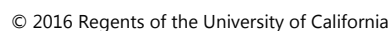




Grade 7



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NATIONAL CENTER FOR RESEARCH ON EVALUATION,
STANDARDS, AND STUDENT TESTING

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INTRODUCTION

These lesson plans use multiple documents to teach students how to read and write informational texts in both English Language Arts and history. The purpose of using multiple documents is to show students how real-life texts can corroborate or contradict each other. Seeing and understanding these relationships between texts will help students make sense of the dizzying amount of information that is available to them.

The ultimate goal is to help students achieve independence in crafting their own inquiry questions and to pursue high quality sources that will help them answer those questions. These lessons, with their edited texts and limited content, are intended as training tools to help them achieve that goal. Texts were edited to retain the content most relevant to answering the inquiry question.

While this is not how students would encounter these documents in the real world, the modified texts allow students and teachers to focus on achieving understanding of a complex topic without being obstructed or distracted by content that does not help them answer the specific inquiry. When available, links to original texts are provided for each document. Documents were modified for length, clarity, and reading difficulty. Excerpts of each document were chosen for how well they would help students answer the lesson's inquiry question. Target length for each modified document was 100-500 words.

Teachers are encouraged to make changes to the lesson plans, add or subtract materials, and in general to make these materials their own. While these are presented as exemplar lesson plans that highlight formative assessment, they are truly intended as starting points for your own inquiry.

The core idea is to use multiple sources to help students achieve understanding of complex topics by highlighting the various ways texts interact with each other.

Two lesson plans—Moctezuma I and Moctezuma II—are supplements to existing lesson plans developed by the Stanford History Education Group. Instructions on how to obtain those free materials are included in the lesson plans. They are not reproduced here.

Historical lessons (Moctezuma) were crafted with a specific grade level in mind. Contemporary lessons (School Start Times, Academic Tracking, Zebra Stripes) were written for all three grade levels (grades 6-8). The text of the documents was kept constant. What changed between the grades were the expectations for finding and using evidence in increasingly complex ways.

FORMATIVE ASSESSMENT

Formative assessment is the process of continuously monitoring student learning and providing ongoing feedback on progress toward established learning goals.

The specific elements of formative assessment as used in this set of lessons are defined in the Glossary of Terms, which can be found at the end of this document.

- **LEARNING GOALS**
- **SUCCESS CRITERIA**
- **EVIDENCE-GATHERING OPPORTUNITY**
- **ANTICIPATED STUDENT RESPONSE**
- **PEDAGOGICAL ACTION**
- **PEER AND SELF-ASSESSMENT**
- **CULMINATING TASK**

LEARNING GOALS and **SUCCESS CRITERIA** were developed from Common Core State Standards (CCSS) for English Language Arts. These were supplemented by the C3 Framework for State Social Studies Standards. Each Success Criterion is matched with an appropriate **EVIDENCE-GATHERING OPPORTUNITY** so that teachers can gauge student progress throughout the lesson and make necessary adjustments.

These lesson plans were developed for a general, rather than specific, classroom. Generally, **ANTICIPATED STUDENT RESPONSES** are best formulated with particular students in mind. A few examples are provided throughout the lesson to model what they look like, but these are hardly exhaustive nor do they apply to all students. The same is true of **PEDAGOGICAL ACTIONS**, which generally are specific to the context—the students’ needs, the classroom culture, and the teacher’s expertise and experience. (Please note that in the glossary we have combined these terms as **PLANNED PEDAGOGICAL RESPONSES**.)

A hallmark of formative assessment is **PEER AND SELF-ASSESSMENT**, in which students are able to participate fully in their learning by internalizing and monitoring their progress toward the Learning Goals. An essential requirement for such participation is that Learning Goals and Success Criteria be written in student-friendly language.

In each lesson, a **CULMINATING TASK** provides a final outcome that highlights the deeper learning intended by that lesson. In these lessons, that culminating task is always a writing task, such as constructing an explanation or argument. Other examples of culminating tasks are presenting an oral debate, solving a problem, constructing a model, testing a hypothesis, and so forth.

GENERAL INSTRUCTIONAL TECHNIQUES

In each lesson, teachers are encouraged to use their own instructional techniques. These lesson plans supply content and ancillary materials that can work with a variety of reading and discussion techniques.

Each lesson features the same type of activities, which can be implemented using the instructional techniques that you deem most appropriate for your students. For example, whole class discussion and teacher modeling would be most appropriate at the beginning of the year or when introducing a new strategy or skill.

- 1 READ DOCUMENTS** If students need a great deal of support, the teacher reads the text aloud and shares relevant commentary; this is often referred to as “modeling” or “thinking aloud.” If students need very little support, the documents can be read individually and silently. Other possibilities include reading in small groups, in pairs, or having students take turns reading aloud to the class. Teacher provides guidance as necessary.
- 2 DISCUSS DOCUMENTS** This can be done before, during, or after reading. For example, if the documents are being read out loud by the teacher or as a whole class, it may make sense to discuss as you read. In addition to checking for basic comprehension, point out or elicit the title, source, and purpose of the document. The reading guide provides specific points to discuss in each document. Focus on issues that are relevant to the document’s purpose in the lesson.
- 3 FILL OUT READING GUIDE** As with reading documents, this task can be accomplished with a range of support. Teachers can model, small groups or pairs can collaborate, or students can work individually.
- 4 COMPLETE CULMINATING TASK** The use of this task is flexible. It can be used as a teaching aid, group activity, homework assignment, interim assessment, or final assessment. Every lesson plan has a brief writing assignment as a culminating task.

SUGGESTIONS FROM TEACHERS Some teachers enhanced the culminating task by adding elements, such as telling students to write an argument to be published in a newspaper or to write an explanation for a younger student. Other teacher suggestions were to turn some of the introductory materials into PowerPoint slides with pictures, to show brief videos to establish background knowledge, and to provide vocabulary assistance.

FORMATIVE ASSESSMENT GLOSSARY



LEARNING GOALS

Learning Goals describe what students will learn in a lesson. They state clearly what the student will understand or be able to do by the end of the lesson. The learning can include knowledge, skills, conceptual understanding, analytical principles, and/or procedural fluency. Learning Goals should be general and significant enough that they can apply to a variety of contexts rather than be limited to a specific lesson. Learning Goals are shared with students and written in language that students can understand so that they can monitor, assess, and reflect on their own learning.



SUCCESS CRITERIA

Success Criteria can describe the content of what students will say, make, do, or write to indicate achievement of Learning Goals. Success Criteria specify how students will show progress toward Learning Goals. When writing Success Criteria, teachers should consider the following statement: If students have achieved x [Learning Goal], then they will be able to do a, b, c [Success Criteria]. Like Learning Goals, Success Criteria are written in language students can understand and are shared with students. Success Criteria tell students what they will be able to do once they have achieved the Learning Goal.



EVIDENCE-GATHERING OPPORTUNITIES

Evidence-Gathering Opportunities are learning experiences that both promote and assess student progress toward Success Criteria. When planning a lesson, teachers determine how they will collect evidence of student learning: What will students say, make, do, or write to demonstrate that they have met the Success Criteria? What instructional tasks will generate this information? A well-designed Evidence-Gathering Opportunity serves three functions: (1) describe the evidence that is to be collected; (2) indicate how the teacher will gather that evidence; and (3) provide enough support so that the task will aid students in achieving the associated Success Criterion.

Some examples of how teachers might gather evidence are examining student work, listening to and participating in discussions, observing peer and self-assessment, and questioning students.





PEER AND SELF-ASSESSMENT

Students are the ones who are doing the learning, so they share a responsibility for monitoring their progress toward the lesson's Learning Goals. Students understand and use Learning Goals and Success Criteria to evaluate their own learning and achievement. That said, teachers need to heavily support and guide students in Peer and Self-Assessment. For peer assessment, students need to be taught to assess the work of others and offer constructive advice to their peers. Teachers plan opportunities for Peer and Self-Assessment during the lesson; examples include peer conference, gallery walk, or rubrics.



CULMINATING TASK

Quality instructional tasks, designed to build students' thinking, can reveal substantive insights into how their thinking is developing. The final task in each lesson incorporates all of the lesson's Success Criteria. It provides teachers with the opportunity to assess whether students have accomplished the lesson's Success Criteria and achieved the Learning Goals.



PLANNED PEDAGOGICAL RESPONSES

Teachers anticipate student responses to lesson activities and tasks based on their experience and knowledge of the content, students, and the lesson. In particular, teachers should consider common challenges and misconceptions that might affect student understanding and success with the lesson. These challenges can include language demands found in a text or tasks. Teachers ask themselves: (1) *What are common challenges or misconceptions that might arise in teaching this content?* and (2) *How will I support students at these points in the lesson?* Anticipating responses helps teachers envision what student responses will look or sound like during the lesson if students are making (or not making) progress toward the Learning Goals and Success Criteria. By anticipating responses, teachers can plan for, and execute, appropriate pedagogical actions for scenarios that are likely to unfold during the lesson.

As teachers consider the ways they anticipate students will respond to the lesson, they also plan for ways to address any misconceptions, to ensure that certain concepts are mastered before moving on, or to accommodate students' needs. Pedagogical responses are the moves teachers after analyzing evidence of student learning; they are intended to help students progress toward Learning Goals and Success Criteria. Pedagogical responses are based on teachers' interpretation of real-time (or as close to real-time) evidence collected during the lesson. Pedagogical responses include reviewing, modeling, providing examples, prompting, giving feedback, telling, explaining, directing, or continuing, stopping, or adjusting the planned lesson. To be effective, these actions must: be related to the Learning Goals and Success Criteria; be specific and clear; provide suggestions, hints, or cues rather than correct answers; and engage students in the task.



MOCTEZUMA, PART I

What happened when Moctezuma met Cortés?

HISTORY

Corroborating · Sourcing

ENGLISH LANGUAGE ARTS

Reading Informational Text · Writing an Argument

GRADE 7

45-90 minutes



PURPOSE

Students compare a textbook account of the meeting between Moctezuma and Cortés to two primary source documents about the same event.

Please note that this lesson plan is a supplement to the existing lesson plan written by the Stanford History Education Group (SHEG). Their original materials, including the document set, guiding questions, lesson sequence, and background information, can be found at <https://sheg.stanford.edu/moctezuma-and-cortes>. Please download those materials before proceeding, as they cannot be not replicated here and are essential to the lesson.

This lesson can either be taught by itself or in preparation for Moctezuma II, which adds a historian's account to help answer the inquiry question.



STANDARDS

● Common Core State Standards

- ✓ Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts. [CCSS.ELA-Literacy.RI.7.9](#)

● C3 Framework for Social Studies State Standards

- ✓ Gather relevant information from multiple sources while using the origin, authority, structure, context, and corroborative value of the sources to guide the selection. [C3.D3.1.6-8](#)
- ✓ Evaluate the credibility of a source by determining its relevance and intended use. [C3.D3.2.6-8](#)



LEARNING GOALS

- Use multiple sources to develop an understanding of a topic.
- Understand how documents corroborate and conflict with each other to strengthen knowledge about a topic.
- Communicate understanding of a historical debate by writing an argument in favor of one side.



SUCCESS CRITERIA

- 1 Identify relevant information and evidence supporting a historical representation of an event in multiple documents about the same topic.
- 2 Decide whether the evidence in these documents convincing and explain why.
- 3 Identify authors' purpose in a document and how inclusion or avoidance of particular facts affects their credibility.
- 4 Construct an argument that answers the question of what happened when Moctezuma met Cortés.



CULMINATING TASK

Using the information in these documents and other information introduced in class, answer the question of what happened when Moctezuma met Cortés.

PART I • INTRODUCTION

A familiar retelling of the Moctezuma story says that the Aztec emperor allowed his mighty empire to be taken over by a small group of Spanish explorers because he believed that their leader Cortés was a god. This is the tale told in the textbook excerpt we will read in this lesson. But does this popular story have its roots in the historical record? And what precisely is the historical record about this topic? In the first part of this lesson, we will look at a textbook account, a letter written by Cortés about the meeting, and a book of stories written by the Aztecs some 50 years after the meeting.

SKILLS & STRATEGIES This lesson is intended as extended practice in corroboration. Another skill that is addressed in this lesson is writing an argument.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

The original lesson plan begins with passing out the Textbook Passage about the meeting itself. If you would like to provide more background information, there are a number of video clips available online. One example is a National Geographic documentary that can be found at <https://www.youtube.com/watch?v=DvelqFeAdo4>. Around the 30 minute mark is when the Spaniards arrive. The debate over the meeting itself is not addressed. Please preview the material to ensure that you wish to use it for this lesson.

Explain that students will examine three documents to learn about conflicting representations of a historical event.

Share and discuss Learning Goals and Success Criteria.

PART II • GUIDED PRACTICE

There are two main teaching points in this lesson. First, one of the purposes of using multiple sources is to understand that there can be more than one representation of historical “facts,” such as whether Moctezuma believed Cortés was a god. Second, it is important to consider authors’ purpose for writing and their inclusion or avoidance of certain facts when determining the credibility of their evidence.

Specific instructional methods are left to the teacher’s discretion. Some examples and suggestions are described in the section “General Instructional Techniques” and in the original SHEG lesson

plan. Whether this work is done as a whole class, as small group or pair work, or individually is up to the teacher.

It is important to note that the original SHEG lesson has four documents:

1. Textbook Passage
2. Document A – Cortés’s account
3. Document B – The Florentine Codex
4. Document C – Historian Matthew Restall

In Moctezuma I (this lesson), we read the first three documents in order to establish that the documents have conflicting information. In Moctezuma II (next lesson), we add Historian Matthew Restall’s explanation of the events to examine how a historian makes sense of conflicting information.

A student handout, called “Guiding Questions,” is provided by SHEG in addition to the document set to help students collect information to use in the culminating task. The handout prompts students to identify the most relevant information in each document and to compare the information in each document with the others.



SUCCESS CRITERION #1 ~ EVIDENCE-GATHERING OPPORTUNITY

Identify relevant information and evidence supporting a historical representation of an event in multiple documents about the same topic.

- ✓ Check answers to guiding questions (SHEG student handout) following each document.



SUCCESS CRITERION #2 ~ EVIDENCE-GATHERING OPPORTUNITY

Decide whether the evidence in these documents convincing and explain why.

- ✓ Check answers to guiding questions (SHEG student handout) following each document.



SUCCESS CRITERION #3 ~ EVIDENCE-GATHERING OPPORTUNITY

Identify authors’ purpose in a document and how inclusion or avoidance of certain facts affects their credibility.

- ✓ Check answers to guiding questions (SHEG student handout) following each document.

PART III · CULMINATING TASK

PROMPT Using the information in these documents and other information introduced in class, answer the question of what happened when Moctezuma met Cortés.

ASSESSMENT You may wish to consider these elements when evaluating student responses to this culminating task.

- 1 **Corroborating.** Students should use information from more than one source and explain explicitly the relationship between these sources or connect the information in their written response in a way that indicates their understanding of the relationships (for example, by using appropriate connectives, or using pieces of information from different sources in a complex sentence).
- 2 **Detecting conflict between the sources.** This can be fact-based or, in a more advanced response, students may evaluate the credibility of the sources to help them select which argument to pursue.
- 3 **Constructing an argument.** Students are asked to make a claim about what happened at the meeting between the two leaders. The true answer is that we don't know, but we need to explain why we don't know. Students may argue for one version or the other, but a highly proficient answer will address the many issues with all the documents. That is the main point of this lesson.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

The guiding questions (included in the original SHEG lesson) was designed to help students collect pieces of evidence necessary to write an argument about this topic. If students do not have time to complete the writing task, the guiding questions may serve as means to assess whether they were able to collect the necessary pieces.



SUCCESS CRITERION #4 ~ EVIDENCE-GATHERING OPPORTUNITY

Using the information in these documents and other information introduced in class, answer the question of what happened when Moctezuma met Cortés.

- ✓ This task is intended as a writing task, but it is possible to check for understanding through whole class or small group discussion. Depending on students' needs and class time available, teacher may wish to turn this into a discussion before or in lieu of the writing assignment.



NAME _____
PERIOD _____
DATE _____

CULMINATING TASK Moctezuma and Cortés I

Using the information in these documents and other information introduced in class, answer the question of what happened when Moctezuma met Cortés.



MOCTEZUMA, PART II

What do we know about the meeting
between Moctezuma and Cortés?

HISTORY

Corroborating · Sourcing

ENGLISH LANGUAGE ARTS

Reading Informational Text · Writing an Argument

GRADE 7

45-90 minutes



PURPOSE

In Moctezuma I, students compared a textbook account of the meeting between Moctezuma and Cortés to two primary source documents about the same event. In Moctezuma II, students will add to this knowledge by considering a historian's explanation of the meeting.

Please note that this lesson plan is a supplement to the existing lesson plan written by the Stanford History Education Group (SHEG). Their original materials, including the document set, guiding questions, lesson sequence, and background information, can be found at <https://sheg.stanford.edu/moctezuma-and-cortes>. Please download those materials before proceeding, as they cannot be not replicated here and are essential to the lesson.

This lesson must be taught after Moctezuma I. It does not stand alone.



STANDARDS

● Common Core State Standards

- ✓ Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts. [CCSS.ELA-Literacy.RI.7.9](#)

● C3 Framework for Social Studies State Standards

- ✓ Gather relevant information from multiple sources while using the origin, authority, structure, context, and corroborative value of the sources to guide the selection. [C3.D3.1.6-8](#)
- ✓ Evaluate the credibility of a source by determining its relevance and intended use. [C3.D3.2.6-8](#)



LEARNING GOALS

- Use multiple sources to develop an understanding of a topic.
- Understand how documents corroborate and conflict with each other to strengthen knowledge about a topic.
- Communicate understanding of a historical debate by writing an argument in favor of one side.



SUCCESS CRITERIA

- 1 Identify relevant information and evidence supporting a historical representation of an event in multiple documents about the same topic.
- 2 Decide whether the evidence in these documents convincing and explain why.
- 3 Identify authors' purpose in a document and how inclusion or avoidance of particular facts affects their credibility.
- 4 Construct an argument that answers the question of what happened when Moctezuma met Cortés.



CULMINATING TASK

Using the information in these documents and other information introduced in class, answer the question of what we know about the meeting Moctezuma between Cortés.

PART I · INTRODUCTION

In Moctezuma I, students learned that a familiar retelling of the Moctezuma story – that the Aztec emperor allowed his mighty empire to be taken over by a small group of Spanish explorers because he believed that their leader Cortés was a god – may not be supported by the historical record. In this lesson, students read a historian’s interpretation of the conflicting facts of that meeting.

SKILLS & STRATEGIES This lesson is intended to see an expert historian’s attempt to corroborate sources to offer a plausible explanation of why stories conflict. Another skill that is addressed in this lesson is writing an argument. It is important to note that unlike most argumentation exercises in which students take strong positions and defend them, the intent of this exercise is to explore how limited our information is and how we can responsibly draw inferences from incomplete data.

Explain that students will examine another document to learn how a historian thinks about conflicting representations of a historical event.

Share and discuss Learning Goals and Success Criteria.

PART II · GUIDED PRACTICE

There are two main teaching points in this lesson. First, one of the purposes of using multiple sources is to understand that there can be more than one representation of historical “facts,” such as whether Moctezuma believed Cortés was a god. Second, it is important to consider authors’ purpose for writing and their inclusion or avoidance of certain facts when determining the credibility of their evidence.

Specific instructional methods are left to the teacher’s discretion. Some examples and suggestions are described in the section “General Instructional Techniques” and in the original SHEG lesson plan. Whether this work is done as a whole class, as small group or pair work, or individually is up to the teacher.

It is important to note that the original SHEG lesson has four documents:

1. Textbook Passage
2. Document A – Cortés’s account
3. Document B – The Florentine Codex
4. Document C – Historian Matthew Restall

In Moctezuma I (previous lesson), we read the first three documents in order to establish that the documents have conflicting information. In Moctezuma II (this lesson), we add Historian Matthew Restall’s explanation of the events to examine how a historian makes sense of conflicting information.

A student handout, called “Guiding Questions,” is provided by SHEG in addition to the document set to help students collect information to use in the culminating task. The handout prompts students to identify the most relevant information in each document and to compare the information in each document with the others.



SUCCESS CRITERION #1 ~ EVIDENCE-GATHERING OPPORTUNITY

Identify relevant information and evidence supporting a historical representation of an event in multiple documents about the same topic.

- ✓ Check answers to guiding questions (SHEG student handout) following Document C.



SUCCESS CRITERION #2 ~ EVIDENCE-GATHERING OPPORTUNITY

Decide whether the evidence in these documents convincing and explain why.

- ✓ Check answers to guiding questions (SHEG student handout) following Document C.



SUCCESS CRITERION #3 ~ EVIDENCE-GATHERING OPPORTUNITY

Identify authors’ purpose in a document and how inclusion or avoidance of certain facts affects their credibility.

- ✓ Check answers to guiding questions (SHEG student handout) following Document C.

PART III · CULMINATING TASK

PROMPT Using the information in these documents and other information introduced in class, answer the question of what we know about the meeting Moctezuma between Cortés.

ASSESSMENT You may wish to consider these elements when evaluating student responses to this culminating task.

- 1 Corroborating. Students should use information from more than one source and explain explicitly the relationship between these sources or connect the information in their written response in a way that indicates their understanding of the relationships (for example, by

using appropriate connectives, or using pieces of information from different sources in a complex sentence).

- 2 Detecting conflict between the sources. This can be fact-based or, in a more advanced response, students may evaluate the credibility of the sources to help them select which argument to pursue.
- 3 Constructing an argument. Students are asked to make a claim about what happened at the meeting between the two leaders. The true answer is that we don't know, but we need to explain why we don't know. Students may argue for one version or the other, but a highly proficient answer will address the many issues with all the documents, especially the nature of limited information, the unknown circumstances of how that information was created, and how we can write about our "best guess" in a way that is both responsible and grounded in evidence.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

The guiding questions (included in the original SHEG lesson) was designed to help students collect pieces of evidence necessary to write an argument about this topic. If students do not have time to complete the writing task, the guiding questions may serve as means to assess whether they were able to collect the necessary pieces.



SUCCESS CRITERION #4 ~ EVIDENCE-GATHERING OPPORTUNITY

Using the information in these documents and other information introduced in class, answer the question of what happened when Moctezuma met Cortés.

- ✓ This task is intended as a writing task, but it is possible to check for understanding through whole class or small group discussion. Depending on students' needs and class time available, teacher may wish to turn this into a discussion before or in lieu of the writing assignment.



Using the information in these documents and other information introduced in class, answer the question of what we know about the meeting Moctezuma between Cortés.

SCHOOL START TIMES

Science vs. Real Life

ENGLISH LANGUAGE ARTS

Reading Informational Text · Writing an Argument

GRADE 7

90-135 minutes



PURPOSE

The science behind adolescent sleep is persuasive: teenagers go to sleep and wake up later than other age groups. However, most school start times do not match the biology of adolescent sleep patterns.

In this lesson, students read two documents in order to hypothesize why most school start times do not follow the science of what is best for adolescent health. After considering different sources of information, students then write a short argument about whether they believe school start times should change.



STANDARDS

● Common Core State Standards

- ✓ Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically. [CCSS.ELA-Literacy.W.7.1A](#)
- ✓ Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims. [CCSS.ELA-Literacy.RI.7.8](#)
- ✓ Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text. [CCSS.ELA-Literacy.W.7.1B](#)



LEARNING GOALS

- Use multiple sources to develop an understanding of a topic.
- Understand how documents can present two sides of an argument to strengthen knowledge about a complex topic.

- Communicate understanding of a topic by writing an argument taking one side of a debate, and acknowledge the opposing claim.



SUCCESS CRITERIA

- 1 Identify claims and evidence supporting an argument in multiple documents about the same topic.
- 2 Decide whether the evidence in these documents convincing and explain why.
- 3 Construct an argument that explains your opinion about whether schools should delay start times for adolescents. In your argument, acknowledge the opposing claim.



CULMINATING TASK

Using the information in these documents and other relevant information introduced in class, write an argument explaining your position on whether schools should have later start times. Be sure to acknowledge the opposing claim.

PART I · INTRODUCTION

Discuss your students' experiences this morning. Did they have a hard time getting ready for school on time? Introduce the idea that science says pretty clearly that adolescents need to sleep later in the morning. But what about after school activities? Jobs? Child care?

SKILLS & STRATEGIES This is a lesson in identifying claims and evidence about an issue and using that information to construct a personal argument.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

If students are new to argumentation, you will want to teach or review the concepts of claims and evidence, since these are critical components of this lesson.

Explain that this is an issue with multiple sides. Students will read two documents arguing two different sides of the issue. Using this information, classroom discussion, and relevant personal experience, students will form a personal argument and communicate their positions with supporting reasons.

Share and discuss Learning Goals and Success Criteria.



PART II · GUIDED PRACTICE

There are two main teaching points in this lesson. The first is to learn how to recognize two sides of a complex issue. The second is to collect evidence from different sources and use that evidence to defend personal positions about the issue. In order to accomplish these points, students read and discuss documents; collect and organize information; and integrate that information into a written argument.

Specific instructional methods are left to the teacher's discretion. Some examples and suggestions are described in the section "General Instructional Techniques." Whether this work is done as a whole class, as small group or pair work, or individually is up to the teacher.

Read each document and record evidence from each. A reading guide is provided to help students collect information to use in the culminating task.



SUCCESS CRITERION #1 ~ EVIDENCE-GATHERING OPPORTUNITY

Identify claims and evidence supporting an argument in multiple documents about the same topic.

- ✓ Check the first column of the reading guide after reading each document and after classroom discussion.
- ✓ Discuss the issue of academic tracking as it is presented in the documents and as it relates to students' lives.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

This is a topic about which students may have strong personal feelings. Provide opportunity for students to articulate their feelings, opinions, and personal experiences. Guide them in recording these for appropriate use during classroom discussion and in the culminating task.



SUCCESS CRITERION #2 ~ EVIDENCE-GATHERING OPPORTUNITY

Decide whether the evidence in these documents convincing and explain why.

- ✓ Using the list of claims in the Reading Guide, talk about the evidence in the documents supporting these claims. Discuss which evidence and claims are convincing or not.

DOCUMENT A This is an article from *The Atlantic Monthly*, which has historically been a reliable source of journalism and other genres of writing. For the purposes of this unit, we regard this source as generally credible and objective. In this piece, we have several sources of information:

The Atlantic Monthly, a generally credible source of journalism.

The CDC, a government institute that most people regard as a reliable source of information about health and disease.

The AAP, a professional group of physicians whose recommendations about children's health and safety are widely disseminated by pediatricians.

Mary Carskadon, a professor of psychiatry and human behavior. Carskadon is a proponent of later start times, but her purpose in the article is to list the opposing arguments: problems with bus routes, lack of funds, parents who need adolescents to care for younger kids, conflicts with afterschool sports and other extracurricular activities. Note that the article does not actually interview anyone from the opposing side. Carskadon claims that implementation of later start times is "feasible" despite the many objections "as many school districts have demonstrated" but that "finding creative solutions...isn't always easy." Note that there are no specific answers to the opposition's arguments.

Terra Ziporyn Snider, medical writer, mother, and founder of advocacy group Start School Later. Similar to Carskadon, she believes the real problem to changing start times is "failure of imagination" and does not offer concrete solutions. She too lists some opposing claims, such as missing out on sports, elementary kids starting school while it's still dark, lack of child care.

One might argue that this article reads as a biased piece because it did not interview anyone from the opposing side, choosing to rely on one side's regurgitation of their claims. For the purposes of this introductory lesson, however, it is possible to simply list these opposing arguments, and comment on the credibility of the article or of Carskadon and Snider. In other words, although these obstacles to later start times are raised, no substantive solutions are offered. Counter to that, it is true that school districts have adjusted start times, although the details of implementation are not listed or considered in this document.

DOCUMENT B This is a letter from the Superintendent of Issaquah Schools, Ron Thiele, in Issaquah, Washington. The largest nearby school district, Seattle, had adjusted start times for middle and high school after considerable debate. Issaquah also considered this proposal and ultimately rejected it for the coming school year. The superintendent lists these as the primary sources and reasons:

AAP and CDC recommendations for later start times to benefit adolescents' health.

“More than 11,000 community members” who did not express a clear majority in favor of the change.

Ending school at 4 p.m. is too late and may have negative impact on students who work after school, provide childcare, or do afterschool sports and activities. Thiele points out while additional sleep benefits students, so too does engagement in after school activities.

Elementary parents who do not want earlier start times for younger children. In Issaquah, there must be at least one hour between elementary and secondary bus runs.

PART III · CULMINATING TASK

PROMPT Using information from these two documents as well as your relevant personal experience and knowledge, write a claim about whether school start times should change in districts with early start times. Support your claim with evidence.

ASSESSMENT You may wish to consider these elements when evaluating student responses to this culminating task. The amount and method of writing depends on your students’ needs.

- 1 Identifying a variety of claims and supporting evidence from documents, classroom discussion, and personal experience.
- 2 Using evidence appropriately to support position. Be sure that personal or anecdotal evidence is to supplement and enhance, not replace, sociological and scientific evidence.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

The reading guide was designed to help students collect pieces of information necessary to write an explanation of the topic, not as a culminating task. However, if students do not have time to complete the writing task, the reading guide may serve as means to assess whether they were able to collect the necessary pieces.



SUCCESS CRITERION #3 ~ EVIDENCE-GATHERING OPPORTUNITY

Using information from these two documents as well as your relevant personal experience and knowledge, write a claim about whether school start times should change in districts with early start times. Support your claim with evidence. Be sure to acknowledge the opposing claim.

- ✓ Check responses to the culminating task, considering the elements described above.

DOCUMENT A The Atlantic Monthly

The Atlantic Monthly *is a magazine that focuses on foreign affairs, politics, the economy, and political trends.*

- 1 For the first time, the federal Centers for Disease Control and Prevention (CDC) is urging education policymakers to start middle- and high-school classes later in the morning. The idea is to improve the odds of adolescents getting sufficient sleep so they can thrive both physically and academically.
- 2 The CDC's recommendations come a year after the American Academy of Pediatrics (AAP) urged schools to adjust start times so more kids would get the recommended 8.5 to 9.5 hours of nightly rest. Both the CDC and the AAP cited significant risks that come with lack of sleep, including higher rates of obesity and depression and motor-vehicle accidents among teens as well as an overall lower quality of life.
- 3 Here's what the research shows: Adolescents' "internal clocks"—the circadian rhythms that control a human's responses to stimuli and determine sleep patterns—operate differently than those of other age groups. It's typically more difficult for adolescents to fall asleep earlier in the evening than it is for other age groups. And while teenagers are going to bed later, their school start times are often becoming earlier as they get to middle and high school.
- 4 Mary Carskadon, a professor of psychiatry and human behavior, notes that there are passionate arguments on both sides of the debate. In some districts, the start times are largely dictated by local transportation companies, with school boards and superintendents contending they lack the funds to change things. Meanwhile, parents are often reluctant to have teens start later, whether because they rely on having older children at home in the afternoons to take care of younger siblings or because they're concerned that it will interfere with extracurricular opportunities. Indeed, there's always a vocal chorus warning that later start times will hurt high-school sports.
- 5 But none of those worries override the reality that, as Carskadon put it, "everybody learns better when they're awake."
- 6 Implementing later start times can be feasible without causing major disruptions, as many school districts have demonstrated, Carskadon said. But it requires that all stakeholders commit to a time-consuming process of finding creative solutions, which isn't always easy.
- 7 Terra Ziporyn Snider, a medical writer and mother of three, has emerged as a national advocate for later start times. Snider cited widespread challenges hindering schools from making the switch. Getting school systems to change takes more than just presenting scientific evidence, said Snider, the co-founder of the nonprofit advocacy group Start School Later.
- 8 "You start talking about changing start times, and people immediately jump to all kinds of conclusions. Teens will miss out on sports. Little kids will go to school in the dark and get run over by a car. What will happen to my child care?" Snider said. "A lot of these fears and speculations turn out to be red herrings. The real obstacles are failure of imagination."
- 9 "It's becoming increasingly embarrassing to say, 'If we start school later, what happens to my kid's three-hour soccer practice?'" Snider said. "We have to convince school systems this has to happen for the health of kids. It's not a negotiable school budget item—it's an absolute requirement."

SOURCE *The Atlantic Monthly*, "Why School Should Start Later in the Morning," August 17, 2015. This document has been modified for length and reading level. The original can be found at <http://www.theatlantic.com/education/archive/2015/08/why-school-should-start-later/401489/>

DOCUMENT B Superintendent's Letter

Issaquah, Washington, is a small city outside Seattle, Washington. In 2015, Seattle Public Schools adopted late start times for middle and high schools because of the benefits for students' health. Issaquah also considered changing start times but, as the superintendent explains below, they decided against it.

Dear Issaquah Community,

- 1 I want to thank the thousands of community members who have provided input on the District's proposed change to school start times.
- 2 In fall 2015, the district proposed a change to school start times. Secondary schools would start at 9:00 a.m. and end at 3:55 p.m. Elementary schools would start at 8:00 a.m. and end at 2:25 p.m.
- 3 The proposal was created to address concerns that adolescents are not getting the right amount of sleep, as recommended by the American Academy of Pediatrics and the Centers for Disease Control. I have stated publicly that I agree that our secondary start times are too early and that some students are not getting enough sleep.
- 4 I have heard from more than 11,000 community members. From this input, it is evident that we do not have a clear majority in favor of the District's proposal. Additionally, several important concerns emerged from your input.
- 5 While many of you believe that the current start times at our secondary schools are too early, many also believe that ending secondary schools at nearly 4:00 p.m. is too late. The worry around ending school this late is the potential negative impact on students' ability to work after school, provide childcare for their younger siblings, or participate in after school activities such as tutoring, clubs, and athletics. I will also note that while the sleep study data is compelling, there is a strong body of research that links school engagement and success to participation in after school activities.
- 6 I also received a strong message from many elementary parents that they do not favor earlier start times for their children.
- 7 In light of the lack of consensus and the desire to consider alternate proposals, there will be no change to start times. Instead, I will work to develop a new proposal that moves us closer to the recommended start times for secondary students with less impact to the elementary schedule. This alternate proposal must still be fiscally feasible and take into account our geographically large district with routes that require a minimum of one hour between elementary and secondary bus runs.
- 8 The District will continue to talk with the community and our students about the important health benefits of sleep. We will also observe and learn from our neighboring districts that are implementing later start times this coming school year.
- 9 Finally, I want to thank the community for their input. I recognize that many people will not be happy with my decision, but I am hopeful that our community can unite around an alternate proposal in the future.

Sincerely,
Ron Thiele, Superintendent

SOURCE *Superintendent's Announcement on School Start and End Times*, March 1, 2016. This document has been modified for length and reading level. The original can be found at <http://www.issaquah.wednet.edu/news-details/2016/03/01/superintendent%27s-announcement-on-school-start-and-end-times>

READING GUIDE School Start Times

SOURCE	ARGUMENTS FOR LATER START TIMES	ARGUMENTS FOR EARLIER START TIMES
--------	------------------------------------	--------------------------------------

CLASSROOM
DISCUSSION

PERSONAL
EXPERIENCE

DOCUMENT

A

The Atlantic
Monthly

DOCUMENT

B

Superintendent's
Letter

What is your argument?

What is the opposing claim?



Using information from these two documents as well as your relevant personal experience and knowledge, write a claim about whether school start times should change in districts with early start times. Support your claim with evidence. Be sure to acknowledge the opposing claim.

ACADEMIC TRACKING

Choosing Excellence Over Equity?

ENGLISH LANGUAGE ARTS

Reading Informational Text · Writing an Argument

GRADE 7

90-135 minutes



PURPOSE

Students read two documents about academic tracking, the practice of placing students into different classes based on early school performance. They examine two sides of the issue. After reading the documents and discussing the issue, students communicate their own positions with supporting reasons.



STANDARDS

● Common Core State Standards

- ✓ Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically. [CCSS.ELA-Literacy.W.7.1A](#)
- ✓ Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims. [CCSS.ELA-Literacy.RI.7.8](#)
- ✓ Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text. [CCSS.ELA-Literacy.W.7.1B](#)



LEARNING GOALS

- Use multiple sources to develop an understanding of a topic.
- Understand how documents can present two sides of an argument to strengthen knowledge about a complex topic. Recognize opposing claims.
- Communicate understanding of a topic by writing an argument taking one side of a debate, and acknowledge the opposing claim.



SUCCESS CRITERIA

- 1 Identify claims and evidence supporting an argument in multiple documents about the same topic.
- 2 Decide whether the evidence in these documents convincing and explain why.
- 3 Construct an argument that explains your opinion about whether middle school students should be tracked into different levels of academic classes. In your argument, acknowledge the opposing claim.



CULMINATING TASK

Using the information in these documents and other relevant information introduced in class, write an argument explaining your position on whether middle school students should be tracked into different academic classes, making sure to acknowledge the opposing claim.

PART I · INTRODUCTION

Tracking students into different academic and career paths is a common practice, not only in the United States but throughout the world. Vocational training in high school used to be prevalent throughout the United States and is regaining popularity today despite a decades-long push to encourage all students to go to college. How early should students commit to an academic or career path? Should everyone to go to college? How long should students spend exploring different subjects and possibilities before committing to something and becoming proficient in it? Is middle school too early, or just right?



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

There are many sociological issues that can be discussed in the context of academic tracking. In these two documents, one of the most prominent and sensitive issues is the effect of academic tracking on students of different races. Consider beforehand whether to make this a key feature of the lesson. Depending on students' interests and needs, decide whether to discuss this unit only in terms of reasons for and against academic tracking or to devote additional time to the issue of race.

LITERATURE This unit was written in response to teachers' request for an informational text set that might help students explore the idea of society's role in determining young people's futures. This theme often occurs in dystopian books like *The Giver* by Lois Lowry.



SKILLS & STRATEGIES This is a lesson in identifying claims and evidence about an issue and using that information to construct a personal argument.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

If students are new to argumentation, you will want to teach or review the concepts of claims and evidence, since these are critical components of this lesson.

STEPS Discuss your school's policies and practices regarding academic tracking. How are your students affected by it? If relevant, draw connections to books your students are familiar with in which society dictates the futures of young people by choosing their career paths.

Explain that this is an issue with multiple sides. Students will read two documents arguing two different sides of the issue. Using this information, classroom discussion, and relevant personal experience, students will form a personal argument and communicate their positions with supporting reasons.

Share and discuss Learning Goals and Success Criteria.

PART II · GUIDED PRACTICE

There are two main teaching points in this lesson. The first is to learn how to recognize two sides of a complex issue. The second is to collect evidence from different sources and use that evidence to defend personal positions about the issue. In order to accomplish these points, students read and discuss documents; collect and organize information; and integrate that information into a written argument.

Specific instructional methods are left to the teacher's discretion. Some examples and suggestions are described in the section "General Instructional Techniques." Whether this work is done as a whole class, as small group or pair work, or individually is up to the teacher.

Read each document and record evidence from each. A reading guide is provided to help students collect information to use in the culminating task.



SUCCESS CRITERION #1 ~ EVIDENCE-GATHERING OPPORTUNITY

Identify claims and evidence supporting an argument in multiple documents about the same topic.

- ✓ Check the first column of the reading guide after reading each document and after classroom discussion.
- ✓ Discuss the issue of academic tracking as it is presented in the documents and as it relates to students' lives.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

This is a topic about which students may have strong personal feelings. Provide opportunity for students to articulate their feelings, opinions, and personal experiences. Guide them in recording these for appropriate use during classroom discussion and in the culminating task.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

Students may be tempted to simplify the argument by stating that whatever works for the individual student is what should be done. While acknowledging the importance of individual students being able to choose their own trajectory, guide the discussion to address the larger policy issues. Which is the greater good: producing excellence and providing challenging academic experiences at the potential expense of students who do not get tracked into higher academic classes or providing equal experiences to all children? In theory both should be possible; what is the reality?



SUCCESS CRITERION #2A ~ EVIDENCE-GATHERING OPPORTUNITY

Decide whether the evidence in these documents convincing and explain why.

- ✓ Check the second column of the reading guide after reading each document and after classroom discussion.

DOCUMENT A This document argues against academic tracking. It uses evidence from both sides in order to acknowledge opposing claims.

Arguments for tracking:

- tracking allows students to learn at their own level
- teachers have a hard time teaching in large classes with a wide range of needs
- elite classes keep wealthier families in the public school system



Arguments against tracking:

- tracking favors white students and keeps minority students from equal opportunity and achievement
- students in the advanced classes get advantages that other students don't get
- perpetuates the achievement gap
- can see which classrooms are higher or lower level based on racial composition of the class
- historically, tracking was based on wealth—vocational paths for working-class students, general education paths for wealthier students

DOCUMENT B This document argues for academic tracking. Like Document A, it uses evidence from both sides. The article's main point is that the two new research studies described here refute some of the arguments for tracking that were raised in Document A. (It is not a direct rebuttal to that document, but to the issue in general.)

Arguments for tracking:

- without tracking in math, there won't be enough students to master higher level math; they need to start early, in 8th grade
- need to cultivate talent over time, as with sports superstars. High performing athletes receive specialized training very early.
- researchers found high achieving black and Hispanic students flourished in gifted classrooms; they also found that black and Hispanic students in regular classrooms did not suffer negative consequences
- tracking can close the achievement gap; white students of similar academic abilities did as well in regular classrooms as they did in the gifted classrooms while black and Hispanic students of similar academic abilities did much better in gifted classrooms than in regular classrooms
- it's possible that black and Hispanic students excelled in the gifted classrooms because teachers' expectations were higher or because peers in gifted classrooms were more supportive of academic success, i.e., it was "cool" to be smart

Arguments against tracking:

- progressive educators: promotes inequality because higher income, white, and Asian kids more likely to get into elite classrooms
- students who are not in elite classrooms become demoralized
- curriculum in regular classrooms could get watered down
- better teachers and more resources go to elite classrooms

- in math, students who don't get into algebra by 8th grade less likely to enter advanced math and science later on



SUCCESS CRITERION #2B ~ EVIDENCE-GATHERING OPPORTUNITY

Decide which approach is more persuasive and why.

- ✓ Check student responses through discussion or in writing on last question of "Document B: Two Interpretations" section of the reading guide.

PART III · CULMINATING TASK

PROMPT Using the information in these documents and other relevant information introduced in class, write an argument explaining your position on whether middle school students should be tracked into different academic classes.

ASSESSMENT You may wish to consider these elements when evaluating student responses to this culminating task. The amount and method of writing depends on your students' needs.

- 1 Identifying a variety of claims and supporting evidence from documents, classroom discussion, and personal experience.
- 2 Using evidence appropriately to support position. Be sure that personal or anecdotal evidence is to supplement and enhance, not replace, sociological and scientific evidence.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

The reading guide was designed to help students collect pieces of information necessary to write an explanation of the topic, not as a culminating task. However, if students do not have time to complete the writing task, the reading guide may serve as means to assess whether they were able to collect the necessary pieces.



SUCCESS CRITERION #3 ~ EVIDENCE-GATHERING OPPORTUNITY

Construct an argument that explains your opinion about whether middle school students should be tracked into different levels of academic classes. In your argument, acknowledge the opposing claim.

- ✓ Check responses to the culminating task, considering the elements described above.



READING GUIDE (teacher version) Academic Tracking

- Sample answers are not intended to be comprehensive.
- Add other questions that would be helpful to your students.
- Blank reading guide is after the documents.

SOURCE	ARGUMENTS FOR TRACKING	ARGUMENTS AGAINST TRACKING
DOCUMENT A Modern-Day Segregation	<ul style="list-style-type: none"> * tracking allows students to learn at their own level * teachers have a hard time teaching in large classes with a wide range of needs * elite classes keep wealthier families in the public school system 	<ul style="list-style-type: none"> * tracking favors white students and keeps minority students from equal opportunity and achievement * students in the advanced classes get advantages that other students don't get * perpetuates the achievement gap * can see which classrooms are higher or lower level based on racial composition of the class * historically, tracking was based on wealth—vocational paths for working-class students, general education paths for wealthier students
DOCUMENT B The Upside of Academic Tracking	<ul style="list-style-type: none"> * without tracking in math, there won't be enough students to master higher level math; they need to start early, in 8th grade * need to cultivate talent over time, as with sports superstars. High performing athletes receive specialized training very early. * high achieving black and Hispanic students flourished in gifted classrooms; black and Hispanic students in regular classrooms did not suffer negative consequences * tracking can close the achievement gap; white students of similar academic abilities did as well in regular classrooms as they did in the gifted classrooms while black and Hispanic students of similar academic abilities did much better in gifted classrooms than in regular classrooms * it's possible that black and Hispanic students excelled in gifted classrooms because teachers' expectations were higher or because peers were more supportive of academic success, i.e., it was "cool" to be smart 	<ul style="list-style-type: none"> * progressive educators: promotes inequality because higher income, white, and Asian kids more likely to get into elite classrooms * students who are not in elite classrooms become demoralized * curriculum in regular classrooms could get watered down * better teachers and more resources go to elite classrooms * in math, students who don't get into algebra by 8th grade less likely to enter advanced math and science later on

DOCUMENT A Modern-Day Segregation

The U.S. Department of Education says the tracking favors white students and keeps students of color from long-term equal achievement.

- 1 The U.S. Department of Education is trying to eliminate the practice of “tracking”—designating students for separate educational paths based on their academic performance as teenagers.
- 2 Some educators say that tracking perpetuates a modern system of segregation that favors white students and keeps minority students from equal opportunity and achievement.
- 3 Proponents of tracking say that the practices allow students to learn at their own levels and prevent a difficult situation for teachers: large classes where children with a wide range of different needs and skill levels are mixed together. In many districts, the higher-level instruction in “gifted and talented” or advanced placement classes is what keeps wealthier families from entirely abandoning the public school system.
- 4 But opponents say the ill effects for the students in the lower-skilled classes negate the advantages that the students in the advanced classes gain. Many education researchers have argued that tracking perpetuates class inequality and is partially to blame for the stubborn achievement gap in the U.S. educational system—between white and Asian students on one side, and black and Latino students on the other.
- 5 One New Jersey parent, Walter Fields, describes watching the effect of tracking first hand with his own African-American daughter, who was denied entry to an advanced freshman math class. She had the grades and standardized test scores to take the higher-level math class, Fields says, but didn’t get the required recommendation from a teacher. That didn’t change until Fields and his wife petitioned the principal to allow their daughter to take the higher-level class.
- 6 “You can literally walk down a hallway and look in a classroom and know whether it’s an upper-level class or a lower-level class based on the racial composition of the classroom,” Fields said.
- 7 Tracking has been around since the beginning of the 20th century, when students were placed on different school trajectories after a certain age. The tracking was often based on class—vocational paths for those from working-class backgrounds and general education paths for wealthier students.

SOURCE “Modern-Day Segregation in Public Schools,” *The Atlantic Monthly*, November 2014. *The Atlantic Monthly* is a publication that focuses news and commentary. *This document has been modified for length, clarity, and reading difficulty. The original text can be found at:* <http://www.theatlantic.com/education/archive/2014/11/modern-day-segregation-in-public-schools/382846/>

DOCUMENT B The Upside of Academic Tracking

Two new studies suggest that black and Hispanic students thrive in elite academic classes.

- 1 Tracking, the practice of putting a small group of higher achieving students into higher level classes, isn't popular with progressive educators. Opponents to tracking say it promotes inequality in our schools because higher income and white or Asian kids are more likely to get into the elite classrooms. Students who aren't chosen can become demoralized, or the curriculum can get too watered down. Great teachers and extra resources get steered to these honors programs, leaving the kids who need the most help with less.
- 2 Two new studies make a compelling case for continuing to teach top students in separate classrooms. A math study suggests that the U.S. won't produce enough students, including blacks and Hispanics, who can master higher mathematics if schools don't prepare them separately, starting in eighth grade. The second study finds that tracking can close the achievement gaps between high-IQ minority students and white students.
- 3 "You need to cultivate talent over time in mathematics," says Tom Loveless, the author of the math study. "I draw the analogy to sports. We're not shocked to hear that the high school quarterback star started playing football when he was eight, and that he was offered completely different opportunities to cultivate his talent."
- 4 Math isn't football, of course, and schools strive to help all children excel at math. But this research raises an age-old question of whether excellence is sacrificed by efforts to promote equity.
- 5 Tracking in eighth-grade math—steering only some students to algebra—is a critical decision in a student's life. Kids who don't study algebra in eighth grade rarely go on to calculus and advanced science classes.
- 6 Loveless studied the effect of tracking on black and Hispanic students and found that they did better on the Advanced Placement (AP) tests in states where there was more tracking.
- 7 The second study found big benefits for high-achieving minority students in the "gifted" classes. The researchers found that these high-achieving black and Hispanic students flourished.
- 8 There was no trade-off between excellence and equity in this case: the researchers didn't find negative consequences for students who weren't selected to enter the gifted classrooms.
- 9 The benefits of gifted classes were biggest for minority students. The researchers didn't find great gains for high-achieving white students. Whites of similar academic abilities did about as well in the regular class as they did in the gifted class.
- 10 "Placement in a gifted class effectively closes the underachievement gap," the authors wrote.

- 11 The researchers hypothesize two reasons for this: teacher expectations and peer pressure. In regular classrooms, teachers may not be pushing minority students as hard as they could be pushed. But in gifted classrooms, teachers are expecting excellence from everyone. Secondly, the researchers wonder if smart minority students are particularly susceptible to peer pressure in regular classrooms, where it's not "cool" to be smart. In the gifted classrooms, classmates may be more supportive of academic success.
- 12 The big argument against tracking is that black and Hispanic students are penalized by it. But perhaps tracking is what is needed to get more blacks and Hispanics into the elite ranks of top scientists and mathematicians."

SOURCE "The Upside of Academic Tracking," published in *The Atlantic Monthly*, written by The Hechinger Report, March 2016. The Hechinger Report is a news site that uses research and classroom stories to report on inequality and innovation in education. It is funded by private donors and multiple education foundations. *This document has been modified for length, clarity, and reading difficulty. The original text can be found at:* <http://www.theatlantic.com/education/archive/2016/03/the-upside-of-tracking/475956/>

READING GUIDE Academic Tracking

SOURCE

ARGUMENTS FOR
TRACKING

ARGUMENTS AGAINST
TRACKING

CLASSROOM
DISCUSSION

PERSONAL
EXPERIENCE

DOCUMENT

A

Modern-Day
Segregation

DOCUMENT

B

The Upside of
Academic
Tracking

What is your argument?

What is the opposing claim?



DATE

CULMINATING TASK Academic Tracking

Using the information in these documents and other relevant information introduced in class, write an argument explaining your position on whether middle school students should be tracked into different academic classes. Be sure to acknowledge the opposing claim.



WHY DO ZEBRAS HAVE STRIPES?

Science vs. Common Belief

ENGLISH LANGUAGE ARTS

Reading Informational Text · Writing an Explanation

GRADE 7

90-135 minutes



PURPOSE

This inquiry invites students to state and revise their understanding of a seemingly simple question: Why do zebras have stripes?

Students will pose an answer to the question based on their prior knowledge and then read four documents about the topic. Each successive document will introduce information, sometimes conflicting, to help answer the question.



STANDARDS

● Common Core State Standards

- ✓ Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts. [CCSS.ELA-Literacy.RI.7.9](#)
- ✓ Develop a topic with relevant facts, definitions, concrete details, quotations, or other information and examples. [CCSS.ELA-Literacy.W.7.2.B](#)



LEARNING GOALS

- Use multiple sources to develop an understanding of a topic.
- Understand and explain how texts present multiple explanations of a phenomenon to strengthen knowledge about a complex topic.
- Communicate understanding of a complex topic by writing an explanation.



SUCCESS CRITERIA

- 1 Identify different explanations of the same phenomenon in multiple documents.

- 2 Decide whether these explanations are supported by evidence. Compare the use of evidence across the documents.
- 3 Using multiple sources of information, construct an explanation that answers the inquiry question.



CULMINATING TASK

Using the information in these documents and other relevant information introduced in class, write an explanation of why zebras have stripes. Include information about the different explanations and why some are more credible than others.

PART I · INTRODUCTION

Introduce the inquiry. *Today we're going to read to find out why zebras have stripes. Why do you think they have stripes?* Elicit responses. It's most likely that students will say "camouflage" or "confuse predators."

SCIENCE NOTE Many people think that zebra stripes have to do with evading predators. Scientists are now persuaded that this is not likely. (You may wish to keep this information from the students so that they can discover this for themselves as they read the documents.) They are not sure exactly why zebras have stripes, but their strongest current theories do not seem to have anything to do with large predators. As stated in the Next Generation Science Standards (NGSS), scientific findings are often revised in light of new evidence. For those who are particularly interested, there is a long history of zebra inquiry (even Darwin was puzzled by this question). You could also investigate how and why the popular conception of zebra stripes came to be – discuss adaptation and the limits of our ability to speculate on reasons why things have come to be.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

If students are eager to know more about the science behind this lesson, be prepared with further resources or be prepared to redirect the lesson to focus on reading and writing informational text.

Explain that this is an issue with multiple possibilities. Students will read four documents that provide different information about the topic. Using this information and classroom discussion, and relevant background knowledge (e.g., about scientific process), students will be able to provide an explanation to the inquiry question.

Share and discuss Learning Goals and Success Criteria.

PART II · GUIDED PRACTICE

There are two main teaching points in this lesson. The first is to learn to recognize even seemingly simple questions may not have simple answers. The second is to collect evidence from different sources and use that evidence to understand a complex topic. In order to accomplish these points, students read and discuss documents; collect and organize information; and integrate that information into a written explanation.

Specific instructional methods are left to the teacher's discretion. Some examples and suggestions are described in the section "General Instructional Techniques." Whether this work is done as a whole class, as small group or pair work, or individually is up to the teacher.

Read each document and record evidence from each. A reading guide is provided to help students collect information to use in the culminating task.



SUCCESS CRITERION #1 ~ EVIDENCE-GATHERING OPPORTUNITY

Identify different explanations of the same phenomenon in multiple documents.

- ✓ Check the reading guide after reading each document and after classroom discussion.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

This is a topic about which students may have strong personal feelings. Provide opportunity for students to articulate their feelings, opinions, and personal experiences. Guide them in recording these for appropriate use during classroom discussion and in the culminating task.



SUCCESS CRITERION #2 ~ EVIDENCE-GATHERING OPPORTUNITY

Decide whether these explanations are supported by evidence. Compare the use of evidence across the documents.

- ✓ Go through each of the claims students listed in the Reading Guide, and discuss whether each is supported by evidence.

RELIABILITY OF SOURCES In this document set, the popular (and inaccurate) conception about zebra stripes was found in the kids' website from the San Diego Zoo. The National Geographic website for kids was slightly more accurate and introduced the idea that scientists are not sure. It also listed a few of the theories. Both these sites were likely written by non-scientists, but we don't know because there is no author given. There is also no date given, so there's no way to know if they have considered the most current research. The other two documents were taken from reputable print media and had named authors. The named authors are probably professional writers. They would not wish their reputation to suffer by reporting inaccurate information. The two researchers are both scientists at reputable universities. We don't know much more about them than that. They seemed to use similar scientific methods (finding correlations) although Larison went one step further and used her findings to predict accurately. This gives additional credibility to her study.

DOCUMENT A Short excerpt intended for children, from the San Diego Zoo website. Says definitively that zebra stripes are intended to confuse predators. No other theories given.

DOCUMENT B From the National Geographic website, written for children. Adds to Document A by giving multiple theories and by introducing the concept that "scientists aren't sure."

DOCUMENT C First document with an author and date. Also a different genre (magazine article). Introduces a specific scientist (Tim Caro) and his explanation: repel flies.

DOCUMENT D Another document with author and date. Note that it is the same parent source as Document A (National Geographic). Includes the scientist from Document C as a source of information. Multiple scientific theories are being studied in order to explain this phenomenon. No clear answer appears to exist, but it is not likely to be the reason cited in Document A (confuse predators) which may also be the most common answer given by students at the start of the lesson.

PART III · CULMINATING TASK

PROMPT Using the information in these documents and other relevant information introduced in class, write an explanation of why zebras have stripes. Include information about the different explanations and why some are more credible than others.

Help students use evidence appropriately to support their explanations. Be sure that personal or anecdotal evidence is to supplement and enhance, not replace, textual and scientific evidence.



ANTICIPATED RESPONSE ~ PEDAGOGICAL ACTION

The reading guide was designed to help students collect pieces of information necessary to write an explanation of the topic, not as a culminating task. However, if students do not have time to complete the writing task, the reading guide may serve as means to assess whether they were able to collect the necessary pieces.



SUCCESS CRITERION #3 ~ EVIDENCE-GATHERING OPPORTUNITY

Using multiple sources of information, construct an explanation that answers the inquiry question.

- ✓ Check responses to the culminating task, considering the elements described above.

DOCUMENT A San Diego Zoo website



When zebras are grouped together, their stripes make it hard for a lion or leopard to pick out one zebra to chase. Different zebra species have different types of stripes, from narrow to wide. In fact, the further south you travel on the African plains, the farther apart the stripes on the zebras get!

SOURCE San Diego Zoo website

<http://kids.sandiegozoo.org/animals/mammals/zebra>

Retrieved September 2015. No author. Date when text was written unstated.

DOCUMENT B National Geographic website



When zebras are grouped together, their stripes make it hard for a No animal has a more distinctive coat than the zebra. Each animal's stripes are as unique as fingerprints—no two are exactly alike—although each of the three species has its own general pattern.

Why do zebras have stripes at all? Scientists aren't sure, but many theories center on their utility as some form of camouflage. The patterns may make it difficult for predators to identify a single animal from a running herd and distort distance at dawn and dusk. Or they may dissuade insects that recognize only large areas of single-colored fur or act as a kind of natural sunscreen. Because of their uniqueness, stripes may also help zebras recognize one another.

SOURCE National Geographic website

<http://animals.nationalgeographic.com/animals/mammals/zebra/>

Retrieved September 2015. No author. Date when text was written unstated.

APRIL 11, 2014

HOW ZEBRAS GOT THEIR STRIPES

BY MICHAEL LEMONICK



How did the zebra get its stripes? You would think that someone would have come up with the answer by now. In fact, it remains a mystery.

Scientists have puzzled for years over this mystery. The problem isn't that they have no good ideas. It's that they have too many good ideas. Maybe stripes let zebras blend in with environment, so that predators can't see them. Maybe they make it hard for predators to judge a zebra's speed and distance when it's running. Maybe stripes discourage flies from biting. Maybe they attract mates. Maybe stripes allow herd members to recognize each other. Maybe stripes protect against the heat.

These are all good explanations for a zebra's stripes. Until recently it's been hard to choose. But now a study offers the best evidence to date for one explanation: that the stripes discourage flies from biting.

"The fly hypothesis has proven to be the best one so far," Daniel Rubenstein, a biologist at Princeton and zebra expert, who wasn't involved in the study, said. "And this study adds new support to the idea." Discouraging bites from flies is useful since they often carry diseases.

Before the recent study, there was already evidence that flies avoid landing on stripes. "We know they don't like stripes, but we don't know why," said Tim Caro, a biologist at the University of California Davis. He is the main author of the new study.

Previous experiments used striped surfaces like flypaper, not real zebras, since getting a zebra to stand around in a lab would be tough.

So Caro tried a different way. He looked at all 20 species of wild zebras and horses. He looked at how much striping each species has, and the environment around each species. For example, how many large predators, climate, or the kind of plants in the area.

Only one of these reasons explained whether a species was more striped, less striped, or stripeless: flies. Caro said the relationship was very clear. "I was rather surprised," he said. "I found again and again that animals with many stripes are in areas that have many biting flies."

Caro is relieved that this question appears to have been answered at last. "We can stop asking the question 'Why stripes?' and start asking 'Why don't flies like to land on stripes?'" he said. Caro is also interested in whether it's disease or blood loss that makes fly bites such a problem. "That's what happens in science," he said. "You answer one question and it leads to six more."

Why Do Zebras Have Stripes? New Study Makes Temperature Connection



Zebras in warmer climates sport more stripes, perhaps to keep them cool or healthy.

By **Christine Dell'Amore**, National Geographic

PUBLISHED JANUARY 15, 2015

A leopard may not be able to change its spots, but some zebras change their stripes. Zebras in warmer places have more stripes, a new study shows, which might help answer an age-old question: Why stripes? The answer probably comes down to keeping zebras cool and fending off disease-causing insects that are more common in hotter climates, researchers reported Tuesday.

This “stripe riddle” has puzzled scientists, including Darwin, for over a century. There are five main hypotheses for why zebras have the stripes: to repel insects, to provide camouflage through some optical illusion, to confuse predators, to reduce body temperature, or to help the animals recognize each other.

A new study shows that temperature is the factor most strongly linked to striping: the warmer it is, the more stripes on the zebra.

Of Every Stripe

Brenda Larison, a biologist at the University of California, Los Angeles, visited 16 zebra populations throughout Africa and studied their stripe patterns.

Larison’s team measured 29 environmental factors—such as soil moisture, rainfall, prevalence of disease—carrying flies, and distribution of lions—and determined which ones were related to differences in stripe patterns. The two factors that mattered most, said Larison, were how consistent the temperature was in a particular area and the average temperature during the coldest part of the year.

The researchers then went a step further, using their hypothesis to predict the striping patterns of zebra populations not included in the study. “We were able to show that we could predict it with significant accuracy,” Larison said.

Cooling Effect?

Why temperature affects striping is another question, she said, but there are two possible reasons.

One is the “cooling eddy” theory. When air hits a zebra, the currents are stronger and faster over the black parts (since black absorbs more heat than white) and slower over the white. At the juncture of these two opposing airflows, little eddies of air may swirl and serve to cool a zebra’s skin.

For instance, Larison said, there’s evidence that heavily striped zebras have lower skin temperatures than other non-striped mammals in the same area.

The other idea holds that more stripes may be a barrier against disease, since disease-carrying flies tend to like it hot. Experiments in the field have shown that flies don’t like landing on striped surfaces.

Tim Caro, a biologist at the University of California, Davis, supports the disease theory. “We’re getting a lot of similarities in our findings,” said Caro, whose own research showed that striping is linked to repelling biting flies.

“Diseases carried by horseflies are really nasty,” he said. “They can hold a lot of diseases, and it’s possible that those diseases are going to be more of a problem under warmer, wetter conditions.”

Kiss of Death for Lion Hypothesis

Neither the new study nor Caro’s work found a link between striping and lion populations.

“A lot of people in the public think that stripes have to do with confusing predators,” he said.

“This is the kiss of death for that particular idea.”

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READING GUIDE Why Do Zebras Have Stripes?

A Source: San Diego Zoo website Author: _____ Date: _____

Theories: _____

Evidence: _____

B Source: National Geographic website Author: _____ Date: _____

Theories: _____

Evidence: _____

C Source: *New Yorker* article Author: _____ Date: _____

Theories: _____

Evidence: _____

D Source: *National Geographic* article Author: _____ Date: _____

Theories: _____

Evidence: _____



Using the information in these documents and other relevant information introduced in class, write an explanation of why zebras have stripes. Include information about the different explanations and why some are more credible than others.