting software.

    4.1. Describe the differences between the periodic and perpetual inventory systems.
    4.2. Record business transactions using the periodic inventory system and the perpetual inventory system.
    4.3. Describe the difference between the gross price method and the net price method.
    4.4. Record business transactions using the gross price method and the net price method.
    4.5. Determine cash paid for inventory and operating expenses.
    4.6. Describe the criteria used to determine revenue recognition.
    4.7. Record revenue-related transactions.
    4.8. Explain the accounting methods used to determine the value of accounts receivable to be reported on the balance sheet and describe the effect on the income statement.
    4.9. Record transactions for accounts receivable, including uncollectible accounts, write-offs, and recoveries.
    4.10. Identify and describe the cost flow assumptions for inventory and explain the impact on the balance sheet and income statement.
    4.11. Calculate cost of goods sold and ending inventory using LIFO and FIFO inventory costing methods.
    4.12. Explain how inventory for a manufacturing business differs from inventory for a merchandising business.
    4.13. Explain how an activity-based costing system operates, including the identification of activity cost pools, and the selection of cost drivers.
    4.14. Explain the flow of costs through the manufacturing accounts used in product costing.
    4.15. Compute a predetermined overhead rate, and explain its use in job-order costing.

4.16. Determine whether manufacturing overhead is over/under-applied.

4.17. Prepare journal entries to record the costs of direct material, direct labor, and manufacturing overhead in a job-order costing system.

4.18. Prepare a schedule of cost of goods manufactured, a schedule of cost of goods sold, and an income statement for a manufacturer.

5. Apply time value of money concepts to business scenarios and to make capital investments using appropriate technology.

    5.1. Determine the present value and future value cash flows.

    5.2. Use net present value concepts to make investment decisions.

    5.3. Explain the purpose and methods of cost allocation.

6. Apply generally accepted accounting principles to fixed assets and long-term liabilities and equity transactions.

    6.1. Calculate and record depreciation, depletion and amortization and explain the impact on the financial statements.

    6.2. Record the sale and disposal of fixed assets and the impact on the financial statements.

    6.3. Compare and contrast debt & equity financing; review debt-to-equity ratio.

    6.4. Identify and describe the different classes of stock and explain the rights afforded each class of stock.

    6.5. Describe the difference between cash dividends, stock dividends and stock splits, and the impact on the financial statements.

    6.6. Record stock transactions: contributions by owners, corporate distributions (dividends), and the reacquisition of company stock.

    6.7. Define and calculate TIE (Times-interest-earned ratio).

    6.8. Compare and contrast a periodic payment note payable, a lump-sum note payable, and a periodic and lump-sum note payable.

    6.9. Calculate the carrying value, interest expense and cash payment for note payable (periodic payment, lump-sum, periodic and lump-sum) transactions.

    6.10. Record transactions for notes payable: issuance and interest expense.

    6.11. Record transactions for bonds issued at face value, a premium and a discount.

    6.12. Record interest expense for bonds issued at face value, a premium and a discount using the effective-interest method.

7. Prepare and analyze financial statements through use of accounting software.

    7.1. Describe the information provided in an income statement and the purpose of an income statement.

    7.2. Prepare an income statement.

7.3. Explain the difference in net income and income from continuing operations (discontinued operations, extraordinary items).

7.4. Define and calculate earnings per share (EPS) and DuPont ROI (supplement).

7.5. Describe the information provided in a balance sheet and statement of equity, and the purpose of a balance sheet and statement of equity.

7.6. Prepare a balance sheet and statement of equity.

7.7. Describe the information provided in statement of cash flows, and the purpose of a statement of cash flows.

7.8. Prepare a statement of cash flows using the direct method.

BUSINESS EDUCATION

Marketing
April 25, 2011

1. Identify the role of marketing in business.

   1.1. Examine various types of businesses and their basic functions.
   1.2. Distinguish businesses from each other based on general characteristics (manufacturer, wholesaler, retailer, intermediaries).
   1.3. Identify the stages of product development (production, sales, marketing concept).
   1.4. Distinguish customers from consumers and explain why the differences are important.
   1.5. Define and discuss what constitutes a market.
   1.6. Explain some of the ways a market can be segmented and describe how to create a customer profile.

2. Create and deliver a sales presentation.

   2.1. Define selling and state its goals.
   2.2. Explain feature-benefit selling.
   2.3. Identify sources of product information.
   2.4. Explain how customers make buying decisions.
   2.5. List the eight steps of a sale.
   2.6. Explain how salespeople locate customers.
   2.7. Demonstrate how the preapproach is used in industrial and retail sales.
   2.8. Compare and contrast the three approach methods retail sales people use.
   2.9. Describe three methods used for determining needs.
   2.10. Examine customer need in relation to product selection.
   2.11. Utilize techniques that make a presentation lively and effective (visual aids, product demonstration, customer involvement).
   2.12. Demonstrate four steps involved in handling customer objections (listen, acknowledge, restate, answer).
   2.13. Critique closing concepts and techniques.
   2.14. Explain and model the importance of suggestive selling.
   2.15. Summarize the importance of after-sale activities, such as departure, follow-up, and evaluation.

3. Evaluate the cost of promotional concepts and strategies – Promotional Mix.

   3.1. Explain the role of promotion in marketing.
   3.2. Describe the characteristics of advertising and publicity.
   3.3. Analyze the types of promotion.

3.4. Choose elements of the promotional mix (advertising, personal selling, publicity, and sales promotions) to reach customers.
3.5. Evaluate the types of advertising media.
3.6. Explain how ads are developed.
3.7. Analyze the benefits of branding.
3.8. Analyze the need for market research in developing the promotional mix.
3.9. Identify various marketing research strategies.
3.10. Create eye-catching advertising headlines and prepare advertising copy and illustrations.
3.11. Compare and contrast visual and display merchandising.
3.12. Relate how exterior and interior features contribute to store image.
3.13. Identify various kinds of displays.
3.14. Discuss the process of designing, creating, maintaining, and dismantling displays.

4. Compare and contrast the various channels of distribution.

4.1. Identify channel members.
4.2. Distinguish between direct, indirect and alternate channels.
4.3. Analyze the path a product takes to reach its final user.
4.4. Calculate transportation and inventory storage costs.
4.5. Evaluate the types of technology used in the channel management function.
4.6. Analyze legal and ethical factors that affect channel management.
4.7. Compare and contrast intensive, selective, and exclusive distribution intensity.
4.8. Recognize the importance of communication in channel distribution.

5. Analyze the factors that influence a product's price (cost, quality, competition, brand loyalty).

5.1. Explain the relationship between price and perceived quality (price/value).
5.2. Calculate a product's price using different pricing methods.
5.3. Analyze the impact of evolving technologies on the changing roles of buyers and sellers in determining price.
5.4. Compare and contrast the impact of global influences (currency, exchange rates, tariffs, and distributions costs) on pricing.
5.5. Describe the role of business ethics in pricing.
5.6. Analyze how supply and demand affect pricing.

BUSINESS EDUCATION

Entrepreneurial Internship
June 2011

1. Develop and implement a management plan for an entrepreneurial venture.

   1.1. Develop an entrepreneurial opportunity and formulate the steps in establishing a business oriented toward that opportunity.
   1.2. Develop a vision for a planned business.
   1.3. Create a mission statement for a planned business.
   1.4. Identify characteristics of successful entrepreneurs.
   1.5. Analyze customer groups, and develop a plan to identify, reach, and keep customers in a specific target market.
   1.6. Analyze rules and regulations that affect entrepreneurial ventures.
   1.7. Demonstrate the ability to run a small business.

2. Utilize financial competencies needed in business.

   2.1. Recognize that entrepreneurs must establish, maintain, and analyze appropriate records to make business decisions.
   2.2. Apply economic concepts when making business decisions.
   2.3. Employ accounting skills to establish, maintain, and analyze financial decisions.
   2.4. Demonstrate project planning and management skills.

3. Analyze and develop effective business communication skills.

   3.1. Demonstrate effective verbal/nonverbal communication.
   3.2. Model active listening.
   3.3. Apply learned concepts using critical thinking skills.
   3.4. Analyze and evaluate information.
   3.5. Formulate a plan of action to express learned ideas.
   3.6. Model professional presentation skills.
   3.7. Work independently and collaboratively in groups.
   3.8. Exhibit effective facilitation skills within groups.
   3.9. Adapt communication to audience and situation.
   3.10. Demonstrate creativity through brainstorming and problem solving.

   3.11. Develop and demonstrate Interpersonal skills needed in an entrepreneurial venture.

   3.12. Demonstrate and accept accountability.
   3.13. Demonstrate a positive work ethic.
   3.14. Communicate with people from diverse cultures and backgrounds.

3.15. Identify and apply the skills needed to build effective relationships (networking).
3.16. Assess personal skills, abilities, aptitudes and strengths as well as personal weaknesses.
3.17. Evaluate and reconcile feedback.
3.18. Work productively with others who are different from oneself.
3.19. Develop strategies for adapting to changes in the workplace environment.

4. Use career and technical literacy skills to manage an entrepreneurial business.

4.1. Identify and apply leadership skills.
4.2. Analyze and develop effective workplace skills.
4.3. Demonstrate values and skills needed to make ethical decisions.
4.4. Demonstrate problem solving skills.
4.5. Develop and use time management, planning, and organizational skills.
4.6. Transfer skills and knowledge to and from other content areas.
4.7. Apply reading and math skills in the business setting.
4.8. Apply steps in the decision making process and evaluate consequences of those decisions.
4.9. Identify and use productivity software appropriate for specific tasks.

CAREER EDUCATION

Cooperative Internship
Revised June 2011

1. Identify and practice strategies and qualities that exemplify a strong personal positive work ethic.

    1.1. Gain an understanding of the responsibilities of the student, parents, work station and the classroom instructor/coordinator.
    1.2. Complete the cooperative agreement form and secure signatures from all parties involved.
    1.3. Demonstrate ability to communicate in writing by completing Weekly Wage/Hour Reports and periodic Job Journals.
    1.4. Develop an understanding of how a positive attitude and high self-esteem lead to success on the job.
    1.5. Discuss and describe how to accept criticism at work.
    1.6. Give examples of how to professionally handle workplace pressures and control anger.
    1.7. Demonstrate values and skills needed to make ethical decisions including cyber ethics.

2. Identify and explore the different elements that go into effective career development.

    2.1. Demonstrate problem solving skills by following the seven steps in the decision-making process.
    2.2. Follow an effective strategy for choosing a career.
    2.3. Identify and use resources to explore career opportunities.
    2.4. Identify values and describe how they affect career choices.
    2.5. Identify interests and describe how they affect career choices.
    2.6. Determine preferences for working with data, people, or things.
    2.7. Identify your aptitudes and abilities and describe how they affect your career choice.
    2.8. Match your personality and learning style to a career choice.
    2.9. Research careers using personal contacts, media resources, libraries and the internet.
    2.10. Explore and define entrepreneurship and identify the traits of a successful entrepreneur.
    2.11. Develop a career plan of action and determine short and long term goals.
    2.12. Explain and recognize the relationship between good health and career success.
    2.13. Explain the health benefits of exercise, a balanced diet, and rest.
    2.14. Develop effective strategies for coping with stress.
    2.15. Identify rules and procedures for maintaining a healthy and safe work environment.
    2.16. Identify behavior which contributes to injuries.
    2.17. Discuss and analyze the adverse effects of substance abuse.

2.18. Explain why ethics are important in the workplace.
2.19. Describe ways to behave ethically in the workplace.

3. Demonstrate knowledge of the employment process.

   3.1. Identify and utilize sources of job leads.
   3.2. Gain an understanding of networking and develop a Networking Chain.
   3.3. Gather and organize all personal material and information needed to apply for a job.
   3.4. Demonstrate the ability to follow directions by effectively filling out a marketable application form.
   3.5. Identify the major parts of a standard resume and demonstrate the ability to compose an error-free personal example.
   3.6. Demonstrate important communication skills through the ability to write effective application letters, follow-up thank you letters, and resignation letters.
   3.7. Identify methods of preparing for interviews, including researching and rehearsing.
   3.8. Recognize how to dress for a successful interview.
   3.9. Develop an understanding and practice proper interviewing skills that would include: proper attitude, clear and accurate communication, answering typical questions, and appropriate body language.
   3.10. Practice proper interview follow-up techniques.
   3.11. Identify criteria used in evaluating job applicants.
   3.12. Anticipate and manage the anxieties and challenges of a first day at work.
   3.13. Discuss the proper ways to dress for work.
   3.14. Learn and understand company policies.
   3.15. Describe typical ways that employers pay workers.
   3.16. Explore and be able to explain benefits that employers offer workers.
   3.17. Discuss the significance of employee performance reviews.
   3.18. List and explain human relations skills needed in business and demonstrate an understanding of appropriate employer and employee relations.
   3.19. Explore and describe how one's personality and basic needs are related to job satisfaction.

4. Develop and demonstrate professional communication and relationship building skills.

   4.1. Describe and demonstrate active listening, including taking notes.
   4.2. Identify ways of planning and organizing oral messages.
   4.3. Describe the importance of effective speaking and listening skills in customer relations.
   4.4. Explain the importance of writing and reading skills in customer relations.
   4.5. Explain how changing technology affects the workplace, and how a worker can become technologically literate.
   4.6. List and explain the characteristics of an effective leader.
   4.7. Analyze the relationship among personal values, job success, and interests.
   4.8. Identify ways of handling interpersonal relationships on the job.

5. Develop skills necessary to successfully manage personal finances.

    5.1.   Identify the steps in planning a budget.
    5.2.   Compare and contrast common saving methods and investing.
    5.3.   Demonstrate the skill of maintaining a checking account.
    5.4.   Develop an awareness of the use of different types of credit and explain the advantages and disadvantages of each form.
    5.5.   Develop an understanding and appreciation for the need of different forms of insurance.
    5.6.   Identify sources of credit.
    5.7.   Explain different types of credit.
    5.8.   Compare and contrast the advantages and disadvantages of credit.
    5.9.   Calculate and analyze the cost of credit.
    5.10. Complete a credit application.
    5.11. Explore services provided by financial institutions and the affect government regulation has on those institutions.

6. Demonstrate an understanding of the State and Federal tax systems.

    6.1.   Identify five characteristics of a good tax system.
    6.2.   Accurately complete a federal and state income tax return.
    6.3.   Describe how the Social Security system works.
    6.4.   Identify four Social Security program benefits and two state social insurance benefits.
    6.5.   Explore and explain problems that face the Social Security system.

7. Demonstrate an understanding of consumer and employee rights and responsibilities.

    7.1.   Describe discrimination in the workplace and identify some of the laws that fight it.
    7.2.   Recognize sexual harassment and identify resources available to assist employees.
    7.3.   Identify safety rules in the student's workplace.
    7.4.   Analyze the impact that the work environment and personal behavior has on health and safety.
    7.5.   Identify laws and organizations that establish safety standards.
    7.6.   Analyze the relationship between job injuries and workman's compensation.
    7.7.   Describe discrimination in the workplace and identify some of the laws that monitor it.
    7.8.   Recognize sexual harassment and identify resources available to assist employees.

8. Describe resources that help protect the rights of consumers.

    8.1.   Analyze the purposes for a binding contract.
    8.2.   Identify consumer protection agencies.
    8.3.   Develop a letter of complaint.
    8.4.   Evaluate the types of insurance protection available to consumers.

BUSINESS EDUCATION

Computer Applications
May 13, 2011

1. Use the personal computer as a tool.

    1.1. Organize and maintain folders/directories and files.
    1.2. Identify hardware components appropriate for specific tasks.
    1.3. Use online databases, web-based sources, and other information sources to access and retrieve information (e.g., copyright and plagiarism).
    1.4. Efficiently develop proper input techniques including safety methods to avoid repetitive strain injury.
    1.5. Set margins, page orientation, and line spacing.
    1.6. Apply text formats (e.g., font style, font size, text enhancements, alignment).
    1.7. Apply bullets and numbering.
    1.8. Insert headers and footers.
    1.9. Understand the differences between open, save, and save as.
    1.10. Insert and format graphics.
    1.11. Format business documents (e.g., letters, memos, emails, flyers).
    1.12. Apply a variety of proofreading techniques to identify and correct errors (e.g., proofreader's marks, spell and grammar checks, find and replace options).
    1.13. Demonstrate proper use of print preview, printer selection and print functions.

2. Format, edit and produce tables.

    2.1. Create and modify a table (e.g., columns and rows).
    2.2. Format cells (e.g., merging, rotating text, borders, shading, alignment, formatting text, row height and column width).
    2.3. Center tables horizontally and vertically.

3. Format, edit and produce spreadsheets.

    3.1. Understand the differences between a spreadsheet and a table.
    3.2. Identify the basic parts of a spreadsheet (columns, rows, and cell references).
    3.3. Format cells (e.g., merging, borders, shading, alignment, formatting text, row height and column width).
    3.4. Create formulas (e.g., sum, average, maximum, minimum).
    3.5. Create a chart including chart and axes titles, legend and data labels.
    3.6. Understand and apply different page setup scaling options.
    3.7. Understand the differences between normal and formula view (CTRL ~).

4. Format, edit and produce presentations.

    4.1. Apply appropriate slide layout (e.g., title, content and blank).
    4.2. Develop slide content using clear and concise language (7 lines, 7 words).
    4.3. Select and apply appropriate design/color themes and backgrounds.
    4.4. Demonstrate structure and continuity throughout a presentation.
    4.5. Apply appropriate custom animation.
    4.6. Apply appropriate transitions including slide advance features.
    4.7. Edit using a variety of slide views (e.g., normal, sorter, presentation).
    4.8. Understand printing options (e.g., slides, notes, outline, and handouts).
    4.9. Orally present a slide show using clear, concise language appropriate to purpose and audience.

5. Format, edit and produce reports in MLA-style.

    5.1. Format and edit reports.
    5.2. Demonstrate ability to use automatic page numbering, section breaks, widow/orphan features, and header/footer features.
    5.3. Format reports using side and paragraph headings.
    5.4. Apply bullets and numbering.
    5.5. Apply endnote, footnote and citation features.
    5.6. Format a works cited section using indent features (e.g., first line, hanging and left).

BUSINESS EDUCATION

Advanced Computer Applications
May 2011

1. Use word processing software to format, edit and produce a variety of business documents.

   1.1 Demonstrate ability to convert text to a table and table to text.
   1.2 Use appropriate table design and layout tools.
   1.3 Insert and modify illustrations (e.g., pictures, clip art, shapes, smart art).
   1.4 Format graphics using advanced features to include crop and compress, layer, group,
       and rotate.
   1.5 Insert watermarks and page borders.
   1.6 Create a newsletter that includes a heading and subtitles, appropriate breaks, columns, drop caps, pull quotes, graphics, and borders and shading utilizing page balance features.
   1.7 Demonstrate the ability to use the mail merge feature.
   1.8 Use templates to create documents.

2. Use spreadsheet software to format, edit and produce spreadsheets.

   2.1 Create formulas to perform mathematical functions (e.g., if, count, amortization, sum, max, min, average, percent of total).
   2.2 Demonstrate knowledge and use of relative and absolute references.
   2.3 Demonstrate ability to name ranges and worksheet tabs.
   2.4 Sort, filter, and query information.
   2.5 Develop charts and graphs for data comparison.
   2.6 Use conditional formatting to identify variables in data.
   2.7 Use an existing database to import data into a spreadsheet.
   2.8 Create a summary page for a multi-page workbook using mathematical functions.
   2.9 Create an amortization table to analyze consumer loan scenarios.
   2.10 Insert headers and footers on spreadsheets.
   2.11 Understand and use sheet settings for print options that include gridlines, repeat row/column, and scaling.
   2.12 Understand and use view features including freeze panes, show/hide and window controls.
   2.13 Use the protect document feature.
   2.14 Insert comments on a worksheet.

3. Use database software to format, edit, produce and maintain databases.

    3.1   Identify and understand the properties and functions of a database.
    3.2   Design, create and use fields and records.
    3.3   Use design view to generate tables, forms, reports and queries.
    3.4   Use a variety of criteria to create queries that extrapolate specific data.
    3.5   Identify relationships between multiple tables and fields.

4. Use presentation software to format, edit, produce and deliver presentations.

    4.1   Insert and modify SmartArt, charts and tables.
    4.2   Identify and use resources (e.g. web, CD, camera, storage media) to find and
            save appropriate media files.
    4.3   Insert and modify media files (e.g. sound and video).
    4.4   Use advanced animation features to control media files.
    4.5   Insert action buttons and create hyperlinks.
    4.6   Demonstrate use of the rehearse timing feature to control timings and
            transitions (e.g. manual vs. timed, loop, custom shows).
    4.7   Use notes and comments to organize and articulate context and content clearly
            and concisely.
    4.8   Save associated presentation files for export (e.g. package for CD, HTML, PDF).
    4.9   Model professional presentation skills.
    4.10   Adapt communication to audience and situation.

5.   Use publishing software to format, edit and produce graphic-based documents.

    5.1   Understand and use templates and template options to create publications (e.g.
            flyers, brochures, newsletters, banners).
    5.2   Save associated publication files for export (e.g. PDF, Package and Go, printing
            services).

6.   Demonstrate the ability to integrate a variety of software applications.

    6.1   Demonstrate ability to export/import data from one application to another.
    6.2   Use imported data to produce various documents.

BUSINESS EDUCATION

Multimedia and Design Presentation
May 2011

1. Use a variety of input technologies to format, edit and produce multimedia projects.

    1.1   Demonstrate the appropriate use of input technologies (e.g. scanners, cameras, MP3 players, DVD players) with multimedia software.
    1.2   Understand the properties of a variety of image, audio and video formats.
    1.3   Evaluate multimedia files for compatibility with alternate formats.
    1.4   Implement conversion software to support compatibility.
    1.5   Troubleshoot and resolve hardware and software problems.

2. Utilize files created using input technologies to produce various multimedia projects.

    2.1   Research opportunities to implement multimedia skills for professional applications (e.g. gaming, social networking, streaming).
    2.2   Create storyboards using communication concepts to develop content and layout.
    2.3   Create multimedia projects integrating image, audio, and video formats for professional applications.
    2.4   Demonstrate an understanding of the Fair Use and Internet Publishing policies.

BUSINESS EDUCATION

Web and Media Design
Revised May 2011

1. Use publishing principles and techniques to create professional business publications.

    1.1   Understand and demonstrate basic design layout and design elements.
    1.2   Maintain consistent design principles and criteria within a group of publications.
    1.3   Prepare projects for professional printing.

2. Use web development principles and techniques to plan, design and create web pages.

    2.1   Apply basic web design principles – web page parts (heading, body), color, page layout (tables), hyperlink (text and graphics), bookmarks, domain (.gov, .edu, etc.).
    2.2   Identify and implement HTML elements and tags to create web pages.
    2.3   Create web pages using text editing, word processing, Flash and web publishing software.
    2.4   Understand the properties of web browsers.
    2.5   Implement web design criteria – purpose, authority, objectivity, appropriateness, currency, responsibility, clarity, audience, testing.
    2.6   Create storyboards – developing content and layout.
    2.7   Demonstrate an understanding of the Fair Use and Internet Publishing policies.

BUSINESS EDUCATION

Advanced Web and Media Design
May 2011

1. Use advanced web development principles and techniques to plan, design, and create web pages and web sites.

   1.1 Create web sites using Flash and web publishing software.
   1.2 Apply advanced web design principles – web page parts (heading, body), color, page layout (tables), hyperlink (text and graphics), bookmarks, domain (.gov, .edu, etc.).
   1.3 Implement web design criteria – purpose, authority, objectivity, appropriateness, currency, responsibility, clarity, audience, testing.
   1.4 Incorporate web site life cycle – analyzing and planning, designing and developing, testing, implementing, evaluating and maintaining.
   1.5 Create storyboards using advanced concepts to develop content and layout.
   1.6 Understand how different elements affect web page load time.
   1.7 Demonstrate an understanding of the Fair Use and Internet Publishing policies.

2. Use advanced publishing principles and techniques to create professional business publications.

   2.1 Maintain consistent design principles and criteria within a group of publications.
   2.2 Prepare projects for professional publication.
   2.3 Demonstrate ability to save publication files using a variety of formats.
   2.4 Understand and apply embedded components (e.g. fonts, Flash).
   2.5 Upload, test, and evaluate the functionality of a created web site.

3. Use advanced web development and publishing skills to create and produce documents and/or websites for professional applications.

   3.1 Research opportunities to implement web development and publishing skills for professional applications.
   3.2 Create web sites and publications for professional applications.

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Elgin Community College | 1700 Spartan Drive UBC 113 | Elgin, IL 60123

Computer Applications – Quarter 2 Assessment
Teacher Instructions
Spring 2012

*NOTE: The first two components of this assessment (letter, report) were given at the end of the first nine weeks. The final three components (table, spreadsheet, presentation) will be given at the end of the second nine weeks. **All five components should be totaled and scored as the FINAL EXAM grade** for the students.*

The Computer Applications – Quarter 2 Assessment consists of the following components:
- Table using Microsoft Word
- Spreadsheet using Microsoft Excel
- Presentation using Microsoft PowerPoint

Students are given **three consecutive class periods** to finish the assessment. Only one section of the assessment is given each day. Students **may not** work ahead if they finish a section of the assessment early. The assessment must be administered within the following timeframe:

1. Table – final week of the 2nd nine weeks; time allotment - 1 class period
2. Spreadsheet – final week of the 2nd nine weeks; time allotment - 1 class period
3. Presentation – final week of the 2nd nine weeks; time allotment – 1 class period

**On the day each component of the assessment is given, <u>distribute a copy of that component's scoring rubric to all students</u> so they can see how they will be assessed. When students complete the component of the assessment, they will return the scoring rubric to the teacher to use as a scoring sheet.

The teacher should instruct students to create a folder in which to save all of their assessment files.
- Folder name: **Student Last Name-Quarter Assessment**
- Table file name: **Student Last Name-Table**
- Spreadsheet file name: **Student Last Name-Spreadsheet**
- Presentation file name: **Student Last Name-Presentation**

Day 1	Table	25 points
Day 2	Spreadsheet	25 points
Day 3	Presentation	25 points

Teachers may find additional time at the end of the examination period on Day 1. Teachers can use this time to prepare students for the remainder of the assessment. Students **should not** use this time to "work ahead" on the next day's assessment.

Assessment Evaluation:

- Use the attached *Teacher Answer Key* to score.
- Record the scores on each student's scoring rubric.
- Complete the *Teacher Scoring Spreadsheet*. Type in the names of all students in each class (note: there are 5 *Class* worksheets in the workbook) and enter the individual scores for each component of the test. The averages in Row 41 will calculate automatically.
- After all components of the assessment are administered, complete the *District Reporting Spreadsheet* (the 6th worksheet in the file) and e-mail it to the Director of Career & Technical Education.

On the Rubric:

- Note: 5 points is the maximum points possible in each section of the scoring rubric even though the student may make more than 5 errors.
- No matter how many errors a student makes in a section, they cannot lose more than 5 points per section.

Category	5	4	3	2	1
Table Format Correct number of rows Correct number of columns Centered vertically on page Centered horizontally on page Cells merged properly	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6-8 ERRORS	9+ ERRORS
Title (include Subtitle on Test A) Correct font Correct point sizes Bold Center Caps applied properly Merged	0-1 ERRORS	2 ERRORS	3 ERRORS	4 ERRORS	5+ ERRORS
Cell Formatting Correct font Correct point size Bold appropriate cells Use italics as shown (Test A) Center text horizontally within each cell Center text vertically within each cell Punctuation and spelling	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6-8 ERRORS	9+ ERRORS
Test Heading Student Name Final business table Test version A or B	0 ERRORS	1 ERROR	2 ERRORS	3 ERRORS	MISSING

Total Table Score

Total Points
20 – 18
17 – 16
15 – 14
13 – 12
11 & lower

Letter Grade
A
B
C
D
E

Computer Applications – Spreadsheet
Learning Outcome 3

Name_____

Category	5	4	3	2	1	0
Cell Text (56 errors) Properly type title (1) Properly type subtitle (1) Properly type text in each cell (1 error per cell; 54 total)	0-10	11-20	21-30	31-40	41-50	51+
Formatting (10 errors) Properly format Title (merge and center) (1) Properly format subtitle (merge and center) (1) Apply appropriate font style/size to title and subtitle (1) Format Row titles (1) Format Column titles (1) Apply appropriate borders (1) Format *Average* values to 2 decimal places (1) Apply % format with 2 decimal places to *Percentage* column (1) Appropriately adjust row heights/column widths (1) Data table and chart fit to one page (1)	0-1 ERRORS	2-4 ERRORS	5-6 ERRORS	7-8 ERRORS	9-10 ERRORS	11+ ERRORS
Formulas (12 errors) Row totals (Cell G4) (1) Copy row total formula down through Cell G10 (1) Insert proper column total (SUM) in Cell D11 (1) Copy column total formula across through Cell F11 (1) Insert proper formula (MAX) in Cell D12 (1) Copy formula across through Cell F12 (1) Insert proper formula (MIN) in Cell D13 (1) Copy formula across through Cell F13 (1) Insert proper formula (AVERAGE) in Cell D14 (1) Copy formula across through Cell F14 (1) Insert % of Total formula in Cell H4 (=H4/50) (1) Copy formula down through Cell H10 (1)	0-2 ERRORS	3-5 ERRORS	6-7 ERRORS	8-9 ERRORS	10-11 ERRORS	12+ ERRORS
Chart (4 errors) Insert column chart (1) Select correct data (B3:F10) (1) Drag chart below data (1) Add chart title (1)	0 ERRORS	1 ERROR	2 ERRORS	3 ERRORS	4 ERRORS	5+ ERRORS
Test Header Section (4 errors) Inserted a header section (1) Student Name typed in header (1) Assessment-Spreadsheet typed in header (1) Spelling and punctuation (1)	0 ERRORS	1 ERROR	2 ERRORS	3 ERRORS		4+ ERRORS

Total Points	Letter Grade	Total Score-Letter
25 – 22	A	
21 – 20	B	
19 – 17	C	
16 – 15	D	
14 & lower	E	

Category	4	3	2	1	0
SLIDES 1,2,3 1—Title—TW Cen MT font, 48 pt. 1—Subtitle—Arial Rounded MT Bold, 24 pt. 2—2 1st level bullets, 4 2nd level bullets 3—3 placeholders, title under name	CORRECT	3 OF 4 CORRECT	2 OF 4 CORRECT	1 OF 4 CORRECT	INCORRECT
SLIDES 4–9 4—2 1st level bullets 5 & 6—1st level bullets only 7—1 1st level bullet, 6 2nd level bullets 8 & 9—Title only slide	CORRECT	3 OF 4 CORRECT	2 OF 4 CORRECT	1 OF 4 CORRECT	INCORRECT
SLIDES 10 3D Clustered column chart Years 2009 & 2010 displayed No legend or Category 1 displayed Amounts 0—140000 displayed to left of chart	CORRECT	3 OF 4 CORRECT	2 OF 4 CORRECT	1 OF 4 CORRECT	INCORRECT
SLIDES 11–13 11—4 1st level bullets, 6 2nd level bullets 12—3 1st level bullets, 9 2nd level bullets 13—2 1st level bullets, 4 2nd level bullets 12 & 13—clip art inserted, right of bullets	CORRECT	3 OF 4 CORRECT	2 OF 4 CORRECT	1 OF 4 CORRECT	INCORRECT
SLIDE 14 Title & Content slide Basic Pyramid SmartArt Graphic inserted 4 levels Font Papyrus, Accent Color 2 to 3	CORRECT	2 OF 3 CORRECT	1 OF 3 CORRECT		INCORRECT
ALL SLIDES Slide numbers on all slides except Slide 1 Letter H clip art upper left corner, same size, on all slides except Slide 1	CORRECT	1 OF 2 CORRECT			INCORRECT

Total PowerPt Score _____

Total Points

24 – 22

21 – 17

16

15 – 14

13

Letter Grade

A

B

C

D

E

Category	5	4	3	2	1	0
Database Setup (8 errors) Properly name the database (File Name) (1) Set up the table: Field Name (1) Data Type (1) Field Size (1) Caption (1) Description (1) Set primary key (RegNo) (1) Name the table (Participant) (1)	0-2 ERRORS	3-4 ERRORS	5 ERRORS	6-7 ERRORS	8 ERRORS	9+ ERRORS
Input Data (6 errors) Properly input Record 1 (1) Properly input Record 2 (1) Properly input Record 3 (1) Properly input Record 4 (1) Properly input Record 5 (1) Proper spelling and punctuation (1)	0 ERRORS	1 ERROR	2 ERRORS	3 ERRORS	4-5 ERRORS	6+ ERRORS
Form and Report (8 errors) Create a form using AutoForm Function (1) Properly name form (1) Create a report using Report Wizard (1) Include RegNo, FName, LName, Species (4) Properly name report (1)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6 ERRORS	7 ERRORS	8+ ERRORS
Query (8 errors) Create a query (1) Show FName, LName, City, State (4) Show the 2 registrants with RegNo beginning with 00 (2) Properly name the query (1)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6 ERRORS	7 ERRORS	8+ ERRORS

Total Table Score

Total Points	Letter Grade
20 – 18	A
17 – 16	B
15 – 14	C
13 – 12	D
11 & er	E

ADVANCED COMPUTER APPLICATIONS
Word (Logo), Paint (Image) & Publisher (Invitation) - Tasks 2 & 3
Learning Outcomes 1, 5 & 6

Name _____

Category	5	4	3	2	1	0
Logo Content (8 errors)						
Use appropriate animal image from Internet (2)						
Include the acronym *ESNOH* (1)						
Include slogan/catch phrase (2)						
Additional text/WordArt enhancements applied (2)						
Spelling and capitalization (1)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6 ERRORS	7 ERRORS	8+ ERRORS
Logo Formatting (7 errors)						
All items grouped (1)						
Dimensions: 3.25" x 3.25" (2)						
Saved as an image file (.bmp, .jpg, .gif, .png) (2)						
Removed all excess white space (1)						
Balance logo features/white space (1)	0-1 ERRORS	2 ERRORS	3 ERRORS	4 ERRORS	5-6 ERRORS	7+ ERRORS
Invitation Content (8 errors)						
Insert ESNOH logo created in Task 2 (1)						
Include name of conference (1)						
Include date of conference (1)						
Include time of conference (1)						
Include location of conference (1)						
Include coordinator information (1)						
Include text for registration website (1)						
Spelling and punctuation (1)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6 ERRORS	7 ERRORS	8+ ERRORS
Invitation Format (7 errors)						
Use 4" x 6" postcard template (1)						
Apply hyperlink feature to registration website text (1)						
At least 2 text enhancements/WordArt features (2)						
Balance invitation features/white space (2)						
Document saved properly (1)	0-1 ERRORS	2 ERRORS	3 ERRORS	4 ERRORS	5-6 ERRORS	7+ ERRORS

Total Table Score

Total Points
20 – 18
17 – 16
15 – 14
13 – 12
11 & lower

Letter Grade
A
B
C
D
E

ADVANCED COMPUTER APPLICATIONS
Word (Name Tag Form) & Access (Database) – Task 4
Learning Outcomes 1, 3 & 6

Name _____

Category	5	4	3	2	1	0
Name Tag Formatting (6 errors)						
Use labels format (1)						
Correct label size (Avery US Letter 5390-2.22" x 3.5") (1)						
8 labels on page (1)						
Show all borders (1)						
Use participant table (1)						
Proper balance of text, graphic and white space (1)	0-1 ERRORS	2 ERRORS	3 ERRORS	4 ERRORS	5 ERRORS	6+ ERRORS
Name Tag Form Content (7 errors)						
Insert First Name field (1)						
Insert Last Name field (1)						
Insert City field (1)						
Insert State field (1)						
Insert Species field (1)						
Insert comma after *City* field (1)						
Adjust font size to appropriate size (1)	0-1 ERRORS	2 ERRORS	3 ERRORS	4 ERRORS	5-6 ERRORS	7+ ERRORS
Graphic Formatting (12 errors)						
Insert logo from Task 2 (1)						
Logo color changed to *Washout* (1)						
Logo is *Behind Text* (1)						
Logo visually an appropriate size (1)						
Logo shown on all 8 labels (8)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6-8 ERRORS	9-11 ERRORS	12+ ERRORS
Final Form and Merge (20 errors)						
Saved form properly (1)						
Printed form (1)						
Form shows all 8 labels with form fields inserted (8)						
Saved merged document properly (1)						
Printed merged document (1)						
Document shows 5 recipient labels and 3 blank labels (8)	0-3 ERRORS	4-7 ERRORS	8-11 ERRORS	12-15 ERRORS	16-19 ERRORS	20+ ERRORS

Total Table Score _____

Total Points		**Letter Grade**
20 – 18		A
17 – 16		B
15 – 14		C
13 – 12		D
11 & lower		E

ADVANCED COMPUTER APPLICATIONS
Word (Research Handout) & PowerPoint (Presentation) – Tasks 5 & 6
Learning Outcomes 4 & 6

Name _____

Category	5	4	3	2	1	0
Research Handout (10 errors)						
Recorded web addresses used (1)						
Physical Characteristics -5 items (2)						
Diet—3 items (1)						
Breeding – 3 items (1)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6-7 ERRORS	8-9 ERRORS	10+ ERRORS
Nesting – 3 items (1)						
Habitat – 3 items (1)						
Worldwide Distribution – 1 items (1)						
General Information - 5 items (2)						
Content (Text Only) (61 errors)						
Title Slide: Title/Subtitles (3)						
Slide 2: Title/Slides 3-10 listed individually (9)						
Slides 3-9: Titles and content (see Category 1 above for breakdown (8 for titles; 23 for content)	0-12 ERRORS	13-24 ERRORS	25-36 ERRORS	37-48 ERRORS	49-60 ERRORS	61+ ERRORS
Bulleted content as phrases not sentences – 1/slide (7)						
Spelling – 1/slide (10)						
Slide 10: At least 1 reference (1)						
Formatting (36 errors)						
Apply Slide Theme (1)						
Same theme used throughout (1)						
Apply picture of animal as background –Slide 1 only (1)						
Apply transition (1)						
Same transition used throughout (1)	0-7 ERRORS	8-14 ERRORS	15-21 ERRORS	22-28 ERRORS	29-35 ERRORS	36+ ERRORS
Custom animation (ENTRANCE option) on each slide (10)						
All animations Start With or After Previous (10)						
No more than 3 animations per slide (10)						
Apply transitions/animations without sound effects (1)						
Media (25 errors)						
Hyperlink to external website (1)						
Hyperlink Table of Contents lines to appropriate slides (8)						
Sound file of the animal's vocalizations on Slide 9 (1)						
Animate sound clip (1)	0-5 ERRORS	6-10 ERRORS	11-15 ERRORS	16-20 ERRORS	21-24 ERRORS	25+ ERRORS
Hide all audio icons during show (1)						
Graphics: minimum 10 (10)						
Animal's worldwide distribution map on Slide 8 (1)						
Package presentation for CD (1)						
Name Package properly (1)						

Total Letter Score

Total Points	Letter Grade
20 – 18	A
17 – 16	B
15 – 14	C
13 – 12	D
11 & lower	E

ADVANCED COMPUTER APPLICATIONS – Excel – Task 7

Learning Outcome 2

Name _____

Category	5	4	3	2	1	0
Content Formatting (15 errors) Name the Sheet 1 Tab: Last Name-Membership (1) Font style: any, but no script (1) Font style: only 1 used throughout (1) Font size: larger for the title (1) Font size: body between 10-12 pt (1) Properly format Title (merge and center) (1) Column headings with two words on two lines (4) Column headings centered (1) Number format of Fees Paid column: 2 decimal places; no $ (2) Adjust columns widths as needed (1) Add border lines to all cells (1)	0-3 ERRORS	4-6 ERRORS	7-9 ERRORS	10-12 ERRORS	13-14 ERRORS	15+ ERRORS
Formulas (10 errors) **Formulas:** Sum for "Total Fees Paid" (1) Countif for "# of Members" (1) Countif for " # of Participants" (1) "% of Members" (1) IF Statement in "Organization Member" column using "TRUE" for members and "FALSE" for non-members Ex. [=IF(C3=250,"TRUE","FALSE")] (2) Copy IF formula to Cells E4:E7 (4)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6-7 ERRORS	8-9 ERRORS	10+ ERRORS
Special Formatting (10 errors) **Formula Formatting:** Total Fees Paid: Currency with dollar sign (1) # of Members & Participants: no decimals (2) % of Members: % with 0 places after decimal (1) **Conditional Formatting in "Organization Member" column:** Cells with "FALSE": Font: Bold, White; Pattern: Red (6)	0-1 ERRORS	2-3 ERRORS	4-5 ERRORS	6-7 ERRORS	8-9 ERRORS	10+ ERRORS
Chart (6 errors) Insert 3-D pie chart (1) Select correct data (B2:C7) (1) Chart on separate page (1) Chart sheet named properly (1) Apply correct chart layout (Layout 1) (1) Last Name added to chart title (1)	0-1 ERRORS	2 ERROR	3 ERRORS	4 ERRORS	5 ERRORS	6+ ERRORS

Total Spreadsheet/Chart Score _____

AST...NOMY CLUB EVALUATION

Name _____

Category	3	2	1	0
Index Pg. Images—Planet Logo & Astronomy Club Title *Photo of the Month*—14 pt., Bold, paragraph 10 pt. Subtitle *Welcome to the Astronomy Club...* has pop-up text of Astronomy Club Home 5 link buttons on left have the same pop-up text	Correct	1 of 4 Incorrect	2 of 4 Incorrect	Page Has Too Many Errors
AC Template Page Images—Planet Logo & Astronomy Club 2nd column table—white, blank 3 lines under table--Link Bar & Questions 12 pt., Copyright—10 pt	Correct	1 out of 3 Incorrect	2 out of 3 Incorrect	Page Has Too Many Errors
Saturn Page Title—18 pt., bold Planetary Data title bold, Text 12 pt. Saturn Image upper right corner of 2nd column	Correct	1 out of 3 Incorrect	2 out of 3 Incorrect	Page Has Too Many Errors
Workout Page All paragraphs 10 pt. except 1st & blue, align left #2—2nd, 3rd, 4th tab twice #3—2nd, 4th tab twice 3rd & 5th tab 5x	Correct	1 out of 3 Incorrect	2 out of 3 Incorrect	Page Has Too Many Errors
All Pages 7 pages total 5 buttons—Home, About Us, Meetings, Sky Guide, Astronomy Links	Correct	1 out of 2 Incorrect		Some Paragraphs Missing

Total Web Site Score _____

Total Points
24 – 22
21 – 19
18 - 17
16 – 14

Letter Grade
A
B
C
D

MULTIMEDIA AND DESIGN – "How To" Seminar
Learning Outcome 2

Name _____

Category	5	4	3	2	1	0
Story Board (18 errors) Student Name on each board (1) Topic (teacher approved) (1) Sketch of each scene (8) Numbered sketches (8)	0-3 ERRORS	4-7 ERRORS	8-11 ERRORS	12-14 ERRORS	15-17 ERRORS	18+ ERRORS
Script (16 errors) Dialogue for each board (8) Action cues for each board (8)	0-3 ERRORS	4-6 ERRORS	7-9 ERRORS	10-12 ERRORS	13-15 ERRORS	16+ ERRORS
Production Needs (24 errors) Equipment needed for video recording (8) Props / costumes / equipment to be used in video (8) Location for each scene (8)	0-4 ERRORS	5-9 ERRORS	10-14 ERRORS	15-19 ERRORS	20-23 ERRORS	24+ ERRORS
Scene Segments & Full Final Video DVD (13 errors) Record and edit video sections to make full 3-5 minute video (5) Edit final video segments for presentation slides (6) Video saved as a Windows Media Video (.wmv) (1) Full video burned to a DVD (1)	0-1 ERRORS	2-4 ERRORS	5-7 ERRORS	8-10 ERRORS	11-12 ERRORS	13+ ERRORS
Final Video (20 errors) Video has titles, menu (2) Video has credits (3) Content flow (order of sequence) (1) Fades between scenes / segments (1) Meets time requirement of 3-5 minutes (5) All steps to complete demonstration are included (8)	0-4 ERRORS	5-9 ERRORS	10-13 ERRORS	14-16 ERRORS	17-19 ERRORS	20+ ERRORS

Total Points	Letter Grade	Total Score-Video
25 – 22	A	
21 – 20	B	
19 – 17	C	
16 – 15	D	
14 & lower	E	

Student Resources:

Connect Plus Homepage:

- Interact with the content by access the e-Book anytime from anywhere. Highlight text, take and store class notes, search e-book and jump from page to page or section to section.
- Access class information and assignments.
- Complete homework online and get immediate feedback.
- Access chapter figures and tables instantly.
- Access to Online Working Papers
- Link directly to the online learning center student resources.

Online Learning Center:

- Access unit videos, self-checks, practice tests, chapter summaries and vocabulary, graphic organizers, games and puzzles.
- Link directly to Spreadsheet Templates and Accounting Forms.

Professional Development:

- Upon adoption, we will provide one hands on, on-site training of our online digital resources including Connect Plus (for Glencoe Accounting and Marketing Essentials), Connect Ed (Entrepreneurship) and all Online Learning Centers for all the titles purchased. This can be a full day or 2 half day trainings (up to the district).
- We will provide further training via webinars on an as needed basis
- Included in the Connect Plus platform are online tutorials that teachers can access at their leisure
- You will have the support of your local Mcgraw-hill sales representative Jessica Kruswicki as well as our Inside sales business specialist Rebecca Hanlon-Faber

**The electronic access to this program is no longer just the pdf of the print book rather a robust online learner and courseware management system with the above features and added benefits for students and teachers (including the online working papers, excel templates, etc.) so yearly consumable costs are avoided. Therefore, our digital access to Connect Plus is not something that we provide gratis when print books are purchased. Your quote includes a 6 year online subscription with a classroom set(s) of print books and will include the above resources and digital access on Connect Plus and our Online Learning Center. With these 6 year subscriptions, instructors have the ability to set start and end dates making it an option to provide online access to one group of students within a one semester class and then another group of students access the following semester. Instructors or the district Master Code Holder will receive an email with an access code for redemption of the digital online content access (these are not provided in a physical card format) . During our initial site training, our consultant can assist the teachers with setting up their instructor access and classes.

Glencoe Accounting 2012: What's included? What am I getting with Glencoe Accounting and McGraw-Hill Connect Plus Accounting?

Teacher Resources:

Connect Plus Homepage: The teacher homepage provides quick access to all of your course section tasks, communicating to your students and managing assignments for your class. From the homepage you can:

- Create your assignments from a pre-build list or pick and choose your own questions to assign.
- Organize your assignments by type: homework, practice assignments, quizzes, or exams. Show/Hide assignments when appropriate.
- Set policies for each type of assignment. For example, scramble assignment questions. Other policy settings are time limits, answer tolerance, and availability.
- Post/Access web activities.
- Subscribe to news feeds with course related news.
- Add web bookmarks to save important course related Web sites.
- Add teacher information; picture, course schedule and office hours.
- Share assignments with colleagues.
- Record lectures for students.

Connect Plus Reporting: Once students have submitted their assignments, CONNECT automatically grades them and provides a reporting feature to view several types of customizable grade reports.

- The Assignments Results Report provides a list of all students and their scores on each assignment.
- The Student Performance Report displays an individual student's performance on all assignments.
- The Assignment Statistics Report provides a set of common assignment report statistics such as high score, low score, and mean score.
- The Item Analysis Report provides statistics on each question within a single assignment.
- The Category Analysis report provides statistics on each content category among assignments.

Online Learning Center: The online learning center can be accessed directly from Connect Plus so no need to log onto a different site. Teachers can access resources such as:

- Teacher Edition with answers and answer suggestions.
- Power Point Presentations
- Enrichment activities- games and lesson plan ideas
- Professional Development Mini Clips- classroom and instructional management ideas, scaffolding questions, reading strategies and differentiated instruction.
- Link directly to Spreadsheet Templates and Accounting Forms.

CONNECT & CONNECT PLUS
http://connect.mcgraw-hill.com/
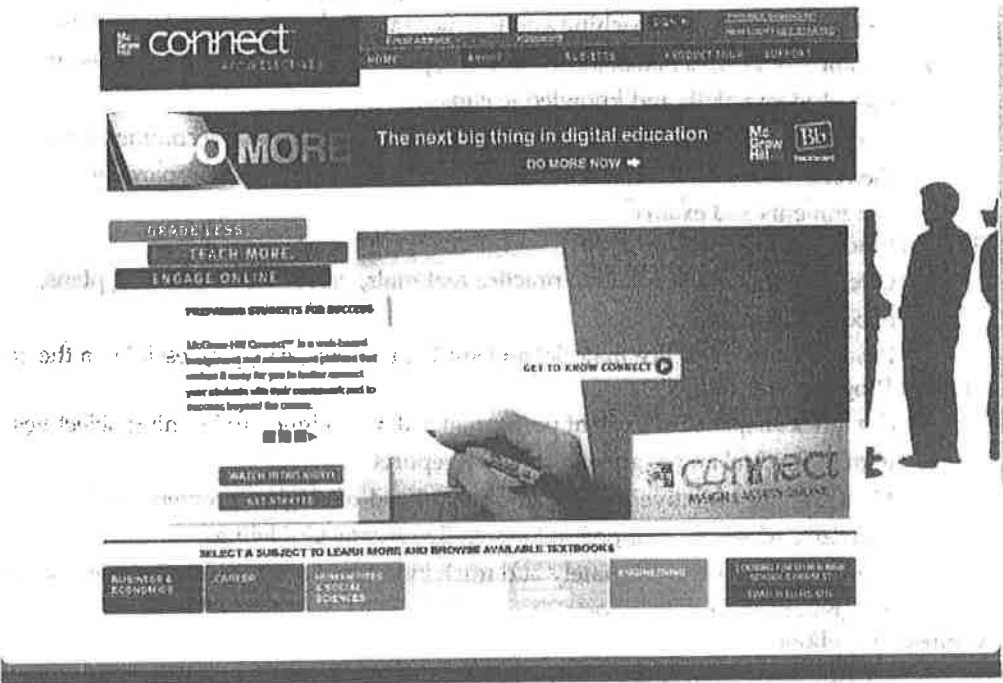
Learn More about this Powerful online learning assignment and assessment solution.

Connect makes grading easy and extends the learning experience beyond the classroom for students.

FEATURES...

- Teacher Library:
  - o Assign eBook readings and draw from a rich collection of textbook-specific assignments
  - o Access ready-made PowerPoint presentations and media to use in your lectures
  - o View assignments and resources created for past sections
  - o Post your own resources for students to use
- Assignment Management:
  - o Create and deliver assignments easily with selectable end-of-chapter questions and test bank material to assign online
  - o Streamline lesson planning, student progress reporting and assignment grading to make classroom management more efficient than ever
  - o Go paperless with the eBook and online submission and grading of student assignments
- Smart Grading:
  - o Automatically score assignments, giving students immediate feedback on their work and side-by-side comparisons with correct answers
  - o Access and review each response; manually change grades or leave comments for students to review

- o   Reinforce classroom concepts with practice tests and instant quizzes
- Diagnostic and Learning Plan
  - o   Assess students' understanding of key concepts with diagnostics and adaptive questions; then tailor coaching and practice materials to meet student needs
  - o   Instantly develop a personalized learning plan at the concept level tailored to each student's skills and knowledge gaps
  - o   Prepare students for assignments and exams with diagnostic recommendations; the recommendations can also be used as a study tool to help prepare for assignments and exams
- Student Study Center
  - o   Offer students quick access to practice materials, personalized learning plans, eBooks and more
  - o   Provide instant practice material and study questions, easily accessible on the go
- Student Progress Tracking
  - o   Get quick snapshot of student performance that is aligned to learning objectives with individual and aggregate statistics reports
  - o   Meet learning objectives with goal-oriented end-of-chapter problems and exercises, which are mapped to Bloom's Taxonomy Guidelines
  - o   View scored work immediately and track individual or group performance with assignment and grade reports
- ConnectPlus eBook
  - o   Provide students with a ConnectPlus eBook, allowing for anytime, anywhere access to the textbook
  - o   Merge media, animation and assessments with the text's narrative to engage students and improve learning and retention
  - o   Pinpoint and connect key concepts in a snap using the powerful eBook search engine
  - o   Manage notes, highlights and bookmarks in one place for simple, comprehensive review
- 2 Options…Connect & Connect Plus. What's the difference?
  - o   Connect & ConnectPlus both have all of the assignment & assessment features, but ConnectPlus also has the interactive eBook embedded, where Connect does not.

TAKE A TOUR AND LEARN MORE AT:
http://connect.mcgraw-hill.com/

Cooperative Internship Resources

Classroom Resources

Glencoe McGraw-Hill

Succeeding in the World of Work, 2013, 35 copies (105 SHS)
- Connect Plus 6-year subscription, 50 copies, (150 SHS)
- McGraw-Hill Connect™--Students can complete their work online, where it is checked and placed in a grade book for teachers. Students can store class notes and other highlighted and bookmarked material, and teachers can create and management assignments. Students also can do their homework on a PPA, iPhone®, or iPod® Touch. An eBook is included.