The Fifty States

- What are the names of the fifty states?
- How did the states get their name and become established?
- What is the reason the Western states are larger than the ones in the East?
- What would happen if a state decided to secede from the United States?
- Should California split into two or more states or remain one state?
- What territory do you think should become the 51st State and why?
- What kind of proposal could you develop to make a U.S. territory the 51st State?

Mythology

- What is mythology?
- What is Greek mythology?
- What is the plot of The Lightning Thief by Rick Riordan?
- What is the conflict and resolution in The Lightning Thief by Rick Riordan?
- How does The Lightning Thief by Rick Riordan address the following themes? Identity, Versions of reality, heroism, love, family, tradition, and customs, the unlikely hero
- How does The Lightning Thief by Rick Riordan incorporate the literary and stylistic elements of Greek mythology?
- What impact does telling The Lightning Thief from Percy’s point of view have on the reader and what if it was told from another character’s perspective or an uninvolved narrator?
- Is Percy destined to become a hero or does he grow to become heroic?
- Why are the Percy Jackson films not as successful as other young adult literature film adaptations (e.g. Harry Potter, Twilight, The Hunger Games)?
- What kind of original narrative can you produce that features one of the characters from The Lightning Thief?
- What kind of original narrative can you produce that tells or brings the mythology of an ancient civilization or culture in a modern setting?
How can you describe a real world context in which a total number of nouns (people, objects, things) are grouped equally?

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<thead>
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<td>14</td>
<td>27</td>
<td>10</td>
<td>10</td>
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</table>

Which would you use to multiply multi-digit numbers and why?

- strategies based on place value
- properties of operations
- equations
- rectangular arrays
- area models

542 x 398 =

\[(542 \times 300) + (542 \times 90) + (542 \times 8)\]

162600 + 48780 + 4336

215716

Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.** (Clarification: Example of solutions could include designing an earthquake-resistant building and improving monitoring of volcanic activity.) Assessment Boundary: Assessment is limited to earthquakes, floods, tsunamis, and volcanic eruptions.)

Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (Clarification: Statement: Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are predicted by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from different processes (such as volcanic and seismic eruptions), surface processes (such as mass wasting and tsunamis), or severe weather events (such as hurricanes, tornadoes, and floods). Examples of data can include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies can be global (such as satellite systems to monitor hurricanes or forest fires) or local (such as building basements in tornado-prone regions or reservoirs to mitigate droughts).)
How do Earth's natural processes affect individuals and societies?
What impact have Earth's natural processes had on humans historically and presently?
How could the impact of natural Earth processes on humans be reduced?
What kind of solution could you develop that would reduce the impact of natural Earth processes on humans?

How do natural hazards affect individuals and societies in the following aspects?
- geographically
- historically
- ecologically
- socially
- culturally
- economically
- politically
- academically

How can data on natural hazards be analyzed and interpreted to do the following?
- forecast future catastrophic events
- inform the development of technologies to mitigate effects

How could the impact of natural Earth processes on humans be reduced?
What kind of solution could you develop that would reduce the impact of natural Earth processes on humans?

RESEARCH FOR BACKGROUND KNOWLEDGE.
What does it mean to affect?
What does it mean to predict?
What does it mean to impact?
What does it mean to experience?
What does it mean to be catastrophic?
What does it mean to populate?

What are Earth's systems?
What is an ecosystem?
What is a natural event?
What are the human activities that occur in an ecosystem?
What are different types of catastrophic events?

EXAMINE THE INSTRUCTIONAL FOCUS.
How can natural events and human activity affect Earth's systems?

INVESTIGATE TO EXTEND LEARNING.
What impact do different types of catastrophic natural events have on ecosystems?
- geographically
- ecologically
- socially
- culturally
- economically
- politically
- academically

What would happen to an ecosystem if it experienced a catastrophic natural event?
Should people continue to populate areas prone to natural disasters or should they be relocated and such areas be abandoned or avoided?

DESIGN TO DEVELOP TALENT.
What kind of plan can you develop that would prevent, predict, or protect ecosystems from a catastrophic natural event?

What are we teaching students?
- Know and understand skills and stuff.
- Transfer and use concepts and content.
- Think deeply about texts and topics.
- Establish connections across the curriculum and beyond the classroom.
- Express depth and extent of learning.
- Answer questions, address problems, accomplish tasks, and analyze texts correctly.
What do students need to learn?

- **Read and research to build background knowledge.**
- **Examine, experiment with, and explain concepts and content.**
- **Investigate and inquire to extend learning.**
- **Design to develop, demonstrate, and differentiate talent and thinking.**

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**What Is Teaching and Learning for Cognitive Rigor?**

<table>
<thead>
<tr>
<th>COGNITION</th>
<th>CONTENT</th>
<th>CONTEXT</th>
<th>COMMUNICATION</th>
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</thead>
<tbody>
<tr>
<td>Recognize</td>
<td>Factual</td>
<td>DOK-1</td>
<td>Tier 1</td>
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<tr>
<td>Understand</td>
<td>Conceptual</td>
<td>How is it used?</td>
<td>basic words</td>
</tr>
<tr>
<td></td>
<td>category, principle, model, theory</td>
<td>Tier 2</td>
<td>high frequency words</td>
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<tr>
<td></td>
<td>Procedural</td>
<td>How can the stuff be used to answer questions, address problems, accomplish tasks, and analyze texts and topics?</td>
<td>basic conventions</td>
</tr>
<tr>
<td></td>
<td>Metacognitive</td>
<td>Why can the stuff be used to explain answers, conclusions, decisions, ideas, outcomes, results, solutions, and theories?</td>
<td>language acquisition</td>
</tr>
<tr>
<td></td>
<td>strategic, rules, personal</td>
<td>DOK-3</td>
<td>complex words</td>
</tr>
<tr>
<td></td>
<td>Relevant</td>
<td>Why can the stuff be used to describe cognitive processes; general academic words; knowledge and use of complex language?</td>
<td>Tier 3</td>
</tr>
<tr>
<td></td>
<td>importance, significance, value</td>
<td>DOK-4</td>
<td>subject-specific</td>
</tr>
<tr>
<td></td>
<td>Deep</td>
<td>What can be done with the stuff? How can it be used, and what can you do with it?</td>
<td>domain-specific terms</td>
</tr>
<tr>
<td></td>
<td>expertise, skill, specialized</td>
<td></td>
<td>writing, speaking, and listening in the disciplines</td>
</tr>
<tr>
<td></td>
<td>Communicative</td>
<td>deepen, develop, or do?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>presentation, production</td>
<td>HOW COULD OR WOULD YOU?</td>
<td></td>
</tr>
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**THE POWER OF**

WHAT CAN YOU DESIGN, DEVELOP, OR DO?
HOW COULD OR WOULD YOU?
WHAT DO YOU BELIEVE, THINK, FEEL?
Driving Essential Questions

CCSS.LITERACY.RI.7.3 Read and respond to The Outsiders by S.E. Hinton.
How can you write an original narrative that tells the story of The Outsiders from the point of view of one of the other characters?

CCSS.LITERACY.RI.7.2 Read and respond to The Diary of a Young Girl by Anne Frank.
How can you conduct and present research that documents and details the unique experience of an individual or group who was involved in, impacted by, or influenced the events and outcome of World War II?

CCSS.LITERACY.RI.10-12.2 Read and respond to Macbeth and Julius Caesar by William Shakespeare.
How can you write an informative / explanatory text that explains how a fictional character or a real life individual embodies and exhibits the traits of a Shakespearean tragic hero?

CCSS.LITERACY.RI.11-12.1 Read and respond to The Declaration of Independence.
How can you write an present an argument that defends or refutes the strength of the claims and validity of reasoning presented in The Declaration of Independence?

How can numerical and algebraic expressions and equations be used to solve real-life and mathematical problems?
How can you solve multi-step and real life mathematical problems posed with positive and negative numbers in the following forms be solved?
• whole numbers
• fractions
• decimals
How can you use the properties of operations to do the following?
• calculate numbers in any form
• convert between forms as appropriate
• assess the reasonable of answers using mental computation and estimation strategies
How can random sampling be used to draw inferences about a population?

How can you use statistics to gain information about a population by examining a sample of a population?
How can you make generalizations about a population from a sample?
How can you use random sampling tend to produce representative samples and support valid inferences?

What kind of model can you develop that describes the ways the geosphere, biosphere, hydrosphere, and / or atmosphere interact in the following examples?
• the influence of the ocean on the ecosystem, landform shape, and climate
• the influence of the atmosphere on landforms and ecosystems through weather and climate
• the influence of mountain ranges on winds and clouds in the atmosphere

How could you describe and graph the amounts and percentages of water and fresh water to provide evidence about the distribution of water in the following areas?
• oceans
• lakes
• rivers
• ground water
• polar ice caps
Knowing Is Half the Battle

**PROJECT-BASED LEARNING**
How can students express and share their depth and extent of their learning in their own unique way through oral, written, creative, or technical expression?

**INQUIRY-BASED LEARNING**
How can students read and research, examine, experiment with, and explain, and investigate and inquire about concepts and content to build background knowledge and extend learning?

**PROBLEM-BASED LEARNING**
How can students apply what they are learning to answer questions, address problems, accomplish tasks, and analyze texts and topics in different academic and real world contexts?

**EXPEDITIONARY LEARNING**
How can students recognize and realize the relevance of what they are learning and how academic concepts and procedures can be transferred and used in a real world context?

**SERVICE LEARNING**
How can students transfer and use what they are learning to address circumstances, issues, problems, and situations within their community?

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**Multiple Intelligence Activities (M.I.A.s)**

<table>
<thead>
<tr>
<th>VISUAL</th>
<th>VERBAL</th>
<th>LOGICAL</th>
<th>TECHNICAL</th>
<th>STUDENT ORIGINAL COMBO</th>
</tr>
</thead>
<tbody>
<tr>
<td>What kind of visual could you design? How would you use a graphic or visual model to present ideas and information?</td>
<td>What kind of original text could you write? How would you present ideas and information?</td>
<td>What kind of plan could you develop? How could you defend and explain an answer, outcome, reason, reason, or result?</td>
<td>What can you design, develop, and do with technology? How could you present and share ideas and information using technology?</td>
<td>What kind of lyrical text could you produce? How could you use rhythm and music to present and share ideas and information?</td>
</tr>
</tbody>
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**Project Based Learning**

**Visual**: What kind of visual could you design? How would you use a graphic or visual model to present ideas and information?

**Verbal**: What kind of original text could you write? How would you present ideas and information?

**Logical**: What kind of plan could you develop? How could you defend and explain an answer, outcome, reason, reason, or result?

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**Intrapersonal**: What do you believe, think, feel? How would you? How could you?

**Interpersonal**: How could you present and share your ideas with others? How could you work with others to answer a question, address a problem, or accomplish a task?

**Bodily-Kinesthetic**: How could you develop and use a model or game? How could you physically demonstrate and share ideas and information?
### Project-Based Learning

<table>
<thead>
<tr>
<th>VISUAL</th>
<th>VERBAL</th>
<th>LOGICAL</th>
<th>TECHNICAL</th>
<th>MUSICAL</th>
<th>INTRAPERSONAL</th>
<th>INTERPERSONAL</th>
<th>BODILY-KINESTHETIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>How could you draw a picture of a soccer uniform and explain the importance of the equipment including how it improves someone’s performance and provides safety?</td>
<td>What kind of informational text could you write on how to play soccer including identifying the object of the game, explaining what to do on offense and defense, and how to perform key plays?</td>
<td>How can you analyze and explain offensive and defensive plays in soccer and their effectiveness against specific opponents or in certain situations?</td>
<td>What kind an instructional video or slide presentation could you produce on how to play soccer?</td>
<td>What kind of song or poem could you produce about how to form and reduce fractions to their lowest form?</td>
<td>What do you think are the best situations to use fractions to show parts of a whole?</td>
<td>What kind of presentation could you give to the class on how to use fractions?</td>
<td>How can you demonstrate different plays in soccer and explain why each play is important on offense and/or defense?</td>
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## Project-Based Learning

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<tbody>
<tr>
<td>How could you adapt an Edgar Allan Poe story into a comic book or graphic novel?</td>
<td>What kind of original narrative could you write using the same mood, tone, and theme of Edgar Allan Poe's writings?</td>
<td>How can you explain what is rationalization and how it is used in both literary fiction and nonfiction?</td>
<td>How would you turn one of Edgar Allan Poe's poems into a song?</td>
<td>What kind of research could you conduct on the genre of body horror and how it is different from other forms of horror tales (e.g., supernatural)?</td>
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<tr>
<th>INTRAPERSONAL</th>
<th>INTERPERSONAL</th>
<th>STUDENT ORIGINAL COMBO</th>
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<tbody>
<tr>
<td>Why do you think troubled authors and artists are so talented.</td>
<td>What kind of debate could you have with a partner as to whether Pythagoras should be credited for coming up with the Pythagorean theorem?</td>
<td>How would you design a map that identifies what regions and locations are prone to certain natural disasters and include the data and facts about historical natural disasters that have occurred in these regions?</td>
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<thead>
<tr>
<th>TECHNICAL</th>
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<tbody>
<tr>
<td>How can you explain the various ways the Pythagorean theorem can be used as an algebraic and geometric proof?</td>
<td>What kind of song can you produce about how to use the Pythagorean Theorem to determine the length of the sides and hypotenuse of a right triangle?</td>
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<th>INTERPERSONAL</th>
<th>BODILY-KINESTHETIC</th>
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<tbody>
<tr>
<td>Why do you think there is such fascination with the Pythagorean theorem amongst different cultures, societies, and individuals?</td>
<td>What kind of discussion could you have with a partner whether Edgar Allan Poe is the most influential author in American or world literature or determine whether another author is more influential?</td>
<td>How can you demonstrate how a person can protect themselves during a natural disaster?</td>
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<th>STUDENT ORIGINAL COMBO</th>
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<tbody>
<tr>
<td>What kind of instructional video or PowerPoint presentation could you produce that teaches about the Pythagorean theorem?</td>
<td>What kind of original song can you produce about a natural disaster that actually occurred or a fictional account of a natural disaster?</td>
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<th>BODILY-KINESTHETIC</th>
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</thead>
<tbody>
<tr>
<td>What effects do you think natural disasters have on people emotionally and psychologically?</td>
<td>What kind of forum could you present with a partner as to whether “The Big One” earthquake theorized to hit California will arise from plate shifts in the San Andreas Fault or the Cascadia Subduction Zone?</td>
<td>How would you demonstrate how the Pythagorean theorem can be used in sports?</td>
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</table>
Knowing Is Half the Battle

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**LEVEL OF THINKING AND ACTION**

**CREATE**

What can you create?
What can you design?
What can you develop?
What is the effect?
What is the impact?
What is the outcome?
What is the reason?
What is the result?

**EVALUATE**

What can you plan?
What can you produce?
What could you invent?
What could you innovate?
What would happen?
What should happen?

**ANALYZE**

How can you plan?
How can you produce?
How could you invent?
How could you innovate?
How would it work?
How would it be?

**APPLY**

How do you plan?
How do you produce?
How would you invent?
How would you innovate?

**UNDERSTAND**

Where?
Where?

**RECOGNIZE**

Who?
Who?
## Problem-Based Learning

### Higher Order Thinking
- Develop a model to describe the cycling of water through the Earth's systems driven by energy from the sun and the force of gravity.
- Describe and graph the amounts and percentages of water and freshwater in various reservoirs to provide evidence of the distribution of water on Earth.
- Obtain and combine information about the ways individual communities use science ideas to protect the Earth's resources and environment.

### Depth of Knowledge
- **What effect does the water cycle have on the world's water supply?**
- **How can human interference affect the water cycle's ability to provide usable water?**
- **What can be done to preserve the world's supply of usable water?**

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Problem-Based Learning

**Problem 1: Bill of Rights**
- Identify the author or source of the historical document or narrative.
- Identify the central question(s) the historical narrative addresses and the purpose, perspective, point of view from which it was constructed.
- Compare and contrast between differing sets of ideas.
- Hold interpretations of history as tentative and subject to change.
- Formulate a position or course of action on an issue.

**Problem 2: Childhood Obesity**
- Comprehend concepts related to health promotion and disease prevention to enhance health.
- Access valid information, products, and services to enhance health.
- Use interpersonal communication skills to enhance health and avoid or reduce health risks.
- Practice health-enhancing behaviors and avoid or reduce health risks.
- Advocate for personal, family, and community health.

**Problem 3: Shakespearean Tragedy**
- Recognize what is a Shakespearean tragedy.
- Explain what are the traits of a Shakespearean tragic hero.
- Analyze how a character in a Shakespearean tragedy embodies the traits of a Shakespearean tragic hero.
- Write an informative essay explaining how a character is a Shakespearean tragic hero.

Does the Bill of Rights protect the rights of every person in every situation or do they protect some people in certain situations?

What are the causes and consequences of childhood obesity and what can be done to teach children to make healthy choices that promote good nutrition, fitness, and wellness?

How are Brutus from *The Tragedy of Julius Caesar*, Macbeth from *Macbeth*, and Anakin Skywalker from *Star Wars Episode III: Revenge of the Sith* examples of Shakespearean hero and how could their “fall from grace” been prevented?
Expediency and Service Learning

What issues are affecting the world? How is this issue affecting the world? Why is this issue essential or important to address, handle, settle, or solve? What impact does this issue have on the world? How does this issue affect me? What can I do to address this issue?

<table>
<thead>
<tr>
<th>Domain</th>
<th>Independent</th>
<th>Rude Problems</th>
<th>Complex Problems</th>
<th>New-Rude Problems</th>
<th>Wicked Problems</th>
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<td>Outcome</td>
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<td>Outcome</td>
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