

TRUMBULL PUBLIC SCHOOLS TRUMBULL, CONNECTICUT

Curriculum Committee of the
Trumbull Board of Education

Regular Meeting

Thursday, May 18, 2023, 8:30 a.m.
Trumbull High School Main Office Conference room

AGENDA

- I. Call to Order/Introduction
- II. Public Comment
- III. Approval/Minutes – Regular Meeting 2-8-2023
- IV. New Business
 - a. Curriculum Guide Update- Grades 10, 11, and 12- Digital Media
 - b. Curriculum Guide Update- Grade 9- Global Civilizations
 - c. Curriculum Guide Update- ECE Biotechnology
 - d. New Text Proposal- Grades 11-12, Statistics
 - 1. Larson, Ron. *Elementary Statistics: Picturing the World* (8th Edition)
 - e. Curriculum Resource Update: Middle School Science

TRUMBULL PUBLIC SCHOOLS TRUMBULL, CONNECTICUT

Curriculum Committee of the
Trumbull Board of Education

Regular Meeting

Wednesday, February 8th, 2023, 8:30 a.m.
Trumbull High School Main Office Conference room

MINUTES

- I. Call to Order/Introduction- Mrs. Petitti called meeting was called to order at 8:33am.

Members Present

M. Petitti, BOE Curriculum Committee Chair
J. McNamee BOE Member
L.Nuland , BOE Member
S. Iwanicki, Ed.D., administrative designee

Members Absent

- II. Public Comment

No public comment was received.

- III. Approval/Minutes – Regular Meeting October 1-10-2023 L. Nuland motioned to approve the minutes from 11-29-2022. M. Petitti seconded. J. McNamee abstained. The motion passed.

- IV. New Business

- a. A motion was made by J. McNamee to amend the agenda to review the additional New Course Proposal for Native American Studies. M. Petitti seconded. The motion passed unanimously.
- b. New Course Proposal- Grade 9-12- American Indian History Class- History teacher, Katie Boland shared that the proposed American Indian History course would add to Social Studies elective offerings. Ms. Boland is pursuing a second masters in Native American Studies, so offering this course will dovetail with this work. The course will have a specific focus on recognized tribes in Connecticut, including the Golden Hill tribe. There is a chance that UConn will allow Trumbull Public Schools to offer it as an ECE course in the future. M. Petitti inquired if this course will meet the new legislation around Native American Studies. This course will be a pilot for the state as a standalone, but it *will* address the state requirement of teaching the content which begins next year. The class will be using a reader as one of the primary resources as there are very few quality textbooks in the area of Connecticut Native American History suitable for a high school level class. J. McNamee moved to accept the course Grade 9-12- American Indian History Class for full Board approval and L. Nuland seconded. The motion passed unanimously.

c. New Course Proposal- Grade 12 Honors Authentic Science Research

The Honors Authentic Science Research course stems from a course that Will Heher has taught in other districts in the past and it is designed for students to look into peer reviewed science resources and experimentation for those students seeking a career in Science. It is not limited to one Science genre. Students learn about peer reviewed process, then study a topic in genre of their choice, and then can even engage in competitions that may produce substantial scholarships. Students will also have meeting with mentors and discuss their work. L.Nuland asked if this could be worked into their Capstone. While not required, Department Chair, T. Edwards, shared that it could be easily worked into the Capstone. The course is designed for high level Science students. J. McNamee asked if the course could be expanded to more than one year. It was shared that THS is open to the option of expansion, but need to monitor the initial appetite. J. McNamee inquired about if it could be offered at the AP level. W. Heher shared that it is a new course being proposed by the AP Board and may become AP in the future. It was discussed that the course really should be at the Honors level; the title was changed accordingly. J. McNamee also asked how the course will recruit students who may not be enrolled from Black and Hispanic populations. T. Edwards shared that the department frequently works to promote students and will continue to do so. Fellow Science teacher Jordan Miller added that he frequently makes recommendation based on a number of factors outside of just traditional test scores, including enthusiasm for Science. Dr. Iwanicki added that the district is also working with our District Equity Leadership Team (DELT) monitor enrollment by subgroups and address concerns accordingly. L. Nuland motioned to accept the new course *Grade 12 Honors Authentic Science Research* for full Board approval and J. McNamee seconded. The motion passed unanimously.

d. New Course Proposal- Grade 11 and 12 Astronomy

Science teacher, Jonathan Albers, who has an undergrad in Astronomy in addition to a concentration in Physics, was motivated by a course in his high school career in Astronomy to propose this class. The time in our current Science programming is limited for Astronomy. J. Albers is looking forward to using town resources (Hillcrest Planetarium and Middlebrook Telescope) and other news interests to work with students around topics related to the field Astronomy. The course is aimed at grades 11 and 12 because of the Math content that is needed to complete the work. It would serve as a complementary course to supplement courses they already take so students can earn full Science credits. M. Petitti mentioned that there could be a younger population that would be interested in Astronomy as well. Dr. Iwanicki mentioned the middle school curriculum revision is being planned and integrating more Astronomy in the future is a possibility. J. McNamee asked about how the Sacred Heart University (SHU) Discovery Science Center and Planetarium played a role in this work. Dr. Iwanicki shared that Board Chair, Lucinda Timpanelli, proposed that we look into ways to rejuvenate the use of our Planetarium. As a result, a curriculum group, called "Steps to Innovation," has been meeting to review middle school curriculum and look for ways to modernize our spaces at both Hillcrest Middle School and Middlebrook Elementary School. This modernization includes generous donations of astronomical equipment and supports from SHU Discovery Science Center as well as partnerships in professional development. J. Albers has a history of working and running Science shows connected to the field. He looks forward to being involved in this work. L. Nuland motioned to accept the new course *Grade 11 and 12 Astronomy* for full Board approval and J. McNamee seconded. The motion passed unanimously.

- e. New Course Proposal- Grade 11 and 12 Forensic Science
Dept. Chair Tom Edwards led the introduction to the course by sharing that Science Teacher Jordan Miller ran an after school Forensic Club for THS that was very successful. He took our students, sometimes up to 25, to competitions that they won against schools that offered the content as a class. J. Miller shared that this new Forensic course, if approved, will be offered to grades 11 and 12. Incoming 11th graders will be taking the course concurrently with Forensics. Hands on work and lab-based projects that incorporate STEM skills will help students to learn deeply. Quality lab skills, problem-solving skills, and collecting evidence that speaks for itself will be at the core of the course. These structures help to bring authenticity to the course. L. Nuland moved to accept the new course *Grade 11 and 12 Forensic Science* for full Board approval and J. McNamee seconded. The motion passed unanimously.

- f. New Course Proposal- Grade 9-12 Percussion Ensemble
Music teacher, Josh Murphy shared that there are currently too many students in the Band classes that are percussion resulting in over 50% of the courses being comprised of percussion. In Mr. Murphy's discussions with other Band colleagues in the region, a strategy to balance this is to create a Percussion Ensemble course which THS currently has healthy numbers to support. A lot of creativity can be built into the class and having it will allow students to access more types of percussion rather than have, for example, 10 snare drum players. M. Petitti expressed that courses should have healthy numbers to be run and was assured that there are enough students right now. L. Nuland asked if students will be able to take Band as well as the Percussion Ensemble or if they will run into conflicts. Mr. Murphy shared that the current numbers show that they can support the variety of music course offered. J. McNamee offered that she imagined students who were interested in *just* percussion would now have the ability to participate. Department Chair Mr. DiScala mentioned the new schedule is allowing for this work to happen. L. Nuland motioned to accept the new course *Grade 9-12 Percussion Ensemble* for full Board approval and M. Petitti seconded. The motion passed unanimously.

- g. New Course Proposal- Grade 9-12 Introduction to Piano
Music teacher J. Murphy also presented this class. He clarified that this course is aimed at students in grades 9-12 and complements the guitar class. Currently guitar often engages students not involved in other courses in ensemble music classes that may want to be able to participate on a more individual level. Piano is one of the more commonly played instruments at home. Department Chair, V.DiScala, shared that the music department spaced out a classroom room and they can arrange to outfit the room with decent keyboards for approximately \$3,000. It can support 18 students at a time. J. Murphy noted that the course would be a wonderful opportunity for students. J. Nuland moved to accept the new course *Grade 9-12 Introduction to Piano* for full Board approval and L. Nuland seconded. The motion passed unanimously.

- h. New Course Proposal- Grade 10-12 Unified Physical Education
Adapted Physical Education teacher Pamela Nitsch noted that over the years, they have seen a need for regular education and self-contained students to develop more social relationships and interaction. Mr. DiScala added that they have also seen a lot of student interest. This course, if approved, would be scheduled concurrently with general physical

education. It would not affect staff numbers and expand opportunities. M. Petitti added that this might actually help motivate some students that do not enjoy physical education. L. Nuland mentioned that it will allow more integration for students to play team sports during physical education time as well. Mr. DiScala added that there would be a screening processes to enroll students. J. Nuland moved to accept the new course *Grade 9-12 Introduction to Piano* for full Board approval and L. Nuland seconded. The motion passed unanimously.

- i. New Course Proposal- Grade 12 Story of Self – Exploring the Bridge Between Fiction and Non-Fiction English Teacher Jim McCaffrey shared that he has been thinking about the course *Story of Self* and exploring the life of real people in an English course elective for some time. Joseph Campbell's story arch and life of the hero is a fascination and many memories follow that same story arch. The focus of this course is the ways in which heroes and people find meaning and forge purpose. Interviews will be involved as part of the course. Three major themes would be incorporated into a personalized portfolio project--overcoming an obstacle/going through a defining moment, being called to action, and breaking a norm/ finding originality. He furthered that for students entering college, the skills of studying the arch, examining fiction and non-fiction, analyzing authors, and then finding their own stories of self that they present—will better prepare students that are both collegebound or seeking other post-college paths. He envisions a heterogenous class in which the content and skills meet all needs. When asked to expand on the rigor of the course, Mr. McCaffrey shared that he plans to be sure all students grow from previous levels using THS rubrics and engaging in activities such as close reading. There will be several short reading and analysis activities that correlate with similar senior electives. It is a literature course with a heavy writing component. J. McNamee asked about the reading component and Mr. McCaffrey noted that the reading and analysis promotes the writing. She further asked if it could be expanded to other grades; it was shared it was placed in electives for Grade 12 as that has been traditionally where electives have been offered. J. McNamee also asked about the quality of the novels and if we could add more high-quality texts. *The Reason I Jump* by Naoki Higashida was also discussed and will be further researched before being added to the request. There are organizations that do not approve of its translation. J. McNamee moved to accept the new course *Grade 12 Story of Self – Exploring the Bridge Between Fiction and Non-Fiction* for full Board approval and L. Nuland seconded. The motion passed unanimously.
- j. Future Meeting Date Adjustment to August 24th Date Discussion- Due to time constraints this item was tabled for the next meeting.

The meeting was adjourned at 10:21am.

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

Digital Media Grades 10, 11, and 12

2023

(Last revision date: 2011)

Curriculum Writing Team

**Nicholas Daddona
Christina Rusate
Susan C. Iwanicki, Ed.D.**

**Technology Education Teacher THS
CTE Department Chair
Assistant Superintendent**

Digital Media
Grades 10, 11, 12
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The Trumbull Board of Education will continue to take Affirmative Action to ensure that no persons are discriminated against in its employment.

CORE VALUES AND BELIEFS

The Trumbull High School community engages in an environment conducive to learning which believes that all students will **read and write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.

Approved 8/26/2011

INTRODUCTION & PHILOSOPHY

Digital Media is a semester-long elective course available to 10th, 11th, and 12th graders. The course is offered through the Technology Education Department and provides interested students with the knowledge and understandings necessary to operate video equipment, use video editing software, as well as create and produce videos. This course is being offered to any students who are interested in the field of Digital Media and would like to learn more about the process of creating, producing, and editing videos. Students will be expected to engage in the production process to write, plan, film, and edit short film projects so as to apply what they have learned. There is no prerequisite experience needed for this course.

Through various projects, students will learn: camera usage, elements of production, sound, storyboarding, editing, and uploading. As well as how to use studio grade video and audio equipment and professional video editing software. Projects will include but are not limited to: Commercial/Advertisement, Streaming/Podcasting Media Specialist, News Interview, and Public Service Announcement. A Digital Media Portfolio will be a comprehensive culmination to the course and will be representative of all the work the students have completed on their way to becoming Media Specialists.

Students will be evaluated in four different ways: Partner Evaluations, Daily Log of work toward completing the assignment, Ability to produce a project that fits the outlined assignment, and completing Research related to the project learning objectives. Student work will be evaluated using a variety of techniques in order to accommodate and recognize different learning styles.

COURSE GOALS

The following course goals derive from the 2014 Connecticut State Department of Education Technology Education Standards for Digital Media.

- DVP.02 Safety: Describe and apply the fundamental principles that relate to both field and studio production.
 - DVP.02.01 Demonstrate fire safety prevention and extinction, and trip hazards as it relates to lighting and electrical equipment.*(B4)
 - DVP.02.02 Describe the fundamentals of step ladder safety.*(B5)
 - DVP.02.03 Identify proper methods of transport and storage for appropriate production and personal equipment.*(B6)
 - DVP.02.04 Describe and apply fundamentals of cable safety.*(B7)
- DVP.03 Pre-Production: Describe the process used for concept development and storyboarding as part of the pre-production process while focusing on the importance of communication, deadlines, and legal considerations.
 - DVP.03.01 Identify a target audience and design an appropriate message for the target market.*(C8)
 - DVP.03.02 Describe the process used for concept development/treatment.*(C9)
 - DVP.03.03 Identify and describe the script elements of storyboarding, two column, and screenplay format.*(C10)
 - DVP.03.04 Define and describe the legal concerns of copyrights, ethics, releases, and royalties.*(C11)
 - DVP.03.05 Explain the importance of budgets, scheduling, and deadlines in meeting the requirements of a project.*(C12)
 - DVP.03.06 Evaluate a shooting location in terms of lighting, sound, production equipment needs, and electrical essentials.*(C13)
- DVP.04 Production: Identify and describe the elements of production to effectively deliver a message.
 - DVP.04.01 Describe, plan the use of, and apply 3-point lighting, source light, white balance, scrims, and reflectors using the appropriate techniques.*(D14)
 - DVP.04.02 Describe the various types of sound equipment and techniques used with handheld, lavalier, shotgun, condenser, omni and directional methods.*(D15)
 - DVP.04.03 Describe the equipment and personnel necessary for producing a studio production.*(D16)
 - DVP.04.04 Describe the equipment and personnel necessary for producing a field production.*(D17)
- DVP.05 Cinematic Principles: Describe and apply fundamental camera operations, movement, and composition.
 - DVP.05.01 Describe white balance, iris, aperture, auto and manual focus, audio settings, and levels in camera operations.*(E18)

- DVP.05.02 Describe dolly, truck, pan, and tilt as it relates to camera movements.*(E19)
- DVP.05.03 Describe the following methods of stabilization: tripod, monopod, slider, steady cam, fluid head, friction head, and dolly.*(E20)
- DVP.05.04 Describe the rule of thirds, head room, lead room/talk space, establishing shot, extreme close up, close up, medium, medium wide, wide, extreme wide, and depth of field as it relates to camera composition/framing.*(E21)
- DVP.06 Post-Production: Identify and describe the elements of post-production to effectively deliver a message.
 - DVP.06.01 Create graphics and titles appropriate to the project.*(F22)
 - DVP.06.02 Describe play head, timeline, bin, multiple tracks, trimming, and edit points within nonlinear video editing.*(F23)
 - DVP.06.03 Describe and apply import, file, and asset management.*(F24)
 - DVP.06.04 Edit and finalize images and video for rough cut, transitions, color correction, keying, and pacing with nonlinear software.*(F25)
 - DVP.06.05 Edit audio for voice over, sound levels, music, and sound effects with application software.*(F26)
- DVP.07 Media Components and Concepts: Identify and understand the technological literacy of video production.
 - DVP.07.01 Describe the following digital literacy terminology: aspect ratios, screen resolution, frame rate, file formats, codec, compression, bit rate, and display properties.*(G27)

COURSE ENDURING UNDERSTANDINGS

Students will understand...

- how Digital Media is used to communicate messages.

COURSE ESSENTIAL QUESTIONS

- Why is communication through the art of Digital Media an essential element of our society?
- What is involved in creating Digital Media?
- How do you safely use Digital Media Equipment?

COURSE KNOWLEDGE & SKILLS

- Students will know . . .
 - How to use Digital Media Equipment Safely.
 - How to identify and describe the script elements of storyboarding, two column, and screenplay format.
 - How to import, file, and manage Digital Media Assets.

- How to edit and finalize images and video for rough cut, transitions, color correction, keying, and pacing with nonlinear software.
- The equipment and personnel necessary for producing a studio production.
- How to demonstrate and apply methods of stabilization: tripod, monopod, slider, steady cam, fluid head, friction head, and dolly.
- Students will be able to . . .
 - Use Digital Media Equipment such as cameras, tripods, audio microphones, and editing software.
 - Transfer files from the camera to a computer for editing.
 - Edit media using the video editing software
 - Create storyboards and scripts to portray their films in the best possible way.
 - Plan a video from conception to completion
 - Execute the plan and make any changes necessary to enhance the quality of the project.

COURSE SYLLABUS

Course Name

Digital Media

Level

Elective

Prerequisites

N/A

General Description of the Course

Digital Media is a semester-long course offered to students in grades 10, 11, and 12. This course provides interested students with the ability to create and produce videos that demonstrate a wide range of understanding and ability. Students will learn to use professional level cameras while incorporating the use of the video editing software, to create engaging and effective videos. The class emphasizes the process of organizing and creating a video and focuses on filming and editing content that the students are passionate about. Students will come away learning how to create videos from conception, and execute them to the finished product. Students will complete various projects including: Basic use of a Camera, Basic Video Editing, Basic Sound Editing, Planning and Writing a Script.

Assured Assessments

Formative Assessments:

- Partner Evaluations
- Class Participation

Summative Assessments:

- Commercial or Advertisement Project
- Streaming/Podcasting Media Specialist Project
- News Interview Project
- Public Service Announcement Project

Supplemental Texts

- Students complete several research Web Quests that teach them various aspects of Digital Media in projects. There is a research assignment for each project in the class and students are graded on their ability to find the answers on the research docs.

Unit 1**Introduction to Classroom & Equipment Safety****Unit Goals**

At the completion of this unit, students will:

Understand how to work safely in the Digital Media Classroom as well as with the Digital Media equipment. Students will also understand the safety procedures utilized in the Digital Media classroom.

DVP.02.01	Demonstrate fire safety prevention and extinction, and trip hazards as it relates to lighting and electrical equipment.*(B4)
DVP.02.02	Describe the fundamentals of step ladder safety.*(B5)
DVP.02.03	Identify proper methods of transport and storage for appropriate production and personal equipment.*(B6)
DVP.02.04	Describe and apply fundamentals of cable safety.*(B7)

Unit Essential Questions

- Why is it important that everyone understands and follows the safety procedures in and around the lab?
- How to work safely within the Digital Media Production room?
- How do you safely use digital media production equipment?

Unit Scope and Sequence

- General studio safety
- Equipment safety
- Digital media/internet use safety and ethics
- Uploading files to the editing software

Unit Assured Assessments

Formative Assessments:

- Practice video- Students will take a video of anything they choose around the classroom and upload the video to the Video Editing Software for the first time.

Summative Assessments:

- A written assessment covering specific lab safety procedures for class.
- Digital Media Classroom Safety Quiz
- Parent Signature Form

Resources

Core

- Video Editing Software (Adobe Premiere)

Supplemental

- Provide note taking sheets for safety procedures

Time Allotment

- Approximately 1-2 Weeks

UNIT 2

Cinematic Principles, Media Components and Concepts of Digital Media

Unit Goals

At the completion of this unit, students will:

Be able to describe and apply fundamental camera operations and shot types they can utilize in their projects. Understand the principles of movement, and composition and how they can affect a shot. As well as identify and understand the technological literacy of video production such as frame rate, file compression, and formatting.

DVP.05.01	Describe white balance, iris, aperture, auto and manual focus, audio settings, and levels in camera operations.*(E18)
DVP.05.02	Describe dolly, truck, pan, and tilt as it relates to camera movements.*(E19)
DVP.05.03	Describe the following methods of stabilization: tripod, monopod, slider, steady cam, fluid head, friction head, and dolly.*(E20)

DVP.05.04 Describe the rule of thirds, head room, lead room/talk space, establishing shot, extreme close up, close up, medium, medium wide, wide, extreme wide, and depth of field as it relates to camera composition/framing.*(E21)

DVP.07.01 Describe the following digital literacy terminology: aspect ratios, screen resolution, frame rate, file formats, codec, compression, bit rate, and display properties.*(G27)

Unit Essential Questions

- Why are some file formats better than others in Digital Media?
- What is Digital Media, and why is it important to communicate visually?
- Why is it important to understand all of the Camera Operations and settings?
- Why is it important to understand the screen size and resolution in Digital Media?

Unit Scope and Sequence

- Filming styles and shot types
- Camera settings and operations
- Tripod usage to stabilize shots
- Depth of field and zoom functions
- Screen resolution and Aspect ratios
- File formats and compressing files

Unit Assured Assessments

Formative Assessments:

- Teacher meetings, check ins & exit slips
- Shoot various shots with different shot types such as: zoom at differing levels. Upload files and compare which shots captured the area best.
- Shoot various shots with different tripod setups such as: tripod, monopod, and dolly. Upload files and compare which shots captured the area best.
- Complete the Know your Camera Worksheet, where students will identify on a worksheet the Camera Parts and their applications.
- Complete the Know your Tripod Worksheet, where students will identify on a worksheet the Tripod Parts and their applications.

Summative Assessments:

- Know your Camera and Tripod Assessment: students will identify the parts and how their usage can change a shot.

Resources

Core

- Video Editing Software (Adobe Premiere)

Time Allotment

- Approximately 2-3 Weeks

UNIT 3

Pre-Production of Digital Media

Unit Goals

At the completion of this unit, students will:

Be able to Identify a target audience and develop a storyboard that will captivate that audience. Evaluate a shooting location to fit the planning done in the storyboarding process. Demonstrate the importance of budgets, scheduling, and deadlines in meeting the requirements of a project.

DVP.03.01	Identify a target audience and design an appropriate message for the target market.
DVP.03.02	Describe the process used for concept development/treatment.
DVP.03.03	Identify and describe the script elements of storyboarding, two column, and screenplay format.
DVP.03.04	Define and describe the legal concerns of copyrights, ethics, releases, and royalties.
DVP.03.05	Explain the importance of budgets, scheduling, and deadlines in meeting the requirements of a project.
DVP.03.06	Evaluate a shooting location in terms of lighting, sound, production and equipment needs, and electrical essentials.

Unit Essential Questions

- What is a target audience?
- How do you design a message that is appropriate for a target audience?
- What are the essential elements of a script and storyboarding?
- How to choose a shooting location to optimize lighting and sound?
- How to stay within the limitations of a budget?

Unit Scope and Sequence

- Identify a Target Audience

- Brainstorm concepts
- Create a script
- Create a storyboard
 - Planning through the Daily Log Document
- Evaluate shooting location
- Identify budget and deadline restrictions

Unit Assured Assessments

Formative Assessments:

- Teacher meetings, check ins & exit slips
- Students will identify and find examples of the basic elements of the design process and principles
- Daily Log - includes brainstorming, script, and storyboarding process.
- Partner Evaluations

Summative Assessments:

- Storyboard creation
- Script creation
- Video budget
- Research project- WebQuest identifying how to create a script, storyboard, shooting locations, lighting, and budgets
- Public Service Announcement Project

Resources

Core

- Video Editing Software (Adobe Premiere)

Supplemental

-

Time Allotment

- Approximately 3-4 Weeks

UNIT 4

Production of Digital Media

Unit Goals

At the completion of this unit, students will:

Identify and describe the elements of production to effectively capture the intended shot. Understand lighting and audio principles and execute techniques to maximize lighting and audio quality in a shot. Understand the equipment and personnel necessary for producing audio and how to capture the best audio possible in a field and studio production environment.

DVP.04.01	Describe, plan the use of, and apply 3-point lighting, source light, white balance, scrims, and reflectors using the appropriate techniques.
DVP.04.02	Describe the various types of sound equipment and techniques used with handheld, lavalier, shotgun, condenser, omni, and directional methods.
DVP.04.03	Describe the equipment and personnel necessary for producing a studio production.
DVP.04.04	Describe the equipment and personnel necessary for producing a field production.

Unit Essential Questions

- How do you factor lighting into the evaluation of a shooting location?
- How do you factor sound into the evaluation of a shooting location?
- What are the differences between field and studio production?
- How does the equipment you use vary between field and studio production?

Unit Scope and Sequence

- Utilizing different types of Lighting for different types of shots
- Assessing the sound quality of a location
- Understanding the equipment needed for Field Production
- Understanding the equipment needed for Studio Production

Unit Assured Assessments

Formative Assessments:

- Teacher meetings, check ins & exit slips
- Daily Log
- Partner Evaluations
- What is Lighting? Worksheet

Summative Assessments:

- Research Project
- Maximizing Audio, Presentation
- Creating a Podcast, Presentation
- Streaming/Social Media Page, Presentation
- How to interview? Presentation

Resources

Core

- Image Editing Software (Adobe Photoshop)
- Video Editing Software (Adobe Premiere)

Supplemental

-

Time Allotment

- Approximately 5-6 Weeks

UNIT 5

Post Production in Digital Media

Unit Goals

At the completion of this unit, students will:

Be able to identify and describe the elements of post-production to effectively deliver a message. Students will learn how to import and edit Digital Media. Through Video Editing Software Tools, students will change their Digital Media by adding elements like graphics, transitions, and voice overs.

DVP.06.01	Create graphics and titles appropriate to the project.*(F22)
DVP.06.02	Describe play head, timeline, bin, multiple tracks, trimming, and edit points within nonlinear video editing.*(F23)
DVP.06.03	Describe and apply import, file, and asset management.*(F24)
DVP.06.04	Edit and finalize images and video for rough cut, transitions, color correction, keying, and pacing with nonlinear software.*(F25)
DVP.06.05	Edit audio for voice over, sound levels, music, and sound effects with application software.*(F26)

Unit Essential Questions

- How do you edit images in Video Editing Software?
- How can the addition of graphics, transitions, and audio voice overs enhance the quality of Digital Media?
- How do you import Digital Media?

Unit Scope and Sequence

- Import Digital Media onto a Video Editing Software
- Edit and Finalize video by adding transitions, effects, and graphics
- Edit audio for optimal sound as well as adding voice overs

Unit Assured Assessments

Formative Assessments:

- Teacher meetings, check ins & exit slips
- Graphics creation
- Remove Backgrounds
- Animations creation
- Audio manipulation
- Daily Log
- Partner Evaluations

Summative Assessments:

- Video Editing Software presentation
- Research Project
- Commercial/Advertisement Project

Resources

Core

- Video Editing Software (Adobe Premiere)
- Image Editing Software (Adobe Photoshop)
- Added Effect Software (Adobe After Effect)

Supplemental

-

Time Allotment

- Approximately 3-4 Weeks

CREDIT

One-half credit in Technology Education
One class period daily for a half year

PREREQUISITES

N/A

CURRENT REFERENCES

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Critical Thinking/Problem Solving & Communication Rubrics
- Digital Media Group Participation Rubric
- Digital Media Project Assignment Rubric
- Digital Media Daily Log Rubric
- Digital Media Research Rubric
- Final Examination Grading Criteria

Digital Media Group Participation Rubric (Each Unit contributes 5 points to overall grade)

5

- Participates daily in class discussions
- Responds to and builds on other students' ideas
- Offers insightful ideas to assist the group in completing assignments
- Respects and actively listens to others' ideas/opinions

4

- Participates frequently in class discussions
- Responds to other students' ideas
- Sometimes offers to ideas the group
- Respects and listens to others' ideas/opinions

3

- Rarely participates in class discussions, but will offer relevant statements when called upon by instructor
- Rarely responds to other students' ideas
- Rarely offers ideas to the group
- Sometimes distracted or inattentive to others' ideas/opinions

2

- Fails to participate in class discussions, even when called upon by instructor
- Does not respond to other students' ideas
- Does not assist group in any way
- Distracted or inattentive to others' ideas/opinions

1-0

- Defiantly refuses to participate in class discussions, even when called upon by instructor
- Disruptive during class discussion
- Disrespectful to others' opinions/idea

Digital Media Daily Log Rubric
(Each Project contributes 5 points to overall grade)

5

- Participates daily in class discussions
- Responds to and builds on other students' ideas
- Offers insightful ideas to assist the group in completing assignments
- Respects and actively listens to others' ideas/opinions
- Provides clear descriptions of the tasks each group member completed during class.
- Completes all five Exit Tickets

4

- Participates frequently in class discussions
- Responds to other students' ideas
- Sometimes offers to ideas the group
- Respects and listens to others' ideas/opinions
- Provides some information about the tasks each group member completed during class.
- Completes four Exit Tickets

3

- Rarely participates in class discussions, but will offer relevant statements when called upon by instructor
- Rarely responds to other students' ideas
- Rarely offers ideas to the group
- Sometimes distracted or inattentive to others' ideas/opinions
- Provides insight into what the group did overall but not listing the tasks each group member completed during class.
- Completes three Exit Tickets

2

- Fails to participate in class discussions, even when called upon by instructor
- Does not respond to other students' ideas
- Does not assist group in any way
- Distracted or inattentive to others' ideas/opinions
- Provides little information about the groups completed work for the day.
- Completes two Exit Tickets

1-0

- Defiantly refuses to participate in class discussions, even when called upon by instructor
- Disruptive during class discussion
- Disrespectful to others' opinions/ideas
- Provides no information about the groups completed work for the day.
- Completes one or no Exit Tickets

Digital Media Project Rubric
(Each Project contributes 5 points to overall grade)

5

- Meets all requirements for minimum time allotted
- Meets all requirements for minimum number of effects
- Portrays the style of video in a way that follows the expected plot lines for the specific project.

4

- Meets all requirements for minimum time allotted
- Meets all requirements for minimum number of effects
- Portrays the style of video in a way that resembles the expected plot lines for the specific project.

3

- Meets most requirements for minimum time allotted
- Meets most requirements for minimum number of effects
- Portrays the style of video in a way that resembles the expected plot lines for the specific project.

2

- Meets some requirements for minimum time allotted
- Meets some requirements for minimum number of effects
- Portrays the style of video in a way that resembles the expected plot lines for the specific project.

1-0

- Does not meet any requirements for minimum time allotted
- Does not meet any requirements for minimum number of effects
- Portrays the style of video in a way that does not resemble the expected plot lines for the specific project.

Digital Media Research Rubric
(Each Project contributes 5 points to overall grade)

5

- Meets all requirements for completing the entire Research Document for the Assigned Project
- Meets all requirements on articulate answers and shows a great understanding of the topic that was researched and finds supportive evidence that backs up their claims.
- Meets all requirements on providing source evidence of where they obtained the information they researched.

4

- Meets all requirements for completing the entire Research Document for the Assigned Project
- Meets all requirements on articulate answers and shows a great understanding of the topic that was researched and finds supportive evidence that backs up their claims.
- Meets some requirements on providing source evidence of where they obtained the information they researched.

3

- Meets all requirements for completing the entire Research Document for the Assigned Project
- Meets some requirements on articulate answers and shows a great understanding of the topic that was researched and finds supportive evidence that backs up their claims.
- Meets some requirements on providing source evidence of where they obtained the information they researched.

2

- Meets some requirements for completing the entire Research Document for the Assigned Project
- Meets some requirements on articulate answers and shows a great understanding of the topic that was researched and finds supportive evidence that backs up their claims.
- Meets some requirements on providing source evidence of where they obtained the information they researched.

1-0

- Does not meet any requirements for completing the entire Research Document for the Assigned Project
- Does not meet any requirements for articulate answers and shows a great understanding of the topic that was researched and finds supportive evidence that backs up their claims.
- Does not meet any requirements for providing source evidence of where they obtained the information they researched.

VISION OF THE GRADUATE- COMMUNICATION & EXPRESSION 9-12

Indicator of Attainment	Beginning	Progressing	Meets	Exceeds
PURPOSE Express ideas in alignment with the intended purpose	Does not demonstrate an understanding of the purpose. Purpose is not identified and/or unclear.	Partially expresses ideas in alignment with the purpose. Purpose is somewhat identified but not fully articulated.	Expresses ideas in alignment with the purpose. Purpose is identified and articulated.	Clearly expresses ideas in alignment with the purpose. Purpose is identified and clearly articulated and enhanced. Makes connections beyond the stated purpose.
AUDIENCE Demonstrate awareness of audience	Demonstrates little to no awareness of the audience. Language and content are inappropriate and/or ineffective for the audience.	Partially demonstrates awareness of the audience. Language and content are appropriate but may not help the audience understand the topic/position.	Demonstrates an awareness of the audience. Language and content are appropriate and helps the audience understand the topic/position.	Clearly demonstrates a complete awareness of audience by connecting to audience and adjusting as needed. Engages with and responds to audience in a developmentally appropriate manner. Language and content are appropriate and precise which helps the audience further understand the topic/position.
ORGANIZATION Organize and support ideas	The organizational structure is not effective for the intended purpose. The topic/position is unfocused and/or not supported. Details are irrelevant.	Partially expresses ideas in alignment with the purpose. Purpose is somewhat identified. The topic/position is somewhat unfocused and/or minimally supported by details.	Effective organizational structure supports the intended purpose. The topic/position is focused, well thought out, and supported by accurate and effective details.	Clearly expresses ideas in alignment with the purpose. Purpose is clearly identified and connections are made beyond the stated purpose. Substantive and accurate details support and extend the topic/position with exceptional development, specificity, and depth.
LISTENING Summarizing/paraphrasing/imitating where appropriate, and asking questions	Does not listen to or observe others. Unable to ask relevant questions. Cannot paraphrase/restate / the presenter's message.	Partially listens to, observes, and responds to others. Asks limited or no questions. Paraphrases/restates / imitates presenter with inaccuracies.	Listens to, engages, and responds to others. Asks appropriate questions. Demonstrates understanding by accurately paraphrasing/restating / imitating the speaker's message.	Actively listens to, engages with, observes and responds to others. Ask questions that indicate an interest to learn more and further understanding. Demonstrates understanding by accurately paraphrasing/restating the speaker's message and expanding upon the ideas presented.

VISION OF THE GRADUATE- Critical Thinking/Problem Solving 9-12

Indicator of Attainment	Beginning	Progressing	Meets	Exceeds
Understand and identify a problem, question or issue	Misinterprets key concepts and has not demonstrated the ability to access concepts from multiple perspectives.	Exhibits a limited understanding of key concepts and has difficulty accessing concepts from multiple perspectives.	Exhibits a general understanding of key concepts and can sometimes access those concepts from multiple perspectives.	Exhibits a thorough and accurate understanding of key concepts and can access those concepts from multiple perspectives.
Plan, apply systematic thinking and selects strategies	Shows no evidence of a plan, model, or strategy to solve a problem	Shows limited evidence of a plan, model or strategy to solve a problem	Shows a plan, model or strategy to solve a problem	Shows innovative and creative thinking to solve a problem.
Questions and analyzes relevant information related to the situation or problem	Unable to question and analyze numerical, written, or visual data and identify related evidence.	Difficulty questioning and analyzing numerical, written, or visual data and identifying related evidence.	Adequately questions and analyzes numerical, written, or visual data and selects the relevant evidence.	Questions and analyzes numerical, written, or visual data and selects the most relevant and impactful evidence. Describes why different approaches to a problem or situation could yield the same or similar results
Draws evidence-based conclusions, reflects on the solution and adjusts as needed	Solution is inadequately supported by evidence, inaccurate analysis of data and relevant information	Solution is supported with some evidence, limited analysis of data and relevant information	Solution is accurately supported by evidence the student draws/ demonstrates generally accurate conclusions based on appropriate evidence.	Shows extensive, thoughtful and reflective thinking on how a problem is solved and adjusts as needed. Solution is thorough accurate, and evidence-based

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut



Global Civilizations

Grade 9

2023

(Last revision date: 2016)

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Global Civilizations

Grade 9

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CORE VALUES AND BELIEFS

The Trumbull High School community engages in an environment conducive to learning which believes that all students will **read and write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.

Approved 8/26/2011

INTRODUCTION AND PHILOSOPHY

Global Civilizations analyzes the historical roots of both the change and continuity of relations among human societies in an increasingly interdependent world. The course focuses on the world in its present state by first understanding culture and evaluating how different perspectives emerge from different cultures. This study of world history and culture will require applying knowledge, skills and concepts to understand human behavior in relation to both the physical and cultural environment. Its focus incorporates various geographical settings and historical contexts over time. Humans at each stage of civilization have been enriched through cultural diffusion by organizing ideals, principles, and institutions representative of both individual and societal needs. This survey course will include the study of influential people, events, and ideas in critical times over the course of human history. Students in Grade 9 must take Global Civilizations which is grouped according to skill level. The program offers all students the opportunity to meet their educational needs. Upon successful completion of the course, the student will receive one Social Studies credit toward graduation.

The Global Civilizations course is designed to fulfill the need of today's students to recognize that our global environment is a multiracial, multiethnic, multicultural society. The Social Studies Department should educate students with a curriculum which emphasizes cultural pluralism as an entity which has driven global history throughout the ages. This course is predicated on the belief that competency for citizenship in the 21st century will be based on the students' ability to recognize a growing global interdependence in the social, political and economic arenas. It is the responsibility of public education to prepare students to participate and function successfully as citizens of the 21st century. In order to accomplish this goal, students must attain an awareness of how historical events, people, and evolving cultural values have shaped the world today. In this process, students will practice and develop their skills in critical thinking, communication, and collaboration.

COURSE STANDARDS

The following course standards derive from the Connecticut Elementary and Secondary Social Studies Frameworks (2015).

INQUIRY STANDARDS

DIMENSION 1: DEVELOPING QUESTIONS AND PLANNING INQUIRY

INQ 9–12.1 Explain how a question reflects an enduring issue in the field.

INQ 9–12.2 Explain points of agreement and disagreement experts have about interpretations and applications of disciplinary concepts and ideas associated with a compelling question.

INQ 9–12.3 Explain points of agreement and disagreement experts have about interpretations and applications of disciplinary concepts and ideas associated with a supporting question.

INQ 9–12.4 Explain how supporting questions contribute to an inquiry and how, through engaging source work, new compelling and supporting questions emerge.

DIMENSION 3: EVALUATING SOURCES AND USING EVIDENCE

INQ 9–12.5 Determine the kinds of sources that will be helpful in answering compelling and supporting questions, taking into consideration multiple points of view represented in the sources, the types of sources available, and the potential uses of the sources.

INQ 9–12.6 Gather relevant information from multiple sources representing a wide range of views while using the origin, authority, structure, context, and corroborative value of the sources to guide the selection.

INQ 9–12.7 Evaluate the credibility of a source by examining how experts value the sources.

INQ 9–12.8 Identify evidence that draws information directly and substantially from multiple sources to detect inconsistencies in evidence in order to revise or strengthen claims.

DIMENSION 4: COMMUNICATING CONCLUSIONS AND TAKING INFORMED ACTION

INQ 9–12.9 Refine claims and counterclaims attending to precision, significance, and knowledge conveyed through the claim while pointing out the strengths and limitations of both.

INQ 9–12.10 Construct arguments using precise and knowledgeable claims, with evidence from multiple sources, while acknowledging counterclaims and evidentiary weaknesses.

INQ 9–12.11 Construct explanations using sound reasoning, correct sequence (linear or nonlinear), examples, and details with significant and pertinent information and data, while

acknowledging the strengths and weaknesses of the explanation given its purpose (e.g., cause and effect, chronological, procedural, technical).

INQ 9–12.12 Present adaptations of arguments and explanations that feature evocative ideas and perspectives on issues and topics to reach a range of audiences and venues outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, reports, and maps) and digital technologies (e.g., Internet, social media, and digital documentary).

INQ 9–12.13 Critique the use of claims and evidence in arguments for credibility.

INQ 9–12.14 Critique the use of the reasoning, sequencing, and supporting details of explanations.

INQ 9–12.15 Use disciplinary and interdisciplinary lenses to understand the characteristics and causes of local, regional, and global problems; instances of such problems in multiple contexts; and challenges and opportunities faced by those trying to address these problems over time and place.

HISTORY STANDARDS

Change, Continuity, and Context

HIST 9–12.1 Evaluate how historical events and developments were shaped by unique circumstances of time and place as well as broader historical contexts.

HIST 9–12.2 Analyze change and continuity in historical eras.

HIST 9–12.3 Use questions generated about individuals and groups to assess how the significance of their actions changes over time and is shaped by the historical context.

HIST 9–12.4 Analyze complex and interacting factors that influenced the perspectives of people during different historical eras.

Perspectives

HIST 9–12.5 Analyze how historical contexts shaped and continue to shape people's perspectives.

Historical Sources and Evidence

HIST 9–12.6 Analyze the ways in which the perspectives of those writing history shaped the history that they produced.

HIST 9–12.7 Explain how the perspectives of people in the present shape interpretations of the past.

HIST 9–12.8 Analyze how current interpretations of the past are limited by the extent to which available historical sources represent perspectives of people at the time.

Historical Sources and Evidence

HIST 9–12.9 Analyze the relationship between historical sources and the secondary interpretations made from them.

HIST 9–12.10 Detect possible limitations in various kinds of historical evidence and differing secondary interpretations.

HIST 9–12.11 Critique the usefulness of historical sources for a specific historical inquiry based on their maker, date, place of origin, intended audience, and purpose.

HIST 9–12.12 Use questions generated about multiple historical sources to pursue further inquiry and investigate additional sources.

HIST 9–12.13 Critique the appropriateness of the historical sources used in a secondary interpretation.

Causation and Argumentation

HIST 9–12.14 Analyze multiple and complex causes and effects of events in the past.

HIST 9–12.15 Distinguish between long-term causes and triggering events in developing a historical argument.

HIST 9–12.16 Integrate evidence from multiple relevant historical sources and interpretations into a reasoned argument about the past.

GEOGRAPHY STANDARDS

Geographic Representations: Spatial Views of the World

GEO 9–12.2 Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their political, cultural, and economic dynamics.

GEO 9–12.3 Use geographic data to analyze variations in the spatial patterns of cultural and environmental characteristics at multiple scales.

Human-Environment Interaction: Place, Regions, and Culture

GEO 9–12.4 Evaluate how political and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.

Human Populations: Spatial Patterns and Movement

GEO 9–12.5 Analyze the reciprocal nature of how historical events and the spatial diffusion of ideas, technologies, and cultural practices have influenced migration patterns and the distribution of human population.

GEO 9–12.6 Evaluate the impact of economic activities and political decisions on spatial patterns within and among urban, suburban, and rural regions.

Global Interconnections: Changing Spatial Patterns

GEO 9–12.7 Evaluate how changes in the environmental and cultural characteristics of a place or region influence spatial patterns of trade and land use.

GEO 9–12.8 Evaluate the consequences of human-made and natural catastrophes on global trade, politics, and human migration.

ECONOMIC STANDARDS

Economic Decision-Making

ECO 9–12.1 Analyze how incentives influence choices that may result in policies with a range of costs and benefits for different groups.

Exchange and Markets

ECO 9–12.2 Describe the possible consequences, both intended and unintended, of government policies to improve market outcomes.

ECO 9–12.3 Explain why advancements in technology and investments in capital goods and human capital increase economic growth and standards of living.

CIVICS STANDARDS

Civic and Political Institutions

CIV 9–12.1 Distinguish the powers and responsibilities of local, state, tribal, national, and international civic and political institutions to address social and political problems.

Participation and Deliberation: Applying Civic Virtues and Democratic Principles

CIV 9–12.2 Evaluate social and political systems in different contexts, times, and places, that promote civic virtues and enact democratic principles.

CIV 9–12.3 Analyze the impact and the appropriate roles of personal interests and perspectives on the application of civic virtues, democratic principles, constitutional rights, and human rights.

Processes, Rules, and Laws

CIV 9–12.4 Evaluate multiple procedures for making governmental decisions at the local, state, national, and international levels in terms of the civic purposes achieved.

CIV 9–12.5 Analyze how people use and challenge local, state, national, and international laws to address a variety of public issues.

CIV 9–12.6 Evaluate public policies in terms of intended and unintended outcomes, and related consequences.

CIV 9–12.7 Analyze historical, contemporary, and emerging means of changing societies, promoting the common good, and protecting rights.

The following course standards derive from the 2010 Connecticut Core Standards for Literacy in Grades 6-12 Literacy in History/Social Studies.

Key Ideas and Details

CCSS.ELA-Literacy.RH.9-10.1 Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.

CCSS.ELA-Literacy.RH.9-10.2 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.

CCSS.ELA-Literacy.RH.9-10.3 Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

Craft and Structure

CCSS.ELA-Literacy.RH.9-10.4 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 science.

CCSS.ELA-Literacy.RH.9-10.5 Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

CCSS.ELA-Literacy.RH.9-10.6 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.

Integration of Knowledge and Ideas

CCSS.ELA-Literacy.RH.9-10.7 Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.

CCSS.ELA-Literacy.RH.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claims.

CCSS.ELA-Literacy.RH.9-10.9 Compare and contrast treatments of the same topic in several primary and secondary sources.

The following course standards derive from the 2016 ISTE Technology Standards.

ISTE Standard 1a: Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

ISTE Standard 1b: Students build networks and customize their learning environments in ways that support the learning process.

ISTE Standard 1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

ISTE Standard 2c: Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

ISTE Standard 3a: Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

ISTE Standard 3b: Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

ISTE Standard 3c: Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

ISTE Standard 5b: Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

ISTE Standard 6b: Students create original works or responsibly repurpose or remix digital resources into new creations.

ISTE Standard 6c: Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

ISTE Standard 6d: Students publish or present content that customizes the message and medium for their intended audiences.

COURSE GOALS

The course goals align with The Connecticut State Frameworks for Social Studies.

Students will:

- Gather, analyze, and reconcile historical information, including contradictory data, from primary and secondary sources to support or reject hypotheses.
- Demonstrate an understanding of the ways that different cultures interacted in pre-modern and modern times, and how they have shaped new identities and ways of life.
- Initiate questions and hypotheses about historic events they are studying.
- Describe the multiple intersecting causes of events.
- Describe, explain, and analyze political, economic and social consequences that came about as the resolution of a conflict.
- Evaluate the roles and contributions of individuals and groups.
- Analyze the connections and interactions of people over time and space.
- Develop critical thinking skills by inquiry, research, and organizing information.
- Describe and analyze, using historical data and understandings, the options which are available to parties involved in contemporary conflicts of decision making.
- Evaluate whether or when their obligations as citizens require that their personal desires, beliefs, and interests be subordinated to the public good.
- Demonstrate an understanding of political concepts of power, authority, governance and law.
- Apply critical thinking skills in determining the degree of interdependence of economic, political, and social systems throughout the world.
- Support and defend oral presentations and writing prompts by evaluating a variety of resources.
- Incorporate technology by researching topics related to the curriculum.
- Describe relationships between historical subject matter and other subjects they study, current issues, and personal concerns.

COURSE ENDURING UNDERSTANDINGS

Students will understand that...

- The study of the trajectory of global civilizations reveals the ideals, beliefs, values, and institutions of the world's people.
- The study of economic, social and political patterns impacts continuity and change over time.
- Knowledge of history helps one understand the present and make decisions about the future.

- Throughout history and today, people respond to and resolve conflicts in a variety of ways.
- History involves interpretation; historians can and do disagree.

COURSE ESSENTIAL QUESTIONS

- How much does geography affect people's lives?
- What makes a government successful?
- How are religion and culture connected?
- Why is culture important?
- How much power should the government have?
- How do science and technology affect society?
- Why do people move?
- How should we handle conflict?
- What should governments do?

COURSE KNOWLEDGE AND SKILLS

- Students will know . . .
 - how various factors led to the rise and decline of early civilizations.
 - how political systems evolved and influenced different societies around the world.
 - how geography influenced settlement patterns, government systems, culture and human migration.
 - how individuals' achievements contributed to the development and growth of societies around the world.
 - how belief systems affected political, economic, and social systems within various civilizations.
 - how established belief systems changed and evolved over time.
 - how competition over trade impacted the global balance of power and patterns of interaction.
- Students will be able to . . .
 - develop historical thinking skills, including chronological thinking and recognizing change over time; contextualizing, comprehending and analyzing historical literature; researching historical sources; understanding the concept of historical causation; understanding competing narratives and interpretation; and constructing narratives and interpretation.
 - read sophisticated texts and academic writings.
 - think critically by synthesizing a variety of perspectives and information from various primary and secondary sources.
 - discuss controversial issues with maturity and openness.
 - analyze various forms of data to support original ideas.
 - utilize collaborative technologies to explore local and global issues to work with others to investigate solutions.
 - present work and/or research using visual, oral, and written formats.

- o perform tasks and manage classroom situations with self-efficacy and integrity.
- o accept a growth mindset attitude with their learning and academics.
- o develop and regulate empathy through studying multiple perspectives.

UNIT 1

The Ancient World

Unit Goals

At the completion of this unit, students will:

INQ 9–12.1 Explain how a question reflects an enduring issue in the field.

INQ 9–12.4 Explain how supporting questions contribute to an inquiry and how, through engaging source work, new compelling and supporting questions emerge.

INQ 9–12.9 Refine claims and counterclaims attending to precision, significance, and knowledge conveyed through the claim while pointing out the strengths and limitations of both.

INQ 9–12.11 Construct explanations using sound reasoning, correct sequence (linear or nonlinear), examples, and details with significant and pertinent information and data, while acknowledging the strengths and weaknesses of the explanation given its purpose (e.g., cause and effect, chronological, procedural, technical).

HIST 9–12.1 Evaluate how historical events and developments were shaped by unique circumstances of time and place as well as broader historical contexts.

HIST 9–12.2 Analyze change and continuity in historical eras.

HIST 9–12.7 Explain how the perspectives of people in the present shape interpretations of the past.

HIST 9–12.8 Analyze how current interpretations of the past are limited by the extent to which available historical sources represent perspectives of people at the time.

GEO 9–12.2 Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their political, cultural, and economic dynamics.

GEO 9–12.3 Use geographic data to analyze variations in the spatial patterns of cultural and environmental characteristics at multiple scales.

CIV 9–12.2 Evaluate social and political systems in different contexts, times, and places, that promote civic virtues and enact democratic principles.

CCSS.ELA-Literacy.RH.9-10.3 Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

CCSS.ELA-Literacy.RH.9-10.4 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 science.

ISTE Standard 1b: Students build networks and customize their learning environments in ways that support the learning process.

ISTE Standard 1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

Unit Essential Questions

- How much does geography affect people's lives?
 - What geographical features might people settling in a place want to find?
 - What different ways of life would probably develop in different kinds of geographical areas?
 - What single geographical feature is the most important when settling in a place?
- How are religion and culture connected?
 - How might religion affect daily life?
 - How might religion affect government?
- How much power should the government have?
 - What do you think would happen if the government did not have the power to enforce laws?
 - Why do you think people disagree on the question of how much power a government should have?
- What makes a government successful?

Unit Scope and Sequence

The Ancient Middle East and Egypt (3200 B.C.-500 B.C.)

- The Neolithic Revolution (1.2)
 - Explain how the Neolithic Revolution dramatically changed the way people lived
- A Civilization Emerges in Sumer (2.1)
 - The main features of the Sumerian civilization
- Empires of Mesopotamia (2.2)
 - The achievements of the first empires that arose in Mesopotamia
- The Hebrews and the Origins of Judaism (2.3)
 - The main events in the early history of the Israelites
 - The development of Judaism and Monotheism
- Egyptian Civilization (2.4)
 - The major advances of Egyptian Civilization

Ancient India and China (3300 B.C. -550 A.D.)

- Early Civilization in South Asia (3.1)
 - The main characteristics of the Indian subcontinent's geography and civilizations
- The Origins of Hinduism and Buddhism (3.3)
 - The origins and central beliefs of Hinduism and Buddhism
 - India's Caste System
- Ancient Civilizations in China (3.4)
 - The origins, central beliefs, and political systems of ancient China

Ancient Greece (1750 B.C. -133 B.C.)

- The Greek City-States (5.2)
 - The origins, central beliefs, and political systems of ancient Greece
- Greek Thinkers, Artists, and Writers (5.1 & 5.3)
 - Themes explored by philosophers, artists, literary figures, and historians
- Alexander the Great and the Legacy of Greece (5.4)
 - The impact of Alexander the Great and Hellenism

Ancient Rome (509 B.C.-476 A.D.)

- The Roman Republic (6.1)
 - The development and spread of the Roman Republic
- The Roman Empire: Rise and Decline (6.2)
 - The factors that led to the rise and fall of the Roman Empire
- The Legacy of Rome (6.3)
 - The works of literary figures, historians, scientists, jurists, and philosophers
- The Origins of Christianity (6.4)
 - The development, central ideas, and spread of Christianity

Unit Assured Assessments

Formative Assessment:

Students will complete an argumentative writing response evaluating the positives and negatives of the Neolithic Revolution beginning in the Fertile Crescent in the Middle East. Students will demonstrate their ability to develop and support a claim with evidence and reasoning. Student work will be assessed using the ninth-grade writing rubric.

Summative Assessment:

Students will complete a Document Based Question (DBQ) essay on a major event in the history of Ancient Rome, Ancient Greece, Ancient China or Ancient Egypt. Students will demonstrate their ability to develop and support a thesis with evidence and reasoning using primary and secondary sources. Student work will be assessed using the ninth-grade writing rubric.

Resources

Core

- Ellis, E. G., & Esler, A. (2022). *World History Interactive*. Savvas Learning Company.
 - Topics 1, 2, 3, 5, 6
- Cole, J., & Symes, C. (2014). *Western Civilizations: Their History & Their Culture*. W. W. Norton & Company.
 - Chapters 1-7

Supplemental

- Teacher selected primary and secondary sources, and multimedia to introduce and enrich unit content.
- *The Code of Hammurabi*
- Narmer Palette
- Plato's *Republic*
- *Regimen II* by Hippocrates
- *How to Keep A Slave* by Cato the Elder
- *Hortensia's Protest*
- *Letter XLVII* by Seneca the Younger
- Flocabulary: Hip Hop History of the World
- *Hymn of the Nile*
- *Analects* by Confucius
- *The Melian Dialogue* by Thucydides

Time Allotment

- Approximately 8 weeks

UNIT 2

The Medieval World and Early Modern Europe

Unit Goals

At the completion of this unit, students will:

INQ 9–12.2 Explain points of agreement and disagreement experts have about interpretations and applications of disciplinary concepts and ideas associated with a compelling question.

INQ 9–12.3 Explain points of agreement and disagreement experts have about interpretations and applications of disciplinary concepts and ideas associated with a supporting question.

INQ 9–12.7 Evaluate the credibility of a source by examining how experts value the sources.

INQ 9–12.8 Identify evidence that draws information directly and substantially from multiple sources to detect inconsistencies in evidence in order to revise or strengthen claims.

HIST 9–12.5 Analyze how historical contexts shaped and continue to shape people’s perspectives.

HIST 9–12.6 Analyze the ways in which the perspectives of those writing history shaped the history that they produced.

HIST 9–12.9 Analyze the relationship between historical sources and the secondary interpretations made from them.

HIST 9–12.10 Detect possible limitations in various kinds of historical evidence and differing secondary interpretations.

HIST 9–12.11 Critique the usefulness of historical sources for a specific historical inquiry based on their maker, date, place of origin, intended audience, and purpose.

HIST 9–12.13 Critique the appropriateness of the historical sources used in a secondary interpretation.

GEO 9–12.4 Evaluate how political and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.

GEO 9–12.7 Evaluate how changes in the environmental and cultural characteristics of a place or region influence spatial patterns of trade and land use.

CCSS.ELA-Literacy.RH.9-10.5 Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

CCSS.ELA-Literacy.RH.9-10.6 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.

CCSS.ELA-Literacy.RH.9-10.9 Compare and contrast treatments of the same topic in several primary and secondary sources.

ISTE Standard 2c: Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

ISTE Standard 3b: Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

Unit Essential Questions

- What should governments do?
 - Which activities do you consider appropriate government activity?
- How are religion and culture connected?
 - Why does religion play a central role in the cultural development of a society?
 - How might religion be a unifying force?
- Why is culture important?
 - Why might scientific and technological discoveries impact culture?

Unit Scope and Sequence

Medieval Christian Europe (330-1450)

- The Early Middle Ages (7.1 & 7.8)
 - The transformation of Western and Eastern Europe after the fall of Rome
- Feudalism and the Manor and Economy (7.2)
 - The political, economic, and social system of feudalism
 - The Island Kingdom of Japan (9.5)
 - Focus: Japan's Feudal Age (pp.398-399)
 - Comparison of Feudalism in Europe and Japan
- The Medieval Christian Church (7.3)
 - The influence of the Christian Church on medieval life
- Economic Expansion and Change: The Crusades and After (7.4)
 - The causes and effects of the Crusades
- The Feudal Monarchs and the Church (7.5)
 - The evolution of the English government during the Middle Ages
- Learning, Literature, and the Arts of the Middle Ages (7.6)

- The education, literature, architecture, and art of the Middle Ages
- The Late Middle Ages: A Time of Upheaval (7.7)
 - The crises of the late Middle Ages

The Muslim World (570-1722)

- The Origins of Islam (8.1)
 - The development and central ideas of Islam
- A Muslim Empire (8.2)
 - The spread and division of Islam
- Achievements of Muslim Civilization (8.3)
 - The economics, literature, art, architecture, and science of Muslim Civilizations
- The Ottoman and Safavid Empires (8.4)
 - The impact of the Ottoman and Safavid Empires

The Renaissance, Reformation, and Scientific Revolution (1300-1650)

- The Italian Renaissance (10.1)
 - The impact of Renaissance ideas on European art and society
- The Renaissance in Northern Europe (10.2)
 - The impact of Northern Renaissance ideas and inventions on art and society
- The Protestant Reformation (10.3)
 - The impact of the Protestant Reformation on European religion and society
- Reformation Ideas Spread (10.4)
 - The spread of Protestant ideas and the reaction of the Roman Catholic Church
- The Scientific Revolution (10.5)
 - How the Scientific Revolution changed the way Europeans understood the world

Absolutism, Civil War, and Revolution (1550-1689)

- Absolute Monarchy in Spain and France (12.1)
 - The characteristics of absolute monarchy and the concept of divine right
- Rise of Austria, Prussia, and Russia (12.2)
 - European nations try to maintain a balance of power
- Triumph of Parliament in England (12.3)
 - How the English government developed during the English Civil War and Glorious Revolution

Unit Assured Assessments

Formative Assessment:

Students will participate in a simulation on the feudal system that is a multidisciplinary, visual and kinesthetic experience to be implemented after the topic of feudalism has already been introduced. The room becomes a kingdom broken into two manors. Students are randomly

assigned roles within the kingdom and follow prompts to exchange “money” between one another in the form of taxes. This allows the students to better understand the power structure of the Middle Ages.

Summative Assessment:

Students will complete a Document Based Question (DBQ) essay on a major event of the Middle Ages such as the Bubonic Plague, the Spread of Islam, the comparison of the Samurai and Knights or the Byzantine Empire. Students will demonstrate their ability to develop and support a thesis with evidence and reasoning using primary and secondary sources. Student work will be assessed using the ninth-grade writing rubric.

Resources

Core

- Ellis, E. G., & Esler, A. (2022). *World History Interactive*. Savvas Learning Company.
 - Topics 7, 8, 10, 12
- Cole, J., & Symes, C. (2014). *Western Civilizations: Their History & Their Culture*. W. W. Norton & Company.
 - Chapters 7-13, 15, 16

Supplemental

- Teacher selected primary and secondary sources, and multimedia to introduce and enrich unit content.
- *The Rubaiyyat* by Omar Khayyam
- Flocabulary: Hip Hop History of the World
- *The Canterbury Tales* by Geoffrey Chaucer
- *The Song of Roland*
- *Justinian's Code*
- *The Domesday Book*
- *The Magna Carta*
- *Trial of Joan of Arc*
- *Trial of Nullification*
- Eyewitness accounts of the Black Death
- *Travels* by Ibn Battuta
- Selections from *The Prince* by Machiavelli
- Selections from Copernicus *On the Revolutions of the Heavenly Spheres*
- *The Ninety Five Theses* by Martin Luther
- *On Secular Authority* by Martin Luther
- *The English Bill of Rights*, 1689

Time Allotment

- Approximately 8 weeks
- One week needed for midterm exam review

UNIT 3

The Early Modern World

Unit Goals

At the completion of this unit, students will:

INQ 9–12.12 Present adaptations of arguments and explanations that feature evocative ideas and perspectives on issues and topics to reach a range of audiences and venues outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, reports, and maps) and digital technologies (e.g., Internet, social media, and digital documentary).

INQ 9–12.13 Critique the use of claims and evidence in arguments for credibility.

INQ 9–12.14 Critique the use of the reasoning, sequencing, and supporting details of explanations.

HIST 9–12.2 Analyze change and continuity in historical eras.

HIST 9–12.3 Use questions generated about individuals and groups to assess how the significance of their actions changes over time and is shaped by the historical context.

HIST 9–12.15 Distinguish between long-term causes and triggering events in developing a historical argument.

CIV 9–12.1 Distinguish the powers and responsibilities of local, state, tribal, national, and international civic and political institutions to address social and political problems.

CIV 9–12.3 Analyze the impact and the appropriate roles of personal interests and perspectives on the application of civic virtues, democratic principles, constitutional rights, and human rights.

CIV 9–12.4 Evaluate multiple procedures for making governmental decisions at the local, state, national, and international levels in terms of the civic purposes achieved.

CIV 9–12.5 Analyze how people use and challenge local, state, national, and international laws to address a variety of public issues.

CIV 9–12.6 Evaluate public policies in terms of intended and unintended outcomes, and related consequences.

CIV 9–12.7 Analyze historical, contemporary, and emerging means of changing societies, promoting the common good, and protecting rights.

GEO 9–12.6 Evaluate the impact of economic activities and political decisions on spatial patterns within and among urban, suburban, and rural regions.

ECO 9–12.2 Describe the possible consequences, both intended and unintended, of government policies to improve market outcomes.

ECO 9–12.3 Explain why advancements in technology and investments in capital goods and human capital increase economic growth and standards of living.

CCSS.ELA-Literacy.RH.9-10.1 Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.

CCSS.ELA-Literacy.RH.9-10.2 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.

ISTE Standard 5b: Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

ISTE Standard 6c: Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

Unit Essential Questions

- Why do people move?
 - What problems might people have to overcome in order to successfully move?
 - What problems might arise once people have moved?
- How much power should the government have?
 - What level of government power might be problematic?
 - What are the negative consequences of a government having too much or too little power?

Unit Scope and Sequence

New Global Connections (1415-1796)

- Europeans Explore Overseas (11.1)
 - The major causes of European exploration
- Europeans Gain Footholds in Asia (11.2)
 - The development of European trading empires in Asia
 - Decline and change in Asian Empires

- European Conquests in the Americas (11.3)
 - Background: Civilizations of Middle America (4.1)
 - Background: The World of the Incas (4.2)
 - The impact and colonization of the European conquest of the Americas
- European Colonies in North America (11.4)
 - The establishment, growth, and conflict of European colonies
- Early Civilizations of Western and Eastern Africa (8.5, 8.6, & 8.7)
 - How geography affected migration, cultural development, and trade in Africa
 - How Western and Eastern African societies developed
 - How Western and Eastern Africans interacted with the global community
- Diverse People and Traditions in Africa (8.8)
 - The religion, art, and governments of medieval African cultures
- The Slave Trade and Its Impact on Africa (11.5)
 - The expansion and effects of the African Slave Trade
 - The British Abolitionist Movement and the end of the Atlantic slave trade (14.5)
- Effects of Global Contact (11.6)
 - The causes and effects of the Columbian Exchange

Revolution (1550-1850)

- The Enlightenment (12.4)
 - The ideas of the Enlightenment and their impact
- The French Revolution Begins (12.6)
 - The causes and early events of the French Revolution
- A Radical Phase (12.7)
 - The causes, course, and impacts of the Reign of Terror
- The Age of Napoleon (12.8)
 - The rise, fall, and impact of Napoleon Bonaparte
- Latin American Nations Win Independence (14.2)
 - The causes and impacts of Latin American Revolutions

Unit Assured Assessments

Formative Assessment:

Students will complete an inquiry project on plants, animals and/or diseases transferred during the Columbian Exchange. Students will develop essential and/or supporting questions to research a specific exchange of their choice and create a slides presentation or fact sheet to teach their classmates about the exchange.

Summative Assessment:

Students will complete a Document Based Question (DBQ) essay evaluating the effectiveness of revolutions achieving their goals by focusing on the French Revolution, the Haitian Revolution,

or Latin American Revolutions. Students will demonstrate their ability to develop and support a thesis with evidence and reasoning using primary and secondary sources. Student work will be assessed using the ninth-grade writing rubric.

Resources

Core

- Ellis, E. G., & Esler, A. (2022). *World History Interactive*. Savvas Learning Company.
 - Topics 4, 8, 11, 12, 14
- Cole, J., & Symes, C. (2014). *Western Civilizations: Their History & Their Culture*. W. Norton & Company.
 - Chapters 12, 14, 17, 18

Supplemental

The Interesting Narrative of the Life of Olaudah Equiano

Selections from the writings of Bartolomé de las Casas

Slavery on the Henequen Plantations of the Yucatan by Channing Arnold and F.T. Frost

Adam Smith *The Wealth of Nations*

Thomas Hobbes *Leviathan*

John Locke *Two Treatises of Government*

Rousseau *The Social Contract*

Abbe Sieyes *What is the Third Estate?*

The Declaration of the Rights of Man (1789)

The Declaration of the Rights of Women by Olympe De Gouges (1791)

Time Allotment

- Approximately 8 weeks

UNIT 4

World Colonization, Decolonization and Interdependence

Unit Goals

At the completion of this unit, students will:

INQ 9–12.5 Determine the kinds of sources that will be helpful in answering compelling and supporting questions, taking into consideration multiple points of view represented in the sources, the types of sources available, and the potential uses of the sources.

INQ 9–12.6 Gather relevant information from multiple sources representing a wide range of views while using the origin, authority, structure, context, and corroborative value of the sources to guide the selection.

INQ 9–12.10 Construct arguments using precise and knowledgeable claims, with evidence from multiple sources, while acknowledging counterclaims and evidentiary weaknesses.

INQ 9–12.15 Use disciplinary and interdisciplinary lenses to understand the characteristics and causes of local, regional, and global problems; instances of such problems in multiple contexts; and challenges and opportunities faced by those trying to address these problems over time and place.

HIST 9–12.3 Use questions generated about individuals and groups to assess how the significance of their actions changes over time and is shaped by the historical context.

HIST 9–12.4 Analyze complex and interacting factors that influenced the perspectives of people during different historical eras.

HIST 9–12.12 Use questions generated about multiple historical sources to pursue further inquiry and investigate additional sources.

HIST 9–12.14 Analyze multiple and complex causes and effects of events in the past.

HIST 9–12.16 Integrate evidence from multiple relevant historical sources and interpretations into a reasoned argument about the past.

GEO 9–12.2 Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their political, cultural, and economic dynamics.

GEO 9–12.4 Evaluate how political and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.

GEO 9–12.5 Analyze the reciprocal nature of how historical events and the spatial diffusion of ideas, technologies, and cultural practices have influenced migration patterns and the distribution of human population.

GEO 9–12.6 Evaluate the impact of economic activities and political decisions on spatial patterns within and among urban, suburban, and rural regions.

GEO 9–12.8 Evaluate the consequences of human-made and natural catastrophes on global trade, politics, and human migration.

ECO 9–12.1 Analyze how incentives influence choices that may result in policies with a range of costs and benefits for different groups.

CIV 9–12.3 Analyze the impact and the appropriate roles of personal interests and perspectives on the application of civic virtues, democratic principles, constitutional rights, and human rights.

CCSS.ELA-Literacy.RH.9-10.7 Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.

CCSS.ELA-Literacy.RH.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author’s claims.

ISTE Standard 1a: Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

ISTE Standard 3a: Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

ISTE Standard 3c: Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

ISTE Standard 6b: Students create original works or responsibly repurpose or remix digital resources into new creations.

ISTE Standard 6d: Students publish or present content that customizes the message and medium for their intended audiences.

Unit Essential Questions

- How do science and technology affect society?
 - In what ways did the Industrial Revolution change daily life?
- What are the challenges of diversity?
 - When people in a society have diverse cultural backgrounds, how do governments help create unity?
- Why do people move?

- What were the motives of colonization? How might different societal goals conflict with one another?
- When is war justified?
 - Are there ever valid reasons for a nation to go to war?
 - How should humans handle conflict?
- What are the benefits and risks of global interdependence?

Unit Scope and Sequence

The Industrial Revolution (1750-1914)

- The Industrial Revolution Begins (13.1)
 - New ways of working in agriculture and manufacturing, growth of cities, new transportation and energy methods, the spread of industrialization
- Social Impact of Industrialism (13.2)
 - Urbanization, new social classes, hazards of the factory system, improvements in standards of living, laissez-faire economics, emergence of socialist thought
- The Second Industrial Revolution (13.3)
 - Science and technology changes, advances in communication, rise of big business, health improvements, working class rights
- Changing Ways of Life and Thought (13.4)
 - Struggle for Women's Rights, rise of public education, new scientific theories, romanticism and new directions in art

Nationalism and the Spread of Democracy (1790-1914)

- Revolutions Sweep Europe (14.1, 14.3, 14.4, 14.5, 14.6)
 - Liberalism and nationalism spur revolts, revolutions across Europe (Belgium, Poland, England, France, Austria, Italy, Germany), unification (Italy and Germany)
- Latin American Nations Win Independence (14.2)
 - Enlightenment ideas reach Spanish America (Haitian Revolution, Mexico's Battle for Independence)
- Nationalism in Eastern Europe and Russia (14.8)
 - Nationalism endangers old empires, dual monarchy, decline of the Ottoman Empire, Russian reform and industrialization,

The Age of Imperialism (1800-1914)

- The New Imperialism (15.1)

- The political, economic, and social causes of European imperialism, spread of imperialism, types of imperial rule, effects of imperialism
- European Colonies in Africa (15.2)
 - Impacts of the slave trade, Berlin Conference, African resistance
- Europe and the Muslim World (15.3)
 - Muslim reform efforts, decline of the Ottoman Empire, modernization of Egypt
- India Becomes a British Colony (15.4)
 - British East India Company, exploitation of Indian diversity and culture, Indian uprisings and the growth of Indian nationalism
- China and the West (15.5)
 - Western economic interest in China, Chinese rebellions
- The Modernization of Japan (15.6)
 - Modernization and industrialization in isolation, expansion of Japanese imperialism
- Southeast Asia and the Pacific (15.7)
 - Dutch East Indies, Europeans in Australia and New Zealand

World War I and the Russian Revolution (1914-1924)

- World War I Begins (16.1)
 - European alliances, causes of WWI and the Balkan Powder Keg
- Fighting the Great War (16.2)
 - Stalemate on the Western Front and new warfare technology, war in Southern Europe
- World War I Ends (16.3)
 - Results of Total War, Treaty of Versailles, new nations in Europe, the League of Nations and the mandate system
- Revolution in Russia (16.4)
 - Causes of the February Revolution, Lenin and the Bolsheviks, the October Revolution, Civil War in Russia, the Communist Soviet Union emerges and Stalin's rise to power

20th Century Crises and Developments (1914-Present)

- Students will complete the summative assessment inquiry project during this unit of study. Topics may include but are not limited to the following:
 - The Mexican Revolution: 1910-1920 (17.1)
 - Apartheid in South Africa: 1910 - 1994 (17.2 & 20.4)
 - Zionism and the Founding of Israel: 1897-1948 (17.2 & 20.5)
 - The Indian Independence Movement: 1915-1948 (17.3)

- Independence and Partition in South Asia: 1947-1948 (20.1)
- The Chinese Civil War and Communist Victory: 1919-1949 (17.4 & 19.3)
- The Great Leap Forward and the Cultural Revolution: 1958-1966 (19.3)
- The Division of Korea and the Korean War: 1910-1953 (19.3)
- The Rise of Mussolini: 1919-1945 (17.6)
- The Soviet Union Under Stalin: 1924-1953 (17.7)
- The Rise of Nazi Germany Under Hitler: 1919-1945 (17.8)
- League of Nations: 1920-1946 (16.3)
- World War II: 1937-1945 (Topic 18)
- The Holocaust: 1935-1945 (18.3)
- The United Nations is Formed: 1945 (18.5)
- The Spanish Civil War: 1936-1939 (18.1)
- The Cold War: 1947-1991 (19.1)
- Universal Declaration of Human Rights: 1948 (21.4)
- Berlin Wall: 1961-1989 (19.1-19.2)
- Vietnam War: 1955-1975 (19.4)
- The Khmer Rouge and the Cambodian Genocide: 1975-1979 (19.4)
- The Cold War Ends: 1979-1991 (19.5)
- Tiananmen Square Massacre: 1989 (20.2)
- The Green Revolution in India: 1950-Present (20.2)
- African Independence Movements: 1945-Present (20.3)
- Rwandan Genocide: 1994 (20.3)
- The Arab Spring: 2010-2012 (20.5)
- Iranian Revolution: 1978-1979 (20.5)
- The Arab-Israeli Wars: 1948-1973 (20.6)
- The PLO and Intifada: 1948-1987 (20.6)
- Iran-Iraq War: 1980-1988 (20.6)
- Syrian Civil War: 2011-Present (20.5-20.6)
- Persian Gulf War: 1990-1991 (20.6)
- Iraq War: 2003-2009 (20.6)
- ISIS: 1999-Present (20.6)
- The Easter Rising and the Irish War of Independence: 1916-1921 (17.5)
- The Troubles in Northern Ireland: 1960-1998 (21.2)
- Formation of NATO: 1949 (19.1, 21.2)
- Cuban Revolution: 1959 (19.1, 20.7)
- Formation of OPEC: 1960 (20.5, 21.3)
- Cuban Missile Crisis: 1962 (19.1)
- Soviet Invasion of Afghanistan: 1979-1989 (19.5)
- AIDS epidemic: 1981-Present (21.4)
- Chernobyl: 1986

- Climate Change: 1975-Present (21.4)
- Dissolution of USSR: 1991 (19.5 & 21.2)
- Formation of the European Union: 1993 (19.2 & 21.2)
- Yugoslavian Civil wars: 1991-1995 (21.1)
- September 11th Attacks: 2001 (21.5)
- Greece Debt Crisis: 2008
- Crisis in Venezuela: 2010 (20.7)
- Ebola Outbreak in West Africa: 2014
- Russian Annexation of Crimea: 2014 (21.5)
- European Refugee Crisis: 2015 (21.5)
- Brexit: 2016 (21.2)
- Catalan Independence Movement: 2017
- COVID-19 Pandemic: 2019 (21.4)
- Taliban Takeover of Afghanistan: 2021
- Russian Invasion of Ukraine: 2022

Unit Assured Assessments

Formative Assessment:

Students will work in groups to complete a slides presentation to teach their classmates about major developments of the Industrial Revolution. Students may choose from, but are not limited to: the use of coal, petroleum, the Greenhouse Effect, air pollution, African American inventors, the automobile, the steam engine and industrialized labor and life.

Summative Assessment:

Students will design and implement an inquiry project to create a product (essay and/or presentation) to inform their classmates about a student-selected topic from the 20th or 21st century. Students will craft an essential question and supporting questions. Students will then complete research to answer their essential and supporting questions, then craft a thesis statement that answers their essential question with supporting evidence and explanation.

Resources

Core

- Ellis, E. G., & Esler, A. (2022). *World History Interactive*. Savvas Learning Company.
 - Topics 13-21
- Cole, J., & Symes, C. (2014). *Western Civilizations: Their History & Their Culture*. W. W. Norton & Company.
 - Chapters 19-29

Supplemental

The Sadler Report

Karl Marx *The Communist Manifesto*

Thomas Malthus, *Essay on Population*

David Ricardo, *Iron Law of Wages*

Rudyard Kipling *The White Man's Burden*

Dave Matthews *Don't Drink the Water*

I Will Bear Witness (selection) by Victor Klemperer

Survival in Auschwitz (selection) by Primo Levi

Independence v. Swaraj by Mahatma Gandhi

Gandhi's Followers Protest the Salt Tax by Webb Miller

The Stalin Epigram by Osip Mandelstam

The Arrest of Osip Mandelstam by Nadezhda Mandelstam

Universal Declaration of Human Rights

The Rivonia Trial: Second Court Statement (selection) by Nelson Mandela

Modern World History Database

Time Allotment

- Approximately 8 weeks
- One week needed for final exam review

CURRENT REFERENCES

- Ellis, E. G., & Esler, A. (2022). *World History Interactive*. Savvas Learning Company.
- Cole, J., & Symes, C. (2014). *Western Civilizations: Their History & Their Culture*. W. W. Norton & Company.
- *Infobase: Modern World History Database*
- *Connecticut State Frameworks for Social Studies*
- *Technology Competency Standards*
- *Common Core State Standards – 6 through 12 Literacy in History/Social Studies*

ASSURED STUDENT PERFORMANCE RUBRICS

- Ninth Grade Social Studies Writing Rubric
 - This rubric is used to grade all summative (common) assessments in the course.

Ninth Grade Social Studies Writing Rubric

4 Exceeds grade level expectation	3 Meets grade level expectation	2 Approaching grade level expectation	1 Below grade level expectation
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	4	3	2	1
Purpose/ Organization _____ points	The response is well organized. Claim clearly answers the question and demonstrates a strong understanding of the issue. Focus is well maintained throughout the response.	The response is adequately organized. Claim adequately answers the question and demonstrates an adequate understanding of the issue. Focus is adequately maintained.	The response is somewhat organized. The claim answers the question and demonstrates a limited understanding of the issue. Focus is somewhat sustained.	The response is not well organized. Claim may be missing, does not answer the question or may be confusing, demonstrating little to no understanding of the issue. The response provides little or no focus.
Examples _____ points	The response includes examples that are accurate, highly relevant, and strongly support the position.	The response includes examples that are accurate, relevant, and adequately support the position.	The response includes examples that are somewhat accurate, but may not be relevant and/or examples weakly support the position.	The response may be missing examples, or both examples are inaccurate or irrelevant and do not support the position.
Analysis _____ points	Analysis of examples is accurate and effectively supports the position. Effective elaboration to explain ideas.	Analysis of examples is accurate and adequately supports the position. Adequate elaboration to explain ideas.	Analysis of examples is somewhat accurate and may not support the position. Weak or uneven elaboration to explain ideas.	Analysis of examples may be missing or inaccurate. Minimal if any elaboration to explain ideas.
Fluency _____ points	Writing is very clear and there is a fluent progression of ideas. Effective use of vocabulary. Consistent use of a variety of transitions.	Writing is clear and there is an adequate progression of ideas. Appropriate use of vocabulary. Consistent use of transitions.	Writing is somewhat clear and there is some progression of ideas. Vocabulary use is uneven or somewhat ineffective. Some use of transitions.	Writing lacks clarity and there is a limited progression of ideas. Vocabulary use is uneven and ineffective. Little or no use of transitions.
Conventions _____ points	Consistent use of correct sentence formation, punctuation, capitalization, grammar usage. No use of first person. MLA citations are all correct.	Adequate use of correct sentence formation, punctuation, capitalization, and grammar usage. Consistent use of third person. MLA citations generally are correct.	Limited use of correct sentence formation, punctuation, capitalization, grammar usage. Inconsistent use of third person. MLA citations are generally correct.	Infrequent use of correct sentence formation, punctuation, capitalization, grammar usage. Little to no use of third person. MLA citations are incorrect.

OTHER RESOURCES

- Guidelines for the Unit 4 Inquiry Project.
 - The final student submissions of this project will be differentiated by course level. Teachers will give more specific leveled instructions and guidelines to students in quarter four. The Inquiry Project will be graded using the Ninth Grade Social Studies Writing Rubric (above) and the presentation rubric included in the general guidelines below.
 - Teachers should plan to allocate approximately 10-15 days for the inquiry project (inclusive of student presentations).

Global Civilizations Modern World Inquiry Project

The Topic:

Many important events occurred during the late 20th and early 21st century. Because of the increased interdependence of countries (globalization), these events have greatly influenced the current political, economic, environmental and social climate of our world.

Your Task:

You will take all the writing techniques, research strategies, historical themes and new knowledge you have acquired this year and put them into a professionally written, persuasive, and fluent research paper and presentation. You will choose an event from the 20th or 21st century from the teacher provided list. Each student in the class must choose a different event. **Your job is to create an essential question (and supporting questions) designed to explain the effect that the event had and/or has on the world today. In your thesis statement, research paper, and presentation, you must answer the essential question by explaining the context of the event as well as its impact and potential future consequences (if any). You must use research data to support your thesis.**

Paper Requirements:

- *See the Ninth Grade Writing Rubric.
- *The paper must include an introduction, body paragraphs, and a conclusion.
- *The paper must be written in **MLA format with in-text citations**.
- *The paper **must include a works cited page with at least 4 sources (2 from academic databases)** and be properly formatted according to MLA standards.

Presentation Requirements:

- *See the attached slideshow presentation rubric.
- *Students are expected to present for 5-7 minutes.
- *Present clearly and maintain good eye contact with your audience.
- *You may use a notecard or presentation aid.
- *Include images, short video clips, slide animation, color and any other eye-catching features.
- *Be sure to bullet your text and limit the wording per slide.

Grading:

- **Essential Question specific to your topic.**
 - Separate writing grade worth 10 points.
- **Outline (inclusive of a thesis, main ideas and in-progress works cited page).**
 - Separate writing grade worth 10 points.
- **Rough Draft (a more detailed outline or paragraph form are both acceptable).**
 - Separate writing grade worth 20 points.
- **Peer-editing worksheet.**
 - Separate writing grade worth 10 points.
- **Final paper with a works cited page.**
 - Writing grade worth 100 points.
 - See writing rubric.
- **Slideshow presentation**
 - Assessment grade worth 50 points.
 - See attached presentation rubric.

Pacing Guide/Timeline:

Please read the following guide carefully for **all due dates**. Please note that beyond the time listed below, this inquiry project will require work outside of school.

Date	Class Period Focus
Teacher to insert date here	-Assign and discuss the inquiry project. -Review lesson on writing an essential question. -Choose topics.
Teacher to insert date here	-Presentation on database research. -Begin to develop an essential question through research.
Teacher to insert date here	-Essential question due at the start of the period. Teacher will provide feedback to ensure a properly formatted and researchable essential question. -Continue research to answer essential question.
Teacher to insert date here	-Continue working on research and begin to outline.
Teacher to insert date here	-Outline due at the start of the period. Teacher will provide feedback to ensure a properly formatted thesis statement, appropriate main ideas, and a properly formatted works cited page. -Continue research and begin writing a rough draft.
Teacher to insert date here	-Continue research and work on a rough draft.
Teacher to insert date here	-Rough draft due at the start of the period. -Peer edit to provide feedback on rough draft. -Teacher will provide feedback on the rough draft to ensure supporting details and data are used to prove the thesis.
Teacher to insert date here	-Review rough draft comments by teacher and peer.

	-Ask clarifying questions on feedback as needed. -Work on the final draft.
Teacher to insert date here	-Work on the final draft.
Teacher to insert date here	-All final papers due at the start of the period. -Work on slide presentations.
Teacher to insert date here	-Work on slide presentations.
Teacher to insert date here	-Presentations due at the start of the period. -Individual presentations begin.

Global Civilizations: Modern World Inquiry Project Slideshow Presentation Rubric

Component:	Teacher Feedback/Score:	Points:
Title slide (Include your event and your name)		5
Slide(s) summarizing event (Utilize the background information from your introductory paragraph.)		15
Slide(s) summarizing significance of event to its time period and beyond (Utilize your thesis, main ideas, and any necessary supporting details)		15
Visual is attractive and grammar and spelling are accurate		10
MLA Works Cited slide (You may use the same Works Cited as your research paper)		5
Grade:		

TRUMBULL PUBLIC SCHOOLS
Trumbull, Connecticut

ECE Biotechnology
Grade 11
Agriscience Department
Trumbull High School

2023

Curriculum Writing Team

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The Trumbull Board of Education will continue to take Affirmative Action to ensure that no persons are discriminated against in its employment.

CORE VALUES AND BELIEFS

The Trumbull School Community engages in an environment conducive to learning which believes that all students will **read and write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.

INTRODUCTION

ECE Biotechnology UCONN SPSS3230– Science, Impact and Perception is designed for the student who has successfully completed Agriscience 9 and Agriscience 10 coursework in introductory biotechnology.

Biotechnology: Science, Application, Impact, Perception introduces the scientific, legal, and ethical aspects of Biotechnology application in agriculture, health medicine, forensics and the environment. The course introduces basic concepts in molecular biology as they apply to biotechnology and also introduces the techniques of biotechnology, including gel electrophoresis, PCR, ELISA plasmid insertion, gel column chromatography and thin layer chromatography. This course will provide the student with an excellent understanding of the science involved in the biotechnology revolution in molecular biology and the political implications of these developments so that the student will be able to make educated decisions regarding the future of the evolution of this technology. This course will be taught through the fall and spring semester.

Students also complete “supervised agricultural experience” (SAE) projects, which help to reinforce career options and skills introduced in the classroom. Involvement in the chapter’s FFA activities reinforces personal growth, premier leadership, and career success while being involved in the local community.

PHILOSOPHY

Success in Agriscience depends upon active involvement in the Three Circle Model of Agricultural Education, including classroom learning experiences, participation in the student organization FFA, and student Supervised Agricultural Experience projects. All areas aim to improve leadership, technical knowledge and skills hands-on, responsibility and accountability, and career readiness for the ever-changing future.

COURSE GOALS

Information, Media And Technology Skills

- Use real-world digital and other research tools to access, evaluate and effectively apply information appropriate for authentic tasks.

Learning and Innovation Skills

- Work independently and collaboratively to solve problems and accomplish goals
- Communicate information clearly and effectively using a variety of tools/media in varied contexts for a variety of purposes.
- Demonstrate innovation, flexibility and adaptability in thinking patterns, work habits, and working/learning conditions.
- Effectively apply the analysis, synthesis, and evaluative processes that enable productive problem solving.

Life and Career Skills

- Value and demonstrate personal responsibility, character, cultural understanding, and ethical behavior.
- Develop appreciation for and relationships with biotechnology research practices.
- Develop responsible management, leadership, and record keeping skills that improve our good laboratory practices.
- Develop and maintain interpersonal relationships through leadership and cooperative activities.

COURSE ENDURING UNDERSTANDINGS

Students will understand and appreciate how agriculture, food, fiber, and biofuels are impacted by modern biotechnology and develop an awareness of the role that Biotechnology science and practices have in production agriculture and human/animal health. Students will develop an understanding of the biotechnology curriculum topics, learn how to conduct molecular biology experiments, compose college level laboratory reports on the research conducted, learn how to write a scientific referee journal publication.

COURSE ESSENTIAL QUESTIONS

- How does agricultural biotechnology impact me and my community?
- What types of biotechnological processes are utilized in American agriculture and for what reasons?
- How can we provide the best care for plants and animals using today's biotechnology advances?
- What career options exist in the field of biotechnology?

COURSE KNOWLEDGE & SKILLS

Students will understand . . .

- the basic principles of modern biotechnology
- the history of the evolution biotechnological advances over time and their benefits to civilization
- how the utilization of molecular biology principles have created advancements in plant and animal breeding that have led to modern transgenic technological applications for plants and animals that have significantly increased levels of global agricultural production.
- how major diseases are diagnosed, treated by using biotechnological applications
- how molecular genetics/genomics discoveries have incorporated genome sequencing, bioinformatics, disease detection and gene modification processes into plant animal and human health.
- How changes in US patent law have enabled commercialization of biotechnological discoveries and led to the biotech revolution that we are experiencing in food production and medicine.
- career opportunities in biotechnology related fields.

Students will be able to . . .

- gain experience in utilizing key laboratory technologies in biotechnology
- understand the current state of US crop production and livestock industries and the positive impact that the science of biotechnology has had in the growth of these market segments
- describe the major concepts of modern biotechnology, including: genome sequencing, transgenic genetic modification using transgenic and CRISPR technologies.
- understand the concept of physiological resistance in disease control and the role that biotechnology plays in recent discoveries in this field
- describe the concepts of utilizing embryonic and induced pluripotent stem cells and how they are used in regenerative medicine for animals and humans.
- design college level biotechnological research protocols and implement them in conducted research
- understand the impact of the informational crisis that exists in the general public regarding the applications of biotechnological advances
- understand the regulatory processes that are in place at federal agencies such as the FDA, USDA, and EPA to insure the safety of agricultural products produced from transgenic organisms.

COURSE SYLLABUS

Unit 1: Introduction to and history of Biotechnology

Unit 2: Biotechnology Laboratory Practices

Unit 3: Cell Biology, Nucleic Acids, and Gene Expression

Unit 4: Microbial Biotechnology

Unit 5: Plant Biotechnology and Food Production

Unit 6: Biofuels

Unit 7: Animal Biotechnology

Unit 8: Stem Cells and Their Biotech Applications

Unit 9: Computational Biology and Bioinformatics

Unit 10: Biotechnology and Cancer

Unit 11: Public Perceptions, Concerns and Government Regulation

Unit 12: Patent Issues in Biotechnology

Unit 13: Careers in Biotechnology

Unit 1: Introduction to and History of Biotechnology

Performance Standards

- The student will demonstrate competence in the application of scientific principles and practices to the science of biotechnology.
- **BS.01 NCAE Standard:** Assess factors that have influenced the evolution of biotechnology in agriculture.
- **BS.01.01. Performance Indicator:** Investigate and explain the relationship between past, current, and emerging applications of biotechnology in agriculture.
- **BS.01.01.01.b.** Analyze the developmental progression of biotechnology and the evolution of scientific knowledge.
- **BS.01.01.03.a.** Distinguish between current and emerging applications of biotechnology in agriculture.

Essential Questions

- What are the basic tenets that are found in all biotechnological discoveries?
- How can we differentiate between biotechnological discoveries from the ancient, classical, and modern eras of biotechnology?
- How did the discovery of ‘Transformation Principle’ and the confirmation of DNA as the molecule of heredity focus the process of the understanding of genetics?
- How did the discovery of the structure of the DNA molecule enable scientists to understand the process of protein synthesis?
- How did the technology of plasmid modification enable the creation of transgenic organisms?

Content (Scope and Sequence)

- Definition of the Term Biotechnology.
- Examples of Modern Biotechnology in our lives.
- History of plant and animal domestication.
- Worldwide parallel invention of domestication.
- Centers of domestication worldwide and the crops/animals associated with each center.
- Collection of germplasm worldwide and the archiving of these materials.
- Important discoveries from ancient biotechnology.
- Important discoveries from classical biotechnology.
- Important discoveries from modern biotechnology.
- The molecular/transgenic revolution and its impact on modern biotechnology.
- Customer/client relationships in biotechnology and their impact on public education to biotechnology principles.

Assured Experiences

- In class essays on selected topics from the Unit.
- In class exam.

Time Allocation

Approximately 3 Weeks

Unit 2: Biotechnology Laboratory Practices

Performance Standards

- The student will demonstrate understanding and competence in the preparation for and conduct of experiments in the biotechnology research and development environment. Two laboratory projects will be conducted during each quarter of instruction.
- **BS.02. NCAE Standard:** Demonstrate proficiency by safely applying appropriate laboratory skills to complete tasks in a biotechnology laboratory environment
- **CCTC Standard HL-BRD.3:** Demonstrate basic knowledge of recombinant DNA, genetic engineering, bioprocessing, monoclonal antibody applications, bioinformatics, proteomics and transcriptomics to conduct biotechnology research and development.
- **CCTC Standard HL.BRD.4:** Demonstrate the principles of solution preparation, sterile techniques, contamination control, and measurement and calibration of instruments used in biotechnology research.

Essential Questions

- How do we prepare for the running of an experiment in the biotechnology laboratory?
- How can we best utilize record-keeping skills to conduct experiments and collect data in the laboratory?
- How can we implement safe handling and management practices of materials in our laboratory?

Content (Scope and Sequence)

- Establish cooperative laboratory teams who will conduct experiments throughout the school year.
- Take a tour of the biotechnology laboratory to gain exposure to the scientific equipment in the laboratory.
- Learn safe laboratory procedures.
- Achieve mastery of utilization of laboratory equipment such as micropipetter, gel electrophoresis, PCR Thermocycler, gel column chromatography, and laminar flow hoods.

Assured Experiences

- Eight laboratory activities that involve different technologies utilized in biotechnology. Two of these are conducted during each quarter.
- Hands on utilization of laboratory technologies.
- Learning how to write laboratory reports for college level science classes.

Time Allocation

Approximately 8 weeks

Unit 3: Cell Biology, Nucleic Acids, and Gene Expression

Performance Standards

- **BS.03. NCAE Standard:** Demonstrate the application of biotechnology to solve problems in agriculture, food, and natural resources systems.
- **BS.03.01 Performance Indicator:** Apply biotechnology principles, techniques, and processes to create transgenic species through genetic engineering.
- **BS.02.05.01.b.** Characterize the physical and biological properties of organisms.
- **BS.02.05.02.a.** Compare and contrast the structures of DNA and RNA and investigate how genotype influences phenotype.
- **BS.02.05.02.b.** Analyze and interpret the molecular basis for heredity and the tools and techniques used in DNA and RNA manipulations.
- **BS.02.05.02.c.** Evaluate factors that influence gene expression.

Essential Questions

- How did the discovery of the structure of DNA molecules lead to the understanding of the protein synthesis process?
- How did transgenic technology impact the ability modify phenotypes in agricultural plant and animal species?

Content (Scope and Sequence)

- Variation in life forms on earth.
- Explanation of endosymbiosis.
- Comparison of prokaryotes and eukaryotes.
- Understanding of function of nuclear and plastid genomes.
- Understanding the structure and function of chloroplasts.
- Structure and functions of DNA and RNA.
- Role of viruses in function of life forms.

Assured Experiences (Projects)

- Exam on material from Unit 3.
- Essays on protein synthesis and bacteriophage activity in regulating bacterial populations.

Time Allocation

Approximately 3 weeks

Unit 4: Microbial Biotechnology

Performance Standards

- **BS.03.02. Performance Indicator:** Apply biotechnology principles, techniques and processes to enhance the production of food and medicinal biotechnology products through the use of microorganisms and enzymes.
- **BS.03.02.01.a** Summarize reasons for detecting microbes and identifying sources of microbes.
- **BS.03.02.02.b.** Analyze processes by which enzymes are produced through biotechnology.
- **BS.03.02.03.a.** Identify and categorize foods produced through the use of biotechnology to change the chemical properties of food for an intended purpose.
- **BS.03.02.03.c.** Process food using biotechnology to achieve an intended purpose.
- **BS.03.05.03.a.** Research and explain the process of fermentation and its potential applications.

Essential Questions

- How is transcription regulated in prokaryotes and eukaryotes?
- How do operons function?
- What is the function of exons and introns and activity of the spliceosome in modifying mRNA in eukaryotes.
- How does the structure of amino acid R groups influence protein folding and activity?
- What is the catalytic activity of enzymes?
- How have restriction enzymes and plasmids revolutionized DNA cloning and protein production via microbial fermentation?

Content (Scope and Sequence)

- Review of terminology: Trait, gene, allele, genome, chromosome, transcription, translation, operon, spliceosome, protein folding, restriction enzyme, plasmid cloning, vector, gene insertion, genotype vs. phenotype, dominant and recessive, homozygous and heterozygous.
- Qualitative and quantitative traits in molecular biotechnology.
 - Cloning vector creation and applications.
 - Importance of promoter sequence characteristics in protein production.
 - Impact of specific codon distribution translation efficiency.
- Understanding the strengths and weaknesses of genome sequencing technologies.
- Characteristics of cloning vectors and their specific applications.
- Theory of polymerase Chain Reaction and the quantitative and qualitative uses of PCR.
- Separating and visualizing restriction fragments.
- Understanding the process of plasmid vector transformation.
- Importance of antibiotic resistance gene use in marker assisted selection.
- Characteristics of restriction enzymes.

Assured Experiences (Projects)

- Essay assignments on transgenics, gene insertion, and gene cloning.
- Exam on unit material.
- Trait heritability analysis.

Time Allocation

Approximately 2 weeks

Unit 5: Plant Biotechnology and Food Production

Performance Standards

- **NCAE Standard – BS.03:** Demonstrate the application of biotechnology to solve problems in Agriculture, Food and Natural Resources.
- **BS.03.04. Performance Indicator:** Apply biotechnology principles, techniques and processes to enhance plant and animal care and production.
- **BS.03.04.01.a.** Research and describe the aims and techniques involved in the selective plant breeding process.
- **BS.03.04.02.a.** Examine and classify biotechnology processes applicable to plant health.
- **BS.03.04.02.b.** Assess the benefits, risks, and opportunities associated with using biotechnology to promote plant health and crop production.
- **BS.03.04.03.a.** Research and categorize the types of pharmaceuticals developed from plants for humans and animals from biotechnology.
- **BS.03.04.03.c.** Evaluate the processes used to produce pharmaceuticals from transgenic organisms.

Essential Questions

- What are the principles used in plant biotechnology?
- What are the achievements and significance of plant biotechnology to modern plant production?
- What is the significance of the Green Revolution in the ability of the world's farmers to produce the yields needed to feed today's human population?
- What are the differences between input and output traits in transgenic gene insertion?
- How do modern molecular biological technologies increase efficiency in crop production?
- What are the benefits of transgenic plant breeding vs. traditional plant breeding methods?

Content (Scope and Sequence)

- Diversity in phenotypes and products that are obtained from agronomic crops.
- The processes involved in traditional plant breeding.
- History of crop modifications that have arose through plant breeding.
- The emergence of scientific plant breeding
- Benefits derived from the utilization of hybrid seed production in maize and other crops.

- Mutational selection strategies to develop new plant varieties and species.
- Processes that are involved in transgenic gene insertion into plants.
- Comparison of the benefits and drawbacks found in traditional plant breeding, mutation/selection plant breeding and biotechnology based plant breeding.
- Reproductive timelines for horses, cattle, and sheep
- Benefits and application of marker assisted selection strategies.
- Applications of Genome Wide Association Systems in plant breeding.

Assured Experiences (Projects)

- Exam on unit material.
- In class essay assignments that deal with pertinent topics from the unit.

Time Allocation

Approximately 3 weeks

Unit 6: Biofuels

Performance Standards

- **BS.03.05. Performance Indicator:** Apply biotechnology principles, techniques, and processes to produce biofuels.
- **BS.03.05.01.b.** Analyze the impact of the production and use of biofuels on the environment.
- **BS.03.05.02.b.** Assess the characteristics of biomass that make it useful for biofuels production.
- **BS.03.05.04.b.** Analyze and document the process used to produce biodiesel from biomass.

Essential Questions

- How are ethanol and biodiesel produced from plant materials?
- What emerging technologies from biotechnology are being used to improve the efficiency and reduce the carbon footprint of biofuel production.

Content (Scope and Sequence)

- Discuss the issue of maintaining a dependency on the use of fossil fuels.
- Examine the processes by which ethanol and biodiesel are created from plant materials.
- Evaluation of plant species as potential crops for utilization in ethanol and biodiesel production.
- Examine the opportunity for transgenic algae to be used as efficient biodiesel production organisms.
- Evaluate technologies utilizing transgenic plant proteins that will improve the efficiency of ethanol production.
- Discuss the impact of oil prices on the cost efficiency of ethanol production processes.

Assured Experiences (Projects)

- Evaluation in unit exam.
- Essay assignment on global biofuel production.

Time Allocation

Approximately 2 weeks

Unit 7: Animal Biotechnology

Performance Standards

- **BS.03.04. Performance Indicator:** Apply biotechnology principles, techniques and processes to enhance plant and animal care and production.
- **BS.03.04.02.a.** Examine and classify biotechnology processes applicable to animal health.
- **BS.03.04.03.a.** Research and categorize types of pharmaceuticals developed for animals and humans through biotechnology.

Essential Questions

- What is animal Biotechnology?
- Identify and describe examples of animal biotechnology.
- Describe genetic methods used to improve animal growth: artificial insemination, superovulation, and embryo transfer.
- How are transgenics technologies used to produce animal lines with superior characteristics for food production and research purposes?

Content (Scope and Sequence)

- Examples of animal products and services.
- Examples of animal biotechnology: selective breeding, transgenics, somatic cell nuclear transfer, therapeutic proteins, stem cell therapy/gene therapy.
- Genetic improvements that are used to improve growth.
- Factors influenced by genetic selection.
- Myostatin blocking single allele mutation for promoting double muscling.
- Process and benefits of artificial insemination.
- Justification for the use of superovulation and surrogate mothers in cattle production.
- Transgenics using either microinjection or stem cell modification.
- Benefits of creating transgenic animals: superior foundation genetics, xenotransplantation donors, research lines with specific genetics (onco-mouse), pharmaceuticals production, specialty fiber production, stem cell therapy for injured equines, Enviropig.

Assured Experiences (Projects)

- Exam on material in unit
- Essay contrasting positions pro and con for animal transgenics.

Time Allocation

Approximately 2 weeks

Unit 8: Stem Cells and Their Biotech Applications

Performance Standards

- **BS.01.03. Performance Indicator:** Analyze the relationship and implications of bioethics, laws, and public perceptions of biotechnology in agriculture.
- **BS.03.01.03.c.** Transform plant or animal cells by performing Cellular transformation
- **BS.03.01.03.b.** Research and evaluate genetic engineering procedures used in the production of living species.

Essential Questions

- What are the ethical issues involving embryonic stem cell use in research?
- How does the creation of induced pluripotent stem cells address the concerns raised by the utilization of embryonic stem cells in research?
- What are the potential medical applications of iPSCs?

Content (Scope and Sequence)

- History of Embryonic Stem Cell research.
- Discovery of the process of focused adult stem regression by the use of selected transcription factor proteins.
- Technology involved in the creation of iPSCs.
- Creation of chimeric animals using iPSC technology.
- Medical potential of iPSCs in regenerative medicine: neurological diseases, Spinal chord injuries, Alzheimer's disease mitigation.

Assured Experiences (Projects)

- Exam section on unit
- Essay dealing with the ethical issues involved in Embryonic Stem Cell use in research.

Time Allocation

Approximately 2 weeks

Unit 9: Computational Biology and Bioinformatics

Performance Standards

- **BS.02.01.03.a.** Research and summarize the need for data and information security in a laboratory and demonstrate best practices.
- **BS.02.01.03.a.** Evaluate the role of bioinformatics in agriculture and summarize the types of databases that are available.

- BS.02.01.03.a. Critique an application of bioinformatics to solve an agricultural issue and recommend procedures for keeping the information safe.

Essential Questions

- How has the evolution of supercomputers and computational systems advanced the ability to analyze immense data sets in genomic sequencing?
- What is bioinformatics and how does this field expand the data analysis capability of biotechnologists?
- How has systems biology expanded the relationships between genome segments in different species?
- How does reaction directionality assist in understanding the flow of energy in cell physiological systems?
- How can computational biotechnology identify metabolic pathways not currently inferable from genome annotation?

Content (Scope and Sequence)

- The history of the use of supercomputers in the analysis of scientific data in molecular biotechnology.
- Investigation of the example of bioinformatics' role in the human genome project.
- Understanding of the processes of systems biology and how this technology helps identify conserved systems across biomes and across cell systems.
- Explanation of the GWAS (genome wide analysis systems) concept for detecting conserved systems among organisms.

Assured Experiences (Projects)

- Exam on the material in the unit
- Class essay on the impact of computational biology on the success of the human genome project and subsequent advances in genome sequencing technology.

Time Allocation

Approximately 2 weeks.

Unit 10: Biotechnology and Cancer

Performance Standards

- **BS.03.NCAE Standard:** Demonstrate the application of biotechnology to solve problems in Agriculture, Food and Natural Resource systems.

Essential Questions

- What is cancer?
- Why do large animals not get cancer?
- How is biotechnology used to characterize cancers?
- How is biotechnology used to create effective treatments.

Content (Scope and Sequence)

- The importance of mutations in somatic cells.
- The differences between malignant and benign tumors.

- Which genes affect cancer.
- The normal roles of protooncogenes in healthy tissues.
- Process of the creation of an oncogene.
- Importance of the loss of contact inhibition.
- The roles of protein kinases in cell division.
- Tumor suppressor genes/antioncogenes.
- Stages of the cell cycle and their impact on cancerous cell growth.
- The impact of the p53 oncogene on tumor development.
- Stages of tumor formation.
- Inherited susceptibility to cancer.
- Role of nutrition in cancer growth.
- History of chemotherapy.
- Theory of antiangiogenesis.
- Use of biotechnology to characterize individual cancers.
- Use of biotechnology to create targeted anticancer therapeutics.
- Novel therapies (sound, ultrasound, oxygen therapy) for use in cancer control.

Assured Experiences (Projects)

- Exam on the topics in this unit.
- Essay on the history of antiangiogenesis modalities for cancer treatment.

Time Allocation

Approximately 3 weeks

Unit 11: Public Perceptions, Concerns and Government Regulation

Performance Standards

- **BS.01.03 Performance Indicator:** Analyze the relationship and implications of bioethics, laws and public perceptions on applications of biotechnology in agriculture (e.g., legal, social and cultural issues).
- **BS.010301.b.** Analyze the implications bioethics may have on future advancements in AFNR.
- **BS.01.03.03.b.** Analyze the impact of public perceptions on the application of biotechnology in different AFNR systems.
- **BS.01.03.01.c.** Devise and support an argument for or against an ethical issue associated with biotechnology in agriculture.

Essential Questions

- What is the public perception of GMOs?
- How does information from partisan groups that are against GMOs impact public perceptions of this technology?
- What are the benefits that have been derived from having 180 million acres of transgenic crops in the US?

- What are the perceived risks and concerns to human health from the use of transgenic technology in agriculture?
- What are the tangible benefits to humans and the environment from the adoption of transgenic technology in world agriculture?
- What are the legal and scientific safeguards that have been put in place by governmental agencies in the US to insure the safe use of biotechnology in agricultural production?

Content (Scope and Sequence)

- History of modern agriculture.
- Importance of mechanization of farm tasks.
- The development of scientific plant breeding in the late 19th century.
- The adoption of hybrid seed corn technology in the 1930s.
- The increases in crop yield due to the use of commercial fertilizers.
- Creation of 'Green Revolution' plant varieties and their massive impact on rice and wheat yields throughout the world.
- Commercial application of GMO technology in agricultural production in the late twentieth century.
- The environmental benefits derived from the reduction in pesticide usage because of adoption of transgenic crop production strategies.
- The actions of special interest group in opposition to transgenic technology adoption in agriculture.
- Comparison between plant breeding strategies that utilize traditional plant breeding techniques and transgenics technologies.
- The application and relevance of mutagenesis strategies for plant breeding.
- Understanding the regulatory process that evaluates and regulates the utilization of transgenic technologies in US agriculture.

Assured Experiences (Projects)

- Essays on the application of Transgenic technologies in agriculture.
- In class presentation on the science of transgenic applications in agriculture.
- Exam on the material presented in the unit.

Time Allocation

Approximately 3 weeks

Unit 12: Patent Issues in Biotechnology

Performance Standards

- **BS.01.01.03.a.** Distinguish between current and emerging applications of biotechnology in agriculture.
- **BS.01.02.01.a.** Compare and contrast differences between regulatory systems worldwide.
- **BS.01.02.03.b.** Research and summarize factors and data that regulatory agencies use to evaluate the potential risks a new application of biotechnology may pose to health, safety and the environment.

- **BS.03.04.03.a.** Research and categorize the types of pharmaceuticals developed for animals and humans through biotechnology.

Essential Questions

- What is a patent?
- What are the components of a patent?
- What are the advantages of obtaining a patent for an invention?
- How did the Bayh-Dole act change the opportunities for biotechnology inventions?

Content (Scope and Sequence)

- Definition of a US Patent.
- History of Patent Law in the US.
- The components of a patent.
- The criteria for patentability of an invention.
- The three types of patents.
- The benefits of obtaining a patent.
- Patents and the birth of the biotech industry.
- Significance of the Diamond vs. Chakrabarty decision.
- The benefits of the Bayh-Dole Act for commercialization of scientific discoveries.
- Biotech development timelines.
- Costs of developing a biotech discovery.
- The national importance of a thriving biotech industry.
- The importance of biotechnology discovery applications to US Agriculture.

Assured Experiences (Projects)

- Essay on the process of patent preparation and submission.
- In class presentation on a patented technology in AG Biotech.
- Exam on the material in this unit.

Time Allocation

Approximately 2 weeks

Unit 13: Careers in Biotechnology

Performance Standards

- BS.03.01 Performance Indicator: Apply biotechnology principles, techniques, and processes to create transgenic species through genetic engineering.
- CRP.10.01. Identify career opportunities within a career cluster that match personal interests, talents, goals and preferences.
- CRP.10.02. Performance Indicator: Examine career advancement requirements (e.g., education, certification, training, etc.) and create goals for continuous growth in a chosen career.
- CRP.10.04. Performance Indicator: Identify, prepare, update and improve the tools and skills necessary to pursue a chosen career path.

Essential Questions

- What are the three main career paths for biotechnologists?
- What are the educational requirements for attaining a successful career in biotech?
- What are the basic steps to finding the right career?
- What are the compensation levels for careers in biotechnology?
- What are the different career opportunities in biotechnology?

Content (Scope and Sequence)

- The basic steps in finding a biotechnology career.
- The career clusters found in biotechnology.
- Compensation levels in biotechnology.
- Academic requirements for various biotech careers.
- Advantages/disadvantages of a biotech career in industry, academia or government agency.
- How to find job openings in the field.
- Navigation of professional organization websites.
- Interviewing skills.
- Contract negotiating strategies.

Assured Experiences (Projects)

- Oral presentation on biotechnology career.
- Exam on unit topics.

Time Allocation

Approximately 1 week

Culminating Activity

Midterm and Final Exams

The midterm and final exams are worth 10% each of the student's Trumbull High School course grade at the end of each year. Students will take midterm and final exams for each of the two years in the class.

Midterm and final exam grades are included in the "tests" portion of a student's ECE grade (60%).

COURSE CREDIT

This class meets for two class periods daily for one full year. Students earn two elective STEM credits.

Students are also able to register for ECE credits through the University of Connecticut for UCONN ECE SPSS3230 Biotechnology: Science, Impact and Perceptions

PREREQUISITES

Completion of Agriscience 9 and Agriscience 10 freshman and sophomore AG Biotechnology coursework.

TEXTS

Molecular Biology Made Simple and Fun, Clark and Russell, third edition, 2005, Cache River Press

SUPPLEMENTARY MATERIALS/RESOURCES/TECHNOLOGY

Biotechnology Lessons from the University of Nebraska at Lincoln Plant and Soil Sciences eLibrary

CURRENT REFERENCES

National Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Writing Rubric
- Trumbull High School School-Wide Problem-Solving Rubric
- Trumbull High School School-Wide Independent Learning and Thinking Rubric

Rubric 2: Write Effectively

Category/ Weight	Exemplary 4 Student work:	Goal 3 Student work:	Working Toward Goal 2 Student work:	Needs Support 1-0 Student work:
Purpose X_____	<ul style="list-style-type: none"> Establishes and maintains a clear purpose Demonstrates an insightful understanding of audience and task 	<ul style="list-style-type: none"> Establishes and maintains a purpose Demonstrates an accurate awareness of audience and task 	<ul style="list-style-type: none"> Establishes a purpose Demonstrates an awareness of audience and task 	<ul style="list-style-type: none"> Does not establish a clear purpose Demonstrates limited/no awareness of audience and task
Organization X_____	<ul style="list-style-type: none"> Reflects sophisticated organization throughout Demonstrates logical progression of ideas Maintains a clear focus Utilizes effective transitions 	<ul style="list-style-type: none"> Reflects organization throughout Demonstrates logical progression of ideas Maintains a focus Utilizes transitions 	<ul style="list-style-type: none"> Reflects some organization throughout Demonstrates logical progression of ideas at times Maintains a vague focus May utilize some ineffective transitions 	<ul style="list-style-type: none"> Reflects little/no organization Lacks logical progression of ideas Maintains little/no focus Utilizes ineffective or no transitions
Content X_____	<ul style="list-style-type: none"> Is accurate, explicit, and vivid Exhibits ideas that are highly developed and enhanced by specific details and examples 	<ul style="list-style-type: none"> Is accurate and relevant Exhibits ideas that are developed and supported by details and examples 	<ul style="list-style-type: none"> May contain some inaccuracies Exhibits ideas that are partially supported by details and examples 	<ul style="list-style-type: none"> Is inaccurate and unclear Exhibits limited/no ideas supported by specific details and examples
Use of Language X_____	<ul style="list-style-type: none"> Demonstrates excellent use of language Demonstrates a highly effective use of standard writing that enhances communication Contains few or no errors. Errors do not detract from meaning 	<ul style="list-style-type: none"> Demonstrates competent use of language Demonstrates effective use of standard writing conventions Contains few errors. Most errors do not detract from meaning 	<ul style="list-style-type: none"> Demonstrates use of language Demonstrates use of standard writing conventions Contains errors that detract from meaning 	<ul style="list-style-type: none"> Demonstrates limited competency in use of language Demonstrates limited use of standard writing conventions Contains errors that make it difficult to determine meaning

Rubric 3: Problem Solving through Critical Thinking

Category/Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Understanding X_____	Student demonstrates clear understanding of the problem and the complexities of the task	Student demonstrates sufficient understanding of the problem and most of the complexities of the task	Student demonstrates some understanding of the problem but requires assistance to complete the task	Student demonstrates limited or no understanding of the fundamental problem after assistance with the task
Research X_____	Student gathers compelling information from multiple sources including digital, print, and interpersonal	Student gathers sufficient information from multiple sources including digital, print, and interpersonal	Student gathers some information from few sources including digital, print, and interpersonal	Student gathers limited or no information
Reasoning and Strategies X_____	Student demonstrates strong critical thinking skills to develop a comprehensive plan integrating multiple strategies	Student demonstrates sufficient critical thinking skills to develop a cohesive plan integrating strategies	Student demonstrates some critical thinking skills to develop a plan integrating some strategies	Student demonstrates limited or no critical thinking skills and no plan
Final Product and/or Presentation X_____	Solution shows deep understanding of the problem and its components. Solution shows extensive use of 21st Century Technology Skills.	Solution shows sufficient understanding of the problem and its components. Solution shows sufficient use of 21st Century Technology Skills.	Solution shows some understanding of the problem and its components. Solution shows some use of 21st Century Technology Skills.	Solution shows limited or no understanding of the problem and its components. Solution shows limited or no use of 21st Century Technology Skills.

Rubric 5: Independent Learners And Thinkers

Category/Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Proposal X_____	Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work.	Student demonstrates initiative by generating appropriate questions, creating original projects/work.	Student demonstrates some initiative by generating questions, creating appropriate projects/work.	Student demonstrates limited or no initiative by generating few questions and creating projects/work.
Independent Research & Development X_____	Student is analytical, insightful, and works independently to reach a solution.	Student is analytical, and works productively to reach a solution.	Student reaches a solution with direction.	Student is unable to reach a solution without consistent assistance.
Presentation of Finished Product X_____	Presentation shows compelling evidence of an independent learner and thinker. Solution shows deep understanding of the problem and its components. Solution shows extensive and appropriate application of 21 st Century Skills.	Presentation shows clear evidence of an independent learner and thinker. Solution shows adequate understanding of the problem and its components. Solution shows adequate application of 21 st Century Skills.	Presentation shows some evidence of an independent learner and thinker. Solution shows some understanding of the problem and its components. Solution shows some application of 21 st Century Skills.	Presentation shows limited or no evidence of an independent learner and thinker. Solution shows limited or no understanding of the problem. Solution shows limited or no application of 21 st Century Skills.

TRUMBULL PUBLIC SCHOOLS NEW TEXT REVIEW/APPROVAL PROCESS

Date Submitted: May 11, 2023

Title of Text: *Elementary Statistics: Picturing the World (8th Edition)*

Authors: Ron Larson

Publisher: Pearson Education, Inc.

Year Published: 2022

ISBN Number: 978-0-13-759231-9

Core¹ or Supplemental: Core

Course: ACP Statistics

Grade Level: 11th, 12th

Replaces text: *Statistics: Informed Decisions Using Data (4th Edition - 2013)* - Michael Sullivan III

Rationale for adopting new text: Previous text was outdated, and the examples were no longer relevant.

Text Description: *Elementary Statistics: Picturing the World, 8th Edition* describes the world through statistics using stepped-out instruction, extensive real-life examples and exercises, and design that fits content to each page makes the material more digestible. The authors' combination of theory, teaching and learning aids, and design helps you understand concepts and use statistics to describe and think about our world.

Strengths: This textbook provides relevant examples of appropriate rigor for the population of students. It presents material connected to state standards in an order that creates a spiraled curriculum. The practice problems are aligned to the topics and standards covered by the course and will serve as sufficient preparation for assessments.

Weaknesses: Topics are presented in a different order – the ACP Statistics curriculum will need to be rewritten to utilize the new textbook most effectively.

Submitted by: Dr. Kristin Sroka, THS Mathematics Department Chairperson

Reviewed by:

Principal/Designee

Date

Assistant Superintendent

Date

Board of Education Curriculum Committee Member

Date

Board of Education Curriculum Committee Member

Date

Board of Education Curriculum Committee Member

Date

¹ "Core" refers to a resource that must be used by all students for attainment of course goals.