### Language Arts Florida Standards alignments

These lessons purposefully engage students in Speaking & Listening standard 1 (full text on page 3). Students collaborate in groups during weeks 2-10, and students collaborate in classroom discussions in weeks 1-3 and 6-10. In discussions with great depth (e.g., weeks 1 and 2), students may need to evaluate a speaker’s use of evidence to evaluate fallacious reasoning, which is Standard 3. Finally, students address Speaking & Listening standards 4 and 5 also need to present data and solutions more formally at the end of their work in week 2, 6, and 7.

### Science Next Generation Sunshine State Standards alignments

<table>
<thead>
<tr>
<th>Week</th>
<th>Title(s)</th>
<th>Benchmark Code</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What’s our process?</td>
<td>Big Idea 1, Big Idea 2</td>
<td>The Practice of Science¹, The Characteristics of Scientific Knowledge²</td>
</tr>
<tr>
<td>2</td>
<td>Working on a ship, Parts of a boat</td>
<td>Big Idea 1, SC.6.P.13.1</td>
<td>The Practice of Science¹, Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.</td>
</tr>
<tr>
<td>3</td>
<td>How does that work? Sink that boat!</td>
<td>Big Idea 1, SC.6.P.13.1</td>
<td>The Practice of Science¹, Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.</td>
</tr>
<tr>
<td>4</td>
<td>Steady!! Steady</td>
<td>Big Idea 1, SC.6.P.13.1</td>
<td>The Practice of Science¹, Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.</td>
</tr>
<tr>
<td>5</td>
<td>Sink that boat!</td>
<td>Big Idea 1, SC.6.P.13.1</td>
<td>The Practice of Science¹, Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.</td>
</tr>
<tr>
<td>6</td>
<td>Don’t let it sink!</td>
<td>Big Idea 1, SC.6.P.13.3</td>
<td>The Practice of Science¹, Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.</td>
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<tr>
<td>7</td>
<td>FLEET All-Star Break</td>
<td>Big Idea 1</td>
<td>The Practice of Science¹</td>
</tr>
<tr>
<td>8</td>
<td>The Force is strong in your ship</td>
<td>SC.6.P.13.1, SC.6.P.13.3</td>
<td>Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational. Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.</td>
</tr>
<tr>
<td>9</td>
<td>Speed and Design</td>
<td>SC.6.P.13.3</td>
<td>Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.</td>
</tr>
<tr>
<td>10</td>
<td>FLEET Awards</td>
<td>Big Idea 1</td>
<td>The Practice of Science¹</td>
</tr>
</tbody>
</table>

¹Big Idea 1: Students will practice science each day in these activities. They are investigating forces, energy, velocity, and acceleration through hands-on experimentation and student-generated explorations using a professional-grade naval simulator. Engineering students spend much of their time defining problems and subproblems, creating hypotheses and tests that address the problem, and conducting experiments that yield data that better defines the problems and possible solutions.
Big Idea 2: During the first week, students will learn that the engineering design process is separate from the Scientific Method. Students will learn that both disciplines accrue knowledge over time through processes that are iterative, replicable, and rely on hypothesis testing. During classroom conversations, students will discuss how previous solutions are improved by more recent discussions—an extension of Standard 4. Students work in teams on FLEET designs so they will see various talents and interests that contribute to the group success (Standard 5). The award ceremony in week 10 highlights students that ask great questions, students that test hypotheses well, and students that record data correctly. Students will have impromptu moments of discovery about Scientific Knowledge through discussion with peers even though this is only an explicit expectation of defining an engineering process in Week 2.

Others to consider

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC.6.P.12.1</td>
<td>Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.</td>
</tr>
<tr>
<td>SC.6.P.13.1</td>
<td>Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.</td>
</tr>
<tr>
<td>SC.6.P.13.3</td>
<td>Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.</td>
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<tr>
<td>SC.7.P.11.2</td>
<td>Investigate and describe the transformation of energy from one form to another.</td>
</tr>
<tr>
<td>SC.7.P.11.3</td>
<td>Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.</td>
</tr>
<tr>
<td>SC.8.N.4.2</td>
<td>Explain how political, social, and economic concerns can affect science, and vice versa.</td>
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<tr>
<td>SC.8.E.5.10</td>
<td>Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.</td>
</tr>
<tr>
<td>SC.8.P.8.2</td>
<td>Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.</td>
</tr>
<tr>
<td>SC.8.P.8.3</td>
<td>Explore and describe the densities of various materials through measurement of their masses and volumes.</td>
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