The Campus Science Department would like to add to new classes to the fall 2012 schedule. The classes are Honors Biology and Honors Chemistry. The regular classes are currently being taught but higher level classes are needed to support advanced placement and international baccalaureate streams.

Katie Smithhisler and Kelly Owens

October 15th, 2011

State Standards Addressed by Honors Biology

Curricular Standards:

Standard 1: Science as Inquiry

Standard 3: Life Science

(Standards sheets are attached)

Reading Standards:

Common Core Standards for Literacy in Science 6-12

(Standards sheets are attached)

LIFE SCIENCE – The student will develop an understanding of the cell, molecular basis of heredity, biological evolution, interdependence of organisms, matter, energy, and organization in living systems, and the behavior of organisms.

Benchmark 2: The student will demonstrate an understanding of chromosomes, genes, and the molecular basis of heredity.

Grades 8-12 Indicators	Additional Specificity
The student ...	
1. ▲ understands living organisms contain DNA or RNA as their genetic material, which provides the instructions that specify the characteristics of organisms.	1. a. Nucleotides (adenine, thymine, guanine, cytosine and uracil) make up DNA and RNA molecules. b. Sequences of nucleotides that either determine or contribute to a genetic trait are called genes. c. DNA is replicated by using a template process that usually results in identical copies. d. DNA and associated proteins supercoil during cellular replication to become structured as chromosomes.
2. understands organisms usually have a characteristic number of chromosomes; one pair of these may determine the sex of individuals.	6. Most cells in humans contain 23 pairs of chromosomes; the 23rd pair usually contains the XX for female or XY for male.
3. ▲ understands hereditary information is contained in genes, located in the chromosomes of each cell.	3. a. An inherited trait of an individual can be determined by one gene or by many genes (a polygenic trait), and a single gene can influence more than one trait. b. The expression of traits is determined by a complex interaction of genes and the environment. c. Alleles, which are different forms of a gene, may be dominant, recessive, or co-dominant.

4. understands gametes carry the genetic information to the next generation.	4. a. Gametes usually contain only one member from each chromosome pair. b. Gametes unite to form a new individual in most organisms.
5. understands expressed mutations occur in DNA at very low rates.	5. a. Mutations are genetic changes and can be beneficial, neutral, or deleterious. Many mutations have deleterious effect on the organism's survival and/or reproduction. b. Only mutations in gametes can be passed on to offspring and thus affect future generations. c. Mutations in somatic cells can affect the individual organism, but not its offspring.

Teacher Notes:

The life science standards provide a framework for a variety of courses in the life sciences. All of the indicators listed for this standard would be appropriate for inclusion in a high school biology course, and may be included in any organismal biology class. The indicators provide a basis for developing local curriculum for a course focusing on genetics.

▲ = High School Assessed Indicator

LIFE SCIENCE – The student will develop an understanding of the cell, molecular basis of heredity, biological evolution, interdependence of organisms, matter, energy, and organization in living systems, and the behavior of organisms.

Benchmark 3: The student will understand biological evolution.

Grades 8-12 Indicators	Additional Specificity
The student ...	
1 ▲understands biological evolution, descent with modification, is a scientific explanation for the history of the diversification of organisms from common ancestors	1. a. The presence of the same materials and processes of heredity (DNA, replication, transcription, translation, etc.) is used as evidence for the common ancestry of modern organisms. b. Patterns of diversification and extinction of organisms are documented in the fossil record. Evidence indicates that simple, bacteria-like life may have existed billions of years ago. c. The distribution of fossil and modern organisms is related to geological and ecological changes (i.e. plate tectonics, migration). There are observable similarities and differences among fossils and living organisms. d. The frequency of heritable traits may change over a period of generations within a population of organisms, usually when resource availability and environmental conditions change as a consequence of extinctions, geologic events, and/or changes in climate.
2. understands populations of organisms adapt to environmental challenges and changes as a result of natural selection, genetic drift, and various mechanisms of genetic change.	2. a. Genetic changes occur only in individual organisms. b. Natural selection and genetic drift occur within populations or organisms. c. Variation among individuals in a population allows individuals to respond differently to environmental challenges.

3. ▲ understands biological evolution is used to explain the earth's present day biodiversity: the number, variety and variability of organisms.	3. a. Separate populations within a species may become sufficiently different enough that new species develop. This process is called speciation. b. Changes in inherited traits accumulate in populations. c. Historically only a small percentage of species have survived to modern times.
4. ▲ understands organisms vary widely within and between populations. Variation allows for natural selection to occur.	4. a. Heritable variation exists in every species. b. New heritable traits result from new combinations of genes and from mutations or changes in the reproductive cells. c. Variation of organisms within and among species increases the likelihood that some members will survive under changing environmental conditions. d. Times, populations, or entire lineages become extinct. One effect of this is to increase the differences between the surviving lineages.
5. understands the primary mechanism acting on variation is natural selection.	5. a. Favorable heritable traits are more advantageous to reproduction and/or survival than others. b. There is a finite supply of resources available for offspring; therefore not all survive. c. Individuals with beneficial traits generally survive to reproduce in greater numbers. d. Favorable heritable traits tend to increase in the population through time if the selective pressure is maintained.

6. understands biological evolution is used as a broad, unifying theoretical framework for biology.	6. a. Organisms are classified and according to the rules of nomenclature, and are given scientific names. b. The behavioral, physical, and genetic characteristics upon which these classifications are based are used as evidence for common descent. d. Natural selection, genetic drift, genomes, and the mechanisms of genetic change provide a context in which to ask research questions and help explain observed changes in populations.

Teacher Notes:

See introduction pages x – xiii for more information on the Nature of Science.
The life science standards provide a framework for a variety of courses in the life sciences. Evolution is a key theoretical framework for the life sciences.

These indicators should be part of any life science course curriculum, including biology, botany, zoology and microbiology.

▲ = High School Assessed Indicator

LIFE SCIENCE – The student will develop an understanding of the cell, molecular basis of heredity, biological evolution, interdependence of organisms, matter, energy, and organization in living systems, and the behavior of organisms.

Benchmark 4: The student will understand the interdependence of organisms and their interaction with the physical environment.

Grades 8-12 Indicators	Additional Specificity
The student ...	
1. ▲ understands atoms and molecules on the earth cycle among the living and nonliving components of the biosphere.	1. The essential chemical elements for life circulate in the *biosphere* in characteristic paths known as biogeochemical cycles (e.g., cycles for water, nitrogen, carbon, oxygen, etc)
2. understands energy is received, transformed and expended in ecosystems.	2. a. Radiant energy that enters the biosphere is balanced by the energy that leaves the earth into space as radiant energy, primarily heat. b. Transfer of energy through a series of organisms in an ecosystem is known as a food web. c. Organisms and ecosystems expend energy, much of which is released as heat, to maintain a high state of internal order.
3. ▲ understands the distribution and abundance of organisms and populations in ecosystems are limited by the carrying capacity.	3. a. The carrying capacity is determined by the availability of matter and energy, and the ability of the ecosystem to recycle materials. b. Living organisms produce more offspring than environmental resources can support, resulting in a competition for resources
4. understands organisms cooperate and compete in complex, interdependent relationships	4. These relationships include; a. predator-prey relationships b. symbiotic relationships (parasitism, mutualism, commensalisms).
5. understands human beings live within and impact ecosystems.	5. a. Humans modify ecosystems as a result of population growth, technology, and consumption. b. Human modifications of habitats through direct harvesting, pollution, atmospheric changes, and other factors affect ecosystem stability.

Teacher Notes:

The life science standards provide a framework for a variety of courses in the life sciences. Ecology concepts are key to understanding life; these indicators provide a framework for local curriculum for courses such as biology, botany, and zoology.

Learning Science in the Outdoors: Varied experiences in the outdoors make natural processes less abstract and are critical to developing scientific literacy. Teachers are encouraged to create outdoor learning experiences for their students.

▲ = High School Assessed Indicator

LIFE SCIENCE – The student will develop an understanding of the cell, molecular basis of heredity, biological evolution, interdependence of organisms, matter, energy, and organization in living systems, and the behavior of organisms.

Benchmark 5: The student will develop an understanding of matter, energy, and organization in living systems.

Grades 8-12 Indicators	Additional Specificity
The student ...	
1. understands living systems require a continuous input of energy to maintain their chemical and physical organization.	1. Without the input of energy, all matter tends toward more disorganized states. With death and the cessation of energy intake, living systems rapidly disintegrate.
2. ▲ understands the sun is the primary source of energy for life through the process of photosynthesis.	2. a. Plants and other photosynthetic organisms use energy to make organic compounds (primarily glucose) from carbon dioxide and water (CO_2 and H_2O) through a series of biochemical reactions. b. The energy in these compounds is used to assemble larger molecules with biological activity, including proteins, DNA, carbohydrates, and fats. c. These molecules serve as sources of energy for the plants themselves and for many other organisms through food webs. d. Chemosynthetic organisms, unlike photosynthetic organisms, use energy from chemical compounds to maintain life functions.

3. ▲ understands food molecules contain biochemical energy, which is then available for cellular respiration. 4. understands the structure and function of an organism serve to acquire, transform, transport, release, and eliminate the matter and energy used to sustain the organism.	3. a. Energy is released when the food molecules are broken down into simpler compounds b. Energy is transferred to ATP through cellular respiration c. Most biochemical reactions, fueled by ATP, are catalyzed by enzymes.

Teacher Notes:

The life science standards provide a framework for a variety of courses in the life sciences. This benchmark integrates important physical science and earth science concepts into the study of life. These indicators may be included in local curriculum in any life science course.

▲ = High School Assessed Indicator

LIFE SCIENCE – The student will develop an understanding of the cell, molecular basis of heredity, biological evolution, interdependence of organisms, matter, energy, and organization in living systems, and the behavior of organisms.

Benchmark 6: The student will understand the behavior of animals.

Grades 8-12 Indicators	Additional Specificity
The student ...	
1. ▲ understands animals have behavioral responses to internal changes and to external stimuli.	1. a. Responses to external stimuli can result from interactions with the organism's own species and others, as well as environmental changes. b. These responses can be innate and/or learned. c. Animals often live in unpredictable environments, and so their behavior must be flexible enough to deal with uncertainty and change.
2. understands most multicellular animals have nervous systems that underlie behavior.	2. a. Nervous systems are formed from specialized cells that conduct signals rapidly through the long cell extensions that make up nerves. b. The nerve cells communicate with each other by secreting specific excitatory and inhibitory molecules. c. Sense organs, specialized cells that detect light, sound, touch and specific chemicals, enable animals to monitor what is going on in the world around them.
3. understands behaviors are often adaptive when viewed in terms of survival and reproductive success.	3. a. Common behaviors include seeking food, seeking mates, raising young, avoiding predators, and regulating body temperature. b. Some organisms live in groups and have social behaviors that benefit both the individual and the group.

Teacher Notes:

The life science standards provide a framework for a variety of courses in the life sciences. These indicators may be included in local curriculum for any life sciences course, and are key concepts for a course focusing on human anatomy and physiology. Human anatomy, physiology and health are vital topics for students to understand. See Kansas Health and PE Standards for additional information.

▲ = High School Assessed Indicator

LIFE SCIENCE – The student will develop an understanding of the cell, molecular basis of heredity, biological evolution, interdependence of organisms, matter, energy, and organization in living systems, and the behavior of organisms.

Benchmark 7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Grades 8-12 Indicators	Additional Specificity
The student ...	
1. understands differences in structure and function among organisms and can identify the characteristics of relevant life forms.	1. a. Major structural differences among organisms include unicellular and multicellular, plants and animals, and invertebrates and vertebrates b. Common functions include digestion, respiration, excretion, locomotion, communication and reproduction
2. ▲understands that homeostasis is the dynamic regulation and balance of an organisms internal environment to maintain conditions suitable for survival.	
3. ▲understands that living things change following a specific pattern of developmental stages called life cycles.	
4. understands that in complex organisms there is a division of labor into specific body systems i.e., respiration, digestion, nervous, endocrine, excretion, circulatory, reproductive, immune, skeletal and muscle.	4. a. These systems interact with one another to maintain homeostasis. b. Relate the organs and their functions to the body system.

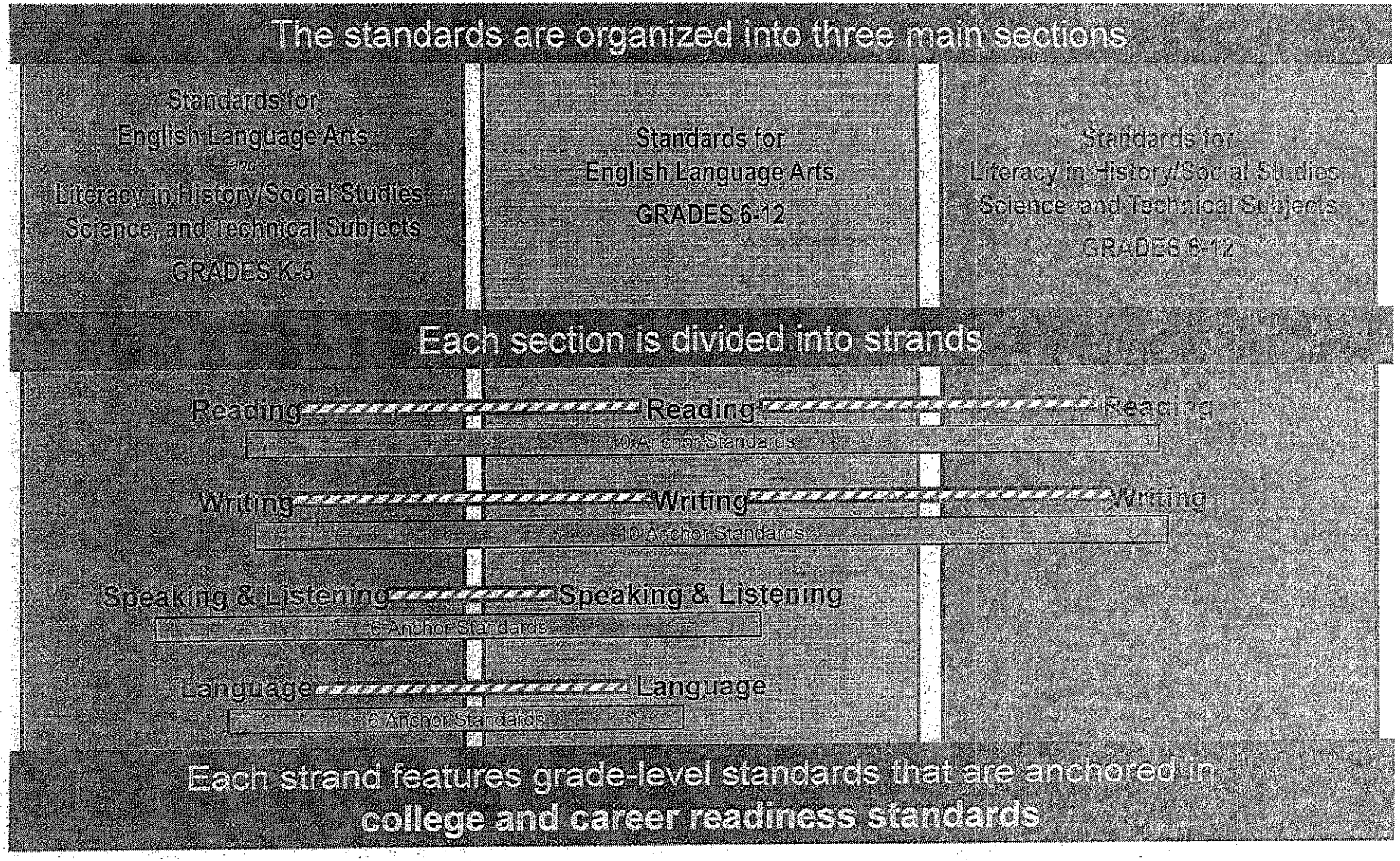
5. understands taxonomy is the systematic way in which organism are placed into a hierarchical classification system, according to their physical and genetic characteristics and their evolutionary history.	5. a. All organisms are classified into one of a number of kingdoms, the broadest taxonomic category b. All organisms are classified into a number of intermediate categories, of which species is the most specific.

Teacher notes:

The life science standards provide a framework for a variety of courses in the life sciences. These indicators may be included in local curriculum for any life sciences course, and are key concepts for a course focusing on human anatomy and physiology. Human anatomy, physiology and health are vital topics for students to understand. See Kansas Health and PE Standards for additional information.

▲ = High School Assessed Indicator

Common Core Standards – English Language Arts K-12



Kansas Common Core Standards

Anchor Standards* for Literacy Learning

The "Anchor Standards for Literacy Learning" were added by the Kansas Department of Education (KSDE) as part of the KS 15% for English Language Arts**. The purpose of the Kansas 15% is to emphasize concepts and teaching philosophies that are important in Kansas. Although most of the concepts included within these standards are mentioned in the Common Core State Standards (CCSS), KSDE wanted to highlight the importance of each one.

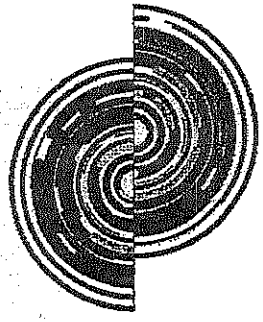
The "Anchor Standards for Literacy Learning" underscore the idea that comprehensive literacy instruction should occur both across the curriculum and within each discipline and that *all educators* share responsibility for the literacy learning of all students. Comprehensive literacy instruction should address skills in reading, writing, thinking, listening, and speaking and should be approached in a cohesive and integrated fashion rather than as discrete skills taught in isolation.

(*Standards noted with a  are part of the KS 15% for English Language Arts)

College and Career Readiness Anchor Standards for Literacy Learning		
Literacy Learning	1	Engage in literacy learning through a collaborative and community effort and in an integrated fashion, rather than as discreet skills in isolation.
	2	Use meta-cognitive strategies to monitor literacy learning progress.
	3	Engage the five essential components of reading (phonemic awareness, phonics, fluency, vocabulary, and comprehension) at all grade levels based on individual student needs.
	4	Engage a strategic and coherent focus on literacy learning across all content areas with shared literacy responsibility from all Kansas educators.
	5	Develop the literacy skills presented throughout these standards in both academic and career/technical education contexts.

**Four other anchor standards were added by the Kansas Department of Education as part of the KS 15% for English Language Arts. They are noted in the "Anchor Standards for Reading" and "Anchor Standards for Writing" sections below.

This document was adapted from the Common Core State Standards (CCSS) for use in Kansas. To access the full CCSS document, which includes important supplemental information and several appendices, please visit www.corestandards.org.



STANDARDS FOR

Literacy in History/Social Studies, Science, and Technical Subjects

6–12

College and Career Readiness Anchor Standards for Reading

The grades 6-12 standards on the following pages define what students should understand and be able to do by the end of each grade span. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

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.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
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. 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. Assess how point of view or purpose shapes the content and style of a text.

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.*
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. 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

10. Read and comprehend complex literary and informational texts independently and proficiently.

*Please see "Research to Build and Present Knowledge" in Writing for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

Note on range and content of student reading

Reading is critical to building knowledge in history/social studies as well as in science and technical subjects. College and career ready reading in these fields requires an appreciation of the norms and conventions of each discipline, such as the kinds of evidence used in history and science; an understanding of domain-specific words and phrases; an attention to precise details; and the capacity to evaluate intricate arguments, synthesize complex information, and follow detailed descriptions of events and concepts. In history/social studies, for example, students need to be able to analyze, evaluate, and differentiate primary and secondary sources. When reading scientific and technical texts, students need to be able to gain knowledge from challenging texts that often make extensive use of elaborate diagrams and data to convey information and illustrate concepts. Students must be able to read complex informational texts in these fields with independence and confidence because the vast majority of reading in college and workforce training programs will be sophisticated nonfiction. It is important to note that these Reading standards are meant to complement the specific content demands of the disciplines, not replace them.

Reading Standards for Literacy in History/Social Studies 6–12

The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details		
1. Cite specific textual evidence to support analysis of primary and secondary sources.	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. 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.
2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.	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. 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.
3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).	3. Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.	3. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
Craft and Structure		
4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.	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. 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).
5. Describe how a text presents information (e.g., sequentially, comparatively, causally).	5. Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.	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.
6. Identify aspects of a text that reveal an author's point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).	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. Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.
Integration of Knowledge and Ideas		
7. Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.	7. Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.	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.
8. Distinguish among fact, opinion, and reasoned judgment in a text.	8. Assess the extent to which the reasoning and evidence in a text support the author's claims.	8. Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.
9. Analyze the relationship between a primary and secondary source on the same topic.	9. Compare and contrast treatments of the same topic in several primary and secondary sources.	9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
Range of Reading and Level of Text Complexity		
10. By the end of grade 8, read and comprehend history/social studies texts in the grades 6–8 text complexity band 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. By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Reading Standards for Literacy in Science and Technical Subjects 6–12

RST

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details		
1. Cite specific textual evidence to support analysis of science and technical texts.	1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	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.
2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.	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. 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.
3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	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. 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		
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 6–8 texts and topics*.	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. 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. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.	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. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in 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. 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.
Integration of Knowledge and Ideas		
7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	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. 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.
8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.	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. 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.
9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.	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. 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.
Range of Reading and Level of Text Complexity		
10. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.	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. By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently.

College and Career Readiness Anchor Standards for Writing

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade span. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Text Types and Purposes*

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.
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.
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.
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

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.
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.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

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.

*These broad types of writing include many subgenres. See Appendix A for definitions of key writing types.

Note on range and content of student writing

For students, writing is a key means of asserting and defending claims, showing what they know about a subject, and conveying what they have experienced, imagined, thought, and felt. To be college and career ready writers, students must take task, purpose, and audience into careful consideration, choosing words, information, structures, and formats deliberately. They need to be able to use technology strategically when creating, refining, and collaborating on writing. They have to become adept at gathering information, evaluating sources, and citing material accurately, reporting findings from their research and analysis of sources in a clear and cogent manner. They must have the flexibility, concentration, and fluency to produce high-quality first-draft text under a tight deadline and the capacity to revisit and make improvements to a piece of writing over multiple drafts when circumstances encourage or require it. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and long time frames throughout the year.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6–12

The standards below begin at grade 6; standards for K–5 writing in history/social studies, science, and technical subjects are integrated into the K–5 Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

Text Types and Purposes

Grades 6–8 students:

1. Write arguments focused on *discipline-specific content.*
   a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
   b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.
   c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
   d. Establish and maintain a formal style.
   e. Provide a concluding statement or section that follows from and supports the argument presented.

Grades 9–10 students:

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.

Grades 11–12 students:

1. Write arguments focused on *discipline-specific content.*
   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 the claim(s), counterclaims, reasons, and evidence.
   b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form 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 or supports the argument presented.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6–12

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Text Types and Purposes (continued)		
2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style and objective tone. f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	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).	2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic and 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 varied transitions and sentence structures 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; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).
3. (See note; not applicable as a separate requirement)	3. (See note; not applicable as a separate requirement)	3. (See note; not applicable as a separate requirement)

Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6–12

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
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.	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.
5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	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, focusing on addressing what is most significant for a specific purpose and audience.
6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.	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, 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 research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	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 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, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	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.	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. Draw evidence from informational texts to support analysis reflection, and research.	9. Draw evidence from informational texts to support analysis, reflection, and research.	9. Draw evidence from informational texts to support analysis, reflection, and research.
Range of Writing		
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.	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.	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.

Honors Biology Units

Unit One – Introduction to Biology

Unit Two – Ecology

Unit Three – Plants

Unit Four – Cells

Unit Five – Cell Division

Unit Six – Nucleic Acids

Unit Seven – Heredity

Unit Eight – Classification and Diversity

Unit Nine – Animals

Unit Ten – Human Body

All units are currently covered in Regular Biology. The honors course will cover several new sections in each unit including new labs.

The Honors class will incorporate online activities to a great extent inside and outside the classroom. Projects will be included in each unit as inquiry based learning following international baccalaureate curriculum guidelines. Computer interface will be heavily relied on in labs with the use of probe packages. No books will be needed. Resources already owned by the school district will be utilized. A new Vernier probe package was purchased in fall 2011 for AP chemistry and will be used by the two honors classes. The classes will be supported by Blackboard to a greater extent than currently used in the science department. Clickers, Hovercam, flip cameras, other available technology will be incorporated throughout each unit. A research project will required of each student using standards from the English department.

The honors biology and chemistry classes will be closely aligned using the same rubrics, grading system, and classroom policies and procedures as the AP and IB classes. The classes will be beneficial to both students involved and not involved in the AP and IB classes.

No additional budget requirements necessary.

Needs Assessment

At Campus High School, honors English and social studies classes are already in place and full. Currently, there are no honors science classes. Because of this, many students are not as prepared as they could be for advanced classes. In the past four years, the enrollment in advanced science classes has greatly increased. Students want to take more challenging classes. With the advent of IB, the necessity of honors science classes becomes evident. The two teachers involved have been to workshops that have stressed the need to prepare students thoroughly for their upper division science classes. The success in those classes is dependent on their preparation. Much higher level learning activities need to be done so the student can be ready and confident when coming into a higher level class. Colleges are seeing a problem in entry level science classes with student preparedness. Honors science classes will help give Campus High School students the best preparation possible for entry level college science classes.

Student Evaluation Process

In an honors biology class, projects and group activities will play a greater role in student learning. Students will be exposed to rubrics currently used by AP and IB classes for grading. Testing will be a greater percentage of a student's grade in an honors class than in a regular class. Testing will start to resemble ACT, SAT, IB, and AP question levels. Honors students will be given the opportunity to get used to a more rigorous testing environment. Each student will be required to carry out a research project using the standards supplied by the English department.