



***Travel Through Time:  
Can We Do It, Will We Do It, Should We Do It?***

by Lisbel Allard, 2018 CTI Fellow  
Cochrane Collegiate Academy

This curriculum unit is recommended for:  
Science and Social Studies, Middle Grades

**Keywords:** motion, time, space time, gravity, acceleration, Conquistador, Aztec

**Teaching Standards:** See Appendix 1 for teaching standards addressed in this unit.

**Synopsis:** This curriculum unit is intended and designed to be taught as an interdisciplinary unit in Science, Social Studies, and English Language Arts. In this unit students will be tasked with making ethical and moral decisions as they go back in time to the conflicts of the Conquistadors and the Aztecs during the colonization of the 1500's. In order for students to travel back in time, first they will learn about the scientific theories of Galileo, Einstein, and Sir-Isaac Newton. Student research will lead them into the design of a time traveling machine that will defy or confirm these scientific theories. Students will investigate their personal beliefs and will be required to make informed and educated decisions when confronted with some ethical questions, like whether or not, given the power to make changes to the timeline, what will they choose? This unit allows for students to examine both historical moments and scientific theories. This unit also requires that students spend time researching, writing, and designing. In this interdisciplinary unit, students will complete an individual culminating activity, in the form of an essay, a project, or a model.

*I plan to teach this unit during the coming year to 76 students in 7<sup>th</sup> and 8<sup>th</sup> Grade Science and Social Studies.*

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## Introduction

Cochrane Collegiate Academy is a middle school that serves students in grade 6-8. Cochrane Collegiate Academy shares its building with I-Meck, a magnet high school. Cochrane Collegiate Academy is a Title I School based on the federal Elementary and Secondary Education Act (ESEA). Cochrane's student body is approximately 800. The ethnic breakdown of the school is: 47% African American, 52% Hispanic, and 1% other. The school EOG scores for the past several years have shown that students scored at grade level on the Science End of Grade Exam (EOG's) and North Carolina Final Exam (NCFE's). I teach 7th and 8th grade Science and Social studies to approximately 76 students daily for 105 minutes. My student body includes English Language Learners (ELL's). I create differentiated activities to meet the diverse educational needs of my students.

Cochrane's science curriculum is based on the North Carolina Essential Standards and paced according to the CMS yearly pacing guides. We employ traditional laboratory experiences provide opportunities to demonstrate how science is constant, historic, probabilistic, and replicable. Although there are no fixed steps that all scientists follow, scientific investigations usually involve collections of relevant evidence, the use of logical reasoning, the application of imagination to devise hypotheses, and explanations to make sense of collected evidence. Student engagement in scientific investigation provides background for understanding the nature of scientific inquiry. In addition, the science process skills necessary for inquiry are acquired through active experience. The process skills support development of reasoning and problem-solving ability and are the core of scientific methodologies.

Cochrane's Social Studies curriculum is based on the North Carolina Essential Standards and paced according to the CMS yearly pacing guides. The primary purpose of Social Studies is to help young people make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world.<sup>1</sup> As part of the emphasis on historical research in the social studies standards, students will be engaged in the analysis of the the relationship between historical context and decision-making. The students will identify issues and problems in a particular time and analyze the interests, values, perspectives, and points of view of those involved in the situation in order to establish context.

- Provide evidence from past events and circumstances that may have been contributing factors to contemporary problems and alternative courses of action.
- Evaluate alternative courses of action, keeping in mind the information available at the time, in terms of ethical considerations, the interests of those affected by the decision, and the long- and short-term consequences of each.
- Formulate a position or course of action on an issue by identifying the nature of the problem, analyzing the underlying factors contributing to the problem, and choosing a plausible solution from a choice of carefully evaluated options. (See The Eighth Grade North Carolina Social Studies Standards, Appendix 1).

Cochrane is a one-to-one technology school. Students have access to a Chromebook on a daily basis. Therefore, students will use many online resources to help them learn the content, such as, EdPuzzle, Screencastify, Flocabulary, NewsELA, YouTube, and other miscellaneous

resources. The blended learning strategy helps student experience a more hands-on approach when adequate lab resources are not available.

For each unit, students are assessed to determine how to develop and/or modify lessons and activities. Assessments will consist of daily checks for understanding, weekly project feedback, and a culminating final piece of the student's choosing. Students will be assessed with the use of rubrics.

## Rationale

One of the most interesting and challenging concepts for many to understand is the idea of gravity, motion and time, and Einstein's concept of spacetime. As a starting point, it is important to explore Galileo's original experiments on gravity and its effect on the motion of an object. In 1589, Galileo dropped objects of differing mass from the Leaning Tower of Pisa to demonstrate the theories proposed in his unpublished text *De motu* ("Of Motion")<sup>2</sup> Other scientist developed their own theories on gravity, motion, and spacetime as well. For example, Sir Isaac Newton explains gravity as a force that pulls objects down to the center of Earth. Einstein expanded on both of these explanations by suggesting that objects are not actually falling due to gravity at all. Einstein explained that if you could not see the background behind the object, there would be no way of telling the objects were falling towards earth due to gravity.<sup>3</sup> Einstein's Theory of Special Relativity created a fundamental link between space and time. In accepting Einstein's theory, one must embrace that the universe can be viewed as having three space dimensions — up/down, left/right, future/past — and one time dimension. The back/forward 4-dimensional space is referred to as the spacetime continuum.<sup>4</sup>

Middle schoolers are fascinated with how gravity works and with the unknown of outer space. They, for the most part, embrace the scientific unknown. On the other hand, an area that remains a challenge is creating excitement in the middle schooler for History and the importance of historical figures on today's world, including the science field. The scientific theories of Galileo, Newton, and Einstein and others, allows for a combination of scientific inquiry and historical focus, as well as hands-on experiences. The goal is to draw the student into the fascination of gravity, motion and space time all while exploring the historical impact of the scientist and the research behind the scientist's findings.

As both a Science and Social Studies teacher, my goal with this curriculum is to create an opportunity for the students to apply skills in both disciplines. To get the students excited, I want to make my classes more hands-on and more engaging so that students will learn and be able to apply both historical research and scientific application. Through my research in the It's About Time CTI Seminar, I plan to incorporate what I have learned about spacetime, literature, and art. Each student will explore through time travel a historical time, more specifically the time frame of the colonization of the Aztecs by the Conquistador Hernan Cortes, and will make scientific, historical, and ethical decisions that could impact or influence future generations. The student will be tasked to decide whether when confronted with the conflicts of the Conquistadors and the Native Americans during the Battle of Otumba, would they have intervened and avoided war. Each student will be given a role as a member of the Conquistadors or a member of the Aztec tribe. Then as an influential member of the decision-making process, and having prior

knowledge of the outcome of the Battle of Otumba, will the student decide to use the time machine to make any changes to the time continuum? After heavily considering, researching, and reflecting, the student will create a final project that will incorporate the decisions made, predicated on research and scientific application, and ultimately designing a piece that will showcase his or her individual work on the concept of time in a historical, artistic, and informative manner.

## Content Research

The western concept of time in modern life is viewed in a linear progression. We think of time as happening from the now to the future, ticking forward second by second. Yet time, when perceived from different frameworks and dimensions, can take on a very different progression. As scientist like Einstein and writers like Edwin A. Abbott, time can be seen many dimensions-- as both suggest time can be seen very differently through the concept of a fourth dimension. Einstein theorized and considered space and time happening simultaneously through the idea of spacetime. Einstein describes it not as a linear progression at all, but as a relationship between time and space, and if time is thought in this manner, the more you have of time the less you have of space. (Seminar, 5/3/18)<sup>5</sup>. Likewise, in Abbott's *Flatlands: A Romance of Many Dimensions*,<sup>6</sup> Abbott challenges his readers to question what would happen if a four-dimensional interfered with our two-dimensional world. Abbott's protagonist and narrator, a two-dimensional square, forces the reader to consider what it would mean for someone to interact with phenomena from a dimension higher than his own. When thinking of time as a dimension, one must consider, like Abbot, what consequences, changes, or results will one experience as a result of a different time continuum.

The concepts of space and time are connected. Time and motion is synchronized. Time may actually not be time at all, but an illusion. Prior to the creation of the clock, different towns set their own time. It wasn't until the industrial revolution, and the need to synchronize time for the benefit of the railroad system that time became set as we know now. So, did we invent time? (Seminar, 5/3/18). In the PBS Nova video, The Fabric of the Cosmos: "The Illusion of Time"<sup>7</sup> shows evidence from discoveries over the last century that much of what we think about time may be nothing more than an illusion. Contrary to everyday experience, time may not flow at all. Our past may not be gone; and our future may already exist. In the PBS video, Brian Greene discusses with various scientist and physicists this concept of time. In trying to figure what time is, an investigation is made as to how time is measured on a clock. After a lengthy discussion in the video with several scientists, author of the *The Fabrics of the Cosmos*,<sup>8</sup> Brian Greene states, "but no matter how accurate our clocks have become, time remains a mystery. Clocks can tell us what time it is, but they haven't been able to tell us what time itself is. What is it we're actually measuring?" This conclusion made by Greene suggests that time cannot be explained as two-dimensional and cannot be conceptualized separate from our measurements of it.

In actuality, time makes more sense as defined by Einstein and Abbott as having many dimensions. Many writers also have written about our existence in time as four-dimensional or having four directions. In H.G. Wells', The Time Machine,<sup>9</sup> the Time Traveller explains to his audience the four dimensions of time:

Any real body must have extension in *four* directions: it must have Length, Breadth, Thickness, and — Duration. But through a natural infirmity of the flesh, which I will explain to you in a moment, we incline to overlook this fact. There are really four dimensions, three which we call the three planes of Space, and a fourth, Time. There is however, a tendency to draw an unreal distinction between the former three dimensions and the latter, because it happens that our consciousness moves intermittently in one direction along the latter from the beginning to the end of our lives. (p. 4).

Accepting time as having many dimensions will allow for the consideration of endless possibilities on what would happen if one can enter these different dimensions of time, and manipulate them in such a way to obtain a desired result. This idea of entering time through various dimensions, allows the curious to consider and develop ideas of “time travel.”

Time travel has been the focus of scientific theory, popular culture, and many literary works, among other genres. In the literary work “And Wild For to Hold”<sup>10</sup> the author Nancy Kress does just this with time. She takes historical figures and plucks them out of their time dimension and attempts to show the consequences of doing such thing. The results are fascinating. For example, she removes Anne Boleyn from England in 1525 and places her in a secure place in a space between dimensions, and/or alternate dimensions until Anne’s death. In doing this, Kress, with one decision, has called the significance and impact the Elizabethan Era into question. Kress does an excellent job of allowing the reader to weigh the decision of doing such a thing in any time dimension. What would happen if we removed other significant figures, Saddam Hussein, Hitler, Osama Bin Laden, Kim Jong-un, for example? Would the world be a different place? Would others take their places? Would we lose a very important part of history? Would we get the outcome we desired? (Seminar, 09/20/18).<sup>11</sup>

In weighing these ethical and moral decisions, one must look at how authors and writers have developed characters to explore this very idea. H.G. Wells, in The Time Machine,<sup>12</sup> creates the hypothetical character the Time Traveller, who travels in a time machine, to grapple with similar concepts when he travels into the future. The Time Traveller travels into the future to find that humanity has evolved into two races: the vegetarian Eloi, who are the weaker, beautiful race, and the cannibalistic Murlocks, who are the stronger, troglodyte race. The Murlocks prey on the Eloi. Baffled by why the Eloi do not fight back, the Time Traveller makes a decision to intervene. He exclaims, “still, however helpless the little people in the presence of their mysterious Fear, I was definitely constituted. I came out of this age of ours, this ripe prime of the human race, when Fear does not paralyse and mystery has lost its terrors. I at least would defend myself.”<sup>13</sup> (p. 49). The author questions and imposes his ideas to influence the Eloi. The Eloi believe that in order to survive they must stay away from the powerful Murlocks. The author by inserting the Time Traveller into this power dynamic between the Eloi and the Murlocks, changes the way the Eloi view whether they should defend themselves against the Murlocks. In doing so, the Time Traveller exposes the Eloi to danger and possible death.

In the T.V. series *Dr. Who*<sup>14</sup>, the Doctor travels in his time machine, the TARDIS, into the past to influence the decisions of others in order to avoid a future threat. In most episodes, the Doctor suggests that every person in every moment in time and space is suffering and that timelines are not supposed to cross. He rearranges time. Therefore, in going back in time the

Doctor could help others avoid such disasters and makes things right. One must ask oneself, “Well is this right? Should the Doctor intervene? Should we allow disaster to strike and people to die? What makes the Doctor so supreme to us? Should we trust the Doctor? Would we do the same thing? Is this ethical? Is it moral? (Seminar, 10/25 and 11/6).<sup>15</sup>

The idea of time travel will always fascinate many. Science and technology may one day allow travel through space and time. Given what one knows about the past, the present, and insight into the future, what would one do if allowed to time travel? Would one change the past to influence the future? Would one travel into the future and come back to the present and inform the race of what is to come? What moral and ethical decisions would one face? What consequences will result in one’s decisions?

## Objectives

During this unit I plan to address the following process skills and concepts:

- *Identify and create qualitative and quantitative observations within a science experiment or investigation.*
- *Evaluate experimental data, draw conclusions based on the data, and communicate the conclusion within the science classroom.*
- *Evaluate complex text for reading elements, context clues, and applicable research data.*
- *Identify issues and problems in a particular time and analyze the interests, values, perspectives, and points of view of those involved in the situation in order to establish context.*
- *Provide evidence from past events and circumstances that may have been contributing factors to contemporary problems and alternative courses of action.*
- *Evaluate the implementation of a decision by analyzing the interests it served through: - estimating the position, power, and priority of each player involved. -assessing the ethical dimensions of the decision. -evaluating its costs and benefits from a variety of perspectives.*

Students will be introduced to vocabulary, lab activities and hands-on exercises that will help them learn and be more successful with this topic, as well as make learning fun and enjoyable. Students will learn how to create a mechanism ( could be a time capsule, time machine, or info box) to help them demonstrate their expertise. Students will learn about different historical events that have shaped our world, scientific theories in gravity, motion, space and time as they complete a series of in class activities.

The following objectives from the North Carolina Essential Science and Social Studies Standards will be addressed within the unit:

The essential standards that I want to address and explore in this fellowship in order to create a curriculum for my students is the standard **7.P.1 and 8.H.1**

*7.P.1 - Understand motion, the effects of forces on motion and the graphical representations of motion.*

*8.H.1 - Apply historical thinking to understand the creation and development of North Carolina and the United States.*

*What does this standard mean a child will know, understand and be able to do?*

7.P.1.1

The motion of an object is always judged with respect to some other object or point.

7.P.1.2

An unbalanced force acting on an object changes its speed or direction of motion, or both. The change in motion (direction or speed) of an object is proportional to the applied force and inversely proportional to the mass. All motion is relative to whatever frame of reference is chosen, for there is no motionless frame from which to judge all motion. Newton's law describes the relationship between gravitational force, mass, and distance.

8.H.1.5 Analyze the relationship between historical context and decision-making.

Students will concentrate on these concepts:

- Forces - gravity
- Motion - velocity, speed, mass, distance
- Time (including the concept of spacetime)
- Historical Thinking
- Historical Narratives
- Historical Inquiry
- Historical Context

The following Cross-Curricular Essential and Common Core Standards will be addressed within this curriculum unit:

*Common Core Standard CCSS.ELA-Literacy.RST.6-8.9*

*Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.*

## **Content: Overview for Teachers**

### **Vocabulary:**

Force: strength or power exerted upon an object. A push or a pull.

Motion: the action or process of moving or of changing place or position; movement.

Gravity: the force of attraction by which objects tend to fall toward the center of the earth.

Time: the system of those sequential relations that any event has to any other, as past, present, or future; indefinite and continuous duration regarded as that in which events succeed one another.

Spacetime: also called **spacetime continuum**. the four-dimensional continuum, having three spatial coordinates and one temporal coordinate, in which all physical quantities may be located.

Velocity: the speed of something in a given direction.

Speed: the rate at which someone or something is able to move.

Mass: a measure of resistance of a body (something) to a changes in its motion.

Distance: an amount of space between two things or people.

Inertia: a tendency to do nothing or to remain unchanged.

### **Teaching Strategies**

Many of the instructional strategies that I will incorporate this year in my classroom will be from Teaching for Excellence, 5th Edition by Spence Rogers. Teaching for Excellence is a model focused on and driven by one thing. Performance Excellence for All Kids. (PEAK)

1. Warm ups : prepare students for what they are about to do and learn. The warm up is designed and used to very specific criteria. As the students enter class and before new instruction begins, the students are asked to respond to questions, problems or prompts that will engage the students in general type of mental activity that will be part of the instruction.
2. Vocabulary Cards: vocabulary cards provide a simple vehicle for supporting vocabulary development on a 3 x 5 card that is based on the Frayer Model. Vocabulary cards are designed so the student can put the target word in the arched area. This placement facilitates the kids quizzing themselves or their classmates. The four boxes have prompts that are all designed to facilitate students learning the concept. It is important to note that the prompts can be easily modified to fit the targeted word, and that no prompt is asking for a definition since definitions can be artificial and confusing.



3. Interactive Notes: students take notes in Cornell form, but have an area where they can have an interaction with the notes. The interaction could be in the form of a drawing, writing the notes in their own words, or any other interaction the student deems appropriate. In this strategy, notes are prompted in any one of several ways, but with each, I stop after each important point for note taking and interactions with the notes.
4. Reading Assignments: reading assignments provide the basis for understanding. Reading assignments will be at appropriate lexile levels for students' learning abilities. Students will also read web-based articles, magazines, and excerpts from books.
5. Research: students will conduct research on scientist, historical time periods, and other areas that may become of interest to the student while he or she is conducting independent research.
6. Labs/hands-on projects: students will complete various steps in hands-on work as they work through this unit. Students will also complete a final project.
7. Assessments/Rubrics: students will be checked for understanding throughout each step of the project. Assessments will consist of writing assignments, research reports, infographic, posters, and a final piece. Students will have a choice in their final project submissions. Rubrics will be used to show mastery.

## Lessons

### Lessons 1-6

These lessons will be for the introduction to background knowledge on the concepts in motion and the historical impact of the Age of Exploration: the Conquistadors.

Day	Teacher	Materials/Activity	Teacher Notes
Week before the start of the unit.	Assign reading assignment - <u>The Time Machine</u> - H.G. Wells for homework.  Photocopies of reading assignments if book is not available to all students.  Reading Handout with guiding questions.	Pose the following guiding questions for the anticipated lesson: "If you could travel through space where would you go and why? What would you do when you got there? What would you change?  Assign vocabulary lists.	The reading assignments should be scaffolded. Daily discussions about the readings are recommended.  <ul style="list-style-type: none"> <li>● Have fun</li> <li>● Make sure all kids talk</li> <li>● Debrief daily as a class</li> <li>● Keep the conversations short</li> </ul>
Day 1 - 3 The Hook	Engage the students with posing the hypothetical question.  Show the following videos:	Introduction to motion PowerPoints  Computer / Projector  The book - <u>The Time Machine</u> (Dover Thrift	Differentiation should be made for ELL and EC students. – video can be shown in Spanish or translated via Google Translate. Teaching Tips:

	<p>Hammer v. Feather  <a href="https://www.youtube.com/watch?v=KDp1tiUsZw8">https://www.youtube.com/watch?v=KDp1tiUsZw8</a></p> <p>Bowling Ball v. Feather  <a href="https://www.youtube.com/watch?v=9-YNaN-5mnc">https://www.youtube.com/watch?v=9-YNaN-5mnc</a></p> <p>Introduce students to new material using a PowerPoint.</p> <p>The videos show the concepts of mass, motion, gravity, and space.</p> <p>Group and Pair work: have students review the guiding questions and write down responses or comments on the guiding questions notes/comments handout.</p>	<p>Editions)</p> <p>The movie - <u>The Time Machine</u> (any version)</p> <p>Photocopies of all handouts:</p> <ul style="list-style-type: none"> <li>● Reading Handouts</li> <li>● Guiding question Handout.  <a href="https://docs.google.com/document/d/1F0xylyy8Y1yVetOShxIGbiuaTO8DbLLQ0DNYkoTOabE/edit">https://docs.google.com/document/d/1F0xylyy8Y1yVetOShxIGbiuaTO8DbLLQ0DNYkoTOabE/edit</a></li> <li>● Video Analysis Handout.  <a href="https://docs.google.com/document/d/1ppdTrzSjoNEB-IBF-1zKeC5bd8d0ZwUjouEogMC1Mrc/edit">https://docs.google.com/document/d/1ppdTrzSjoNEB-IBF-1zKeC5bd8d0ZwUjouEogMC1Mrc/edit</a></li> <li>● Reading Strategy Cards</li> </ul>	<ul style="list-style-type: none"> <li>● Read portions of book or reading handouts allowed to the students and get animated.</li> <li>● Define key words.</li> <li>● Model close reading strategies on the reading strategy cards.</li> <li>● Summarize time, place and story</li> </ul> <p>Put students in mini groups.</p> <p>Assign student roles. In groups have students define the words: motion, mass, gravity, space, velocity, distance.</p> <p>In groups students should define words they do not understand or know in the guiding questions.</p>
<p>Day 4 - 6</p>	<p>Introduce the Social Studies materials.</p> <p>Show video on The Conquistadors.  <a href="https://www.youtube.com/watch?v=_ABoaAyhMZQ">https://www.youtube.com/watch?v=_ABoaAyhMZQ</a></p> <p>Show students images of The Conquistadors and Aztecs. PowerPoint with images.  <a href="https://docs.google.com/presentation/d/1CfmCz_PFPuucDn6JYvWM3OPq_ZT3cbgcqKWL8-qrqSQ/edit#slide=id.g459664726d0_13">https://docs.google.com/presentation/d/1CfmCz_PFPuucDn6JYvWM3OPq_ZT3cbgcqKWL8-qrqSQ/edit#slide=id.g459664726d0_13</a></p>	<p>Photocopies of all handouts:</p> <ul style="list-style-type: none"> <li>● Video Analysis Handout</li> <li>● Image Analysis Handout.  <a href="https://docs.google.com/document/d/16lP13BjuDpK4NRwQmp3DEUpVks3_N04IKVVziUPaSBY/edit">https://docs.google.com/document/d/16lP13BjuDpK4NRwQmp3DEUpVks3_N04IKVVziUPaSBY/edit</a></li> <li>● PowerPoint on the Conquistadors and Aztecs-teacher created.</li> </ul>	<p>Differentiation should be made for ELL and EC students. – video can be shown in Spanish or translated via Google Translate.</p> <p>Teacher Tip: Images could be copied on paper or provided as a slideshow for students to view electronically - like via Google Classroom or any other platform. Teacher can add other images as needed. Teacher can use other sites/videos to introduce material to students.</p>

Lessons 7-10:

These lessons will be for the hands-on activities and interaction and extension of the concepts learned in lessons 1-6.

Day	Teacher Input	Materials/Activity	Teacher Notes
Day 7	<p>Introduce students on how to conduct research.</p> <p>Provide specific guidelines and deadlines.</p> <p>Teacher helps students choose their final project.</p> <p>Take students to library/media center to conduct research</p> <p>Show students models of time traveling machines from popular culture movies</p>	<ul style="list-style-type: none"> <li>● Student notebooks</li> <li>● Writing utensils</li> <li>● Research guideline handout</li> </ul>	<ul style="list-style-type: none"> <li>● It is a good idea to have a set set of guidelines and deadlines in the form of a handout for students.</li> <li>● Library or media protocol</li> <li>● Make a PowerPoint with pictures of examples of time machines - Delorean, Tardis, etc..</li> </ul>
Day 8	<p>Students should begin writing essay, index cards, or summaries depending on their final project.</p> <p>Teacher facilitates with hands-on activities</p>	<ul style="list-style-type: none"> <li>● Boxes</li> <li>● Poster Boards</li> <li>● Markers</li> <li>● Construction Paper</li> <li>● Glue, etc</li> </ul>	<ul style="list-style-type: none"> <li>● Goal here is to have students working, discussing content, and designing their projects</li> <li>● All class time should be allotted to projects.</li> <li>● Teacher should remind students to focus on answering the guiding questions.</li> </ul>
Day 9	<p>Students continue to work on final projects</p>	<ul style="list-style-type: none"> <li>● Any additional materials requested by students.</li> </ul>	<ul style="list-style-type: none"> <li>● Encourage students to talk to each other as they work and this may spark the development of ideas and arguments on the ethical/moral implications of time travel.</li> </ul>

<p>Day 10</p> <p>This could extend into more days if time is needed.</p>	<p>Prepare students for presentations. (Oral or gallery style)</p> <p>Provide format and guidelines.</p> <p>Prepare and provide a peer-review handout.</p>	<ul style="list-style-type: none"> <li>• Copies of peer-review handout.</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage positive peer reviews and encouragement.</li> </ul>
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## Assessments

Students will be assigned a final project. The students will have a choice of three different activities to complete to show mastery of the content taught.

The students will choose one of the following three activities:

1. Essay Style Final Paper
2. Oral Presentation using Visuals
3. Final Piece using Art or Model

The students will be assessed using the following rubrics:

1. Informative Writing Rubric:  
[https://docs.google.com/document/d/1U02ZJHZ2BL52y76\\_k9q80vIpiGYSRrZelr\\_4UzZ\\_AOH8/edit](https://docs.google.com/document/d/1U02ZJHZ2BL52y76_k9q80vIpiGYSRrZelr_4UzZ_AOH8/edit)
2. Oral Presentation:  
[https://docs.google.com/document/d/1q7oEQFJxcJPxYtkwY-x-hJq4RjMOLwz19VGbV\\_qe3Mk/edit](https://docs.google.com/document/d/1q7oEQFJxcJPxYtkwY-x-hJq4RjMOLwz19VGbV_qe3Mk/edit)
3. Project-Based Rubric:  
<http://www.4teachers.org/projectbased/58sci.shtml>
  - a. Use this site to create individualized rubrics depending on what is needed for each student.

## Resources

### List of Materials Needed:

- Poster Board
- Modeling Clay
- Glue Construction
- Paper Poster
- Paper Markers
- Colored Pencils
- Crayons
- Lined Paper
- Shoe Boxes - if students make time capsules as final project

### Resources for Students:

1. The PBS.org website completed a documentary on the Conquistadors. This interactive page allows students to research and gather information related to the time period and the Conquistadors.  
[https://www.pbs.org/conquistadors/orellana/orellana\\_a00.html](https://www.pbs.org/conquistadors/orellana/orellana_a00.html)
2. This website provides historical background on the Aztecs that students can use to complete some of their research.  
<http://www.historyworld.net/wrldhis/PlainTextHistories.asp?historyid=aa12>
3. This youtube video is a great way to learn some facts about the Aztecs.  
<https://www.youtube.com/watch?v=Gwt2NQWtWTM>
4. In this video students can see how the warriors of the Aztec Empire fought, how human sacrifice was handled and how the Empire came to its end with the arrival of Hernan Cortes and the conquistadors of Spain, and the fall of Emperor Moctezuma II.  
<https://www.youtube.com/watch?v=ABoaAyhMZO>
5. This website provides historical data on Emperor Moctezuma II who was the last emperor of the aztecs defeated by Hernan Cortes.  
<https://www.biography.com/people/montezuma-ii-9412612>
6. This weebly provides some information on the relationship between Hernan Cortes and the Aztec Empire  
<https://theaztecsandhernancortez.weebly.com/montezuma-ii-and-the-relationship-between-him-and-cortes.html>

## Resources for Teachers:

1. This is the homepage for CMS teachers- Clever where teachers can find useful tips on how to complete DBQ's in social studies. <https://clever.com/in/cms/teacher/applications>
2. This website has many different templates to create many different types of rubrics for projects. <http://www.4teachers.org/projectbased/58sci.shtml>
3. Google Earth is a great resource so students can visually see different places around the world. The interactive portion of the website allows students to see a bird's eye view.
4. Hammer v. Feather dropped on moon by an astronaut. Explains the findings of Galileo and gravity. <https://www.youtube.com/watch?v=KDp1tiUsZw8>
5. Bowling Ball v. Feather experiment explains the arguments of gravity v. space time, or better said Newton v. Einstein. <https://www.youtube.com/watch?v=9-YNaN-5mnc>
6. Wernher von Braun - a boys dream come true of building rockets and sending astronauts into space. This video includes background information on the scientist and his project "Operation Paperclip." Opens a discussion about the ethical implications of how von Braun conducted his research and those implications on scientific study. <https://www.youtube.com/watch?v=Br4rPGdFXR4>
7. This article highlights Galileo's famous experiment on gravity. The article provides explanations and links to videos testing Galileo's theory. [http://galileo.rice.edu/sci/theories/on\\_motion.html](http://galileo.rice.edu/sci/theories/on_motion.html)
8. This article highlights Albert Einstein and his theories. A great resource for students to explore and conduct research for their work. <https://www.history.com/topics/inventions/albert-einstein>

## Notes

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