## Curriculum Grid

### Next Generation Science Standards

- **ENERGY**
  - Energy Transfer
  - Wind Energy
  - Solar Energy
  - Electric Vehicles
  - Energy Efficiency

- **FORCE AND MOTION**
  - Gears
  - Friction
  - Velocity
  - Acceleration of Gravity

- **LIGHT**

- **HEAT AND TEMPERATURE**
  - Freezing
  - Thermal Insulation
  - Heat Transfer
  - Convection

### Practices

1. Asking questions
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics, Informational and Computer Technology, and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

### Cross-cutting Concepts

1. Patterns
2. Cause and effect: Mechanism and explanation
3. Scale, proportion, and quantity
4. Systems and system models
5. Energy and matter: Flows, cycles, and conservation
6. Structure and function
7. Stability and change

### Core Ideas: Physical Science

- **PS1** Structure and Properties of Matter
- **PS2** Motion and stability: Forces and interactions
- **PS3** Energy
- **PS.4** Waves and their applications in technologies for information transfer
<table>
<thead>
<tr>
<th>GRADE</th>
<th>STANDARD</th>
<th>ENERGY</th>
<th>FORCE AND MOTION</th>
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**Common Core English Language Arts**

- = addresses standard
- = partially addresses standard

**Speaking and Listening Standards - Presentation of Knowledge and Ideas**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td>6-8</td>
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<td>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics, texts, and issues, building on others’ ideas and expressing their own clearly.</td>
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<td>6</td>
<td></td>
<td>Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.</td>
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<td>7</td>
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<td>Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.</td>
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<tr>
<td>8</td>
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<td>Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.</td>
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<td>6</td>
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<td>Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.</td>
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<tr>
<td>8</td>
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<td>Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.</td>
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**Reading Standards for Literacy in Science and Technical Subjects**

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<tr>
<th>Grade</th>
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<tbody>
<tr>
<td>1 6-8</td>
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<td>Cite specific textual evidence to support analysis of science and technical texts.</td>
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<tr>
<td>3 6-8</td>
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<td>Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</td>
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<td>4 6-8</td>
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<td>Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</td>
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<td>7 6-8</td>
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<td>Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</td>
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<td>9 6-8</td>
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<td>Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</td>
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<td>10 6-8</td>
<td></td>
<td>By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</td>
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<td>GRADE</td>
<td>STANDARD</td>
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<tr>
<th>Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6–12</th>
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<td>1  6-8</td>
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<td>10 6-8</td>
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### Common Core Mathematics Standards

- **Practices**
  - 1.1 Make sense of problems and persevere in solving them.
  - 1.2 Reason abstractly and quantitatively.
  - 1.3 Construct viable arguments and critique the reasoning of others.
  - 1.4 Model with mathematics.
  - 1.5 Use appropriate tools strategically.
  - 1.6 Attend to precision.
  - 1.7 Look for and make use of structure.
  - 1.8 Look for and express regularity in repeated reasoning.

- **Ratios and Proportional Relationships**
  - Grade 6 Understand ratio concepts and use ratio reasoning to solve problems.
  - Grade 7 Analyze proportional relationships and use them to solve real-world and mathematical problems.

- **The Number System**
  - Grade 6 Compute fluently with multi-digit numbers and find common factors and multiples.
  - Grade 6 Apply and extend previous understandings of numbers to the system of rational numbers.
  - Grade 7 Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers.

- **Expressions and Equations**
  - Grade 6 Apply and extend previous understandings of arithmetic to algebraic expressions.
  - Grade 6 Represent and analyze quantitative relationships between dependent and independent variables.
  - Grade 7 Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
  - Grade 8 Work with radicals and integer exponents.
  - Grade 8 Understand the connections between proportional relationships, lines, and linear equations.

- **Functions**
  - Grade 8 Define, evaluate and compare functions.
  - Grade 8 Use functions to model relationships between quantities.

- **Geometry**
  - Grade 6 Solve real-world and mathematical problems involving area, surface area and volume.
  - Grade 7 Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

- **Statistics and Probability**
  - Grade 6 Develop understanding of statistical variability.