Gr. 8 – Understanding Structures & Mechanisms

*Systems in Action*

**Roll Can**

**Specific Expectations:**

2.1 Follow established safety procedures for working with apparatus, tools, materials, and electrical systems.

2.4 Use technological problem-solving skills to investigate a system that performs a function or meets a need.

2.6 Use appropriate science and technology vocabulary, including *mechanical advantage, input, output, friction, gravity, forces, and efficiency* in oral and written communications.

3.2 Identify the purpose, inputs, and outputs of various systems.

3.3 Identify the various processes and components of a system that allow it to perform its function efficiently and safely.

**Big Idea (for lesson):**

Students will build and explore how a mechanism can use its centre of mass to store energy internally, and transform this energy into kinetic movement.

<table>
<thead>
<tr>
<th>Accommodations:</th>
<th>Differentiated Instruction:</th>
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<tbody>
<tr>
<td>☒ Increase time</td>
<td>☒ Content: Use demo to show the content as you offer verbal descriptions.</td>
</tr>
<tr>
<td>☒ Visual Aids</td>
<td>☒ Process: Have students work in pairs and support each other if physical impediments exist.</td>
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<tr>
<td>☒ Manipulatives</td>
<td>☒ Product: Students may show their final product in pairs, and communicate their findings either verbally, visually, or through written means.</td>
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<tr>
<td>☒ Chunking</td>
<td>☐ Other: ____________________</td>
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<tr>
<td>☒ Step-by-Step</td>
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<tr>
<td>☒ Scaffolding</td>
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<tr>
<td>☒ Copy of Notes</td>
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<tr>
<td>☒ Student Grouping</td>
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<table>
<thead>
<tr>
<th>Bloom’s Taxonomy:</th>
<th>Multiple Intelligence:</th>
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<tbody>
<tr>
<td>☒ Knowledge</td>
<td>☒ Verbal/Linguistic</td>
</tr>
<tr>
<td>☒ Comprehension</td>
<td>☒ Logical/Mathematical</td>
</tr>
<tr>
<td>☒ Application</td>
<td>☒ Visual/Spatial</td>
</tr>
<tr>
<td>☒ Analysis</td>
<td>☒ Bodily/Kinesthetic</td>
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<tr>
<td>☐ Synthesis</td>
<td>☐ Naturalist</td>
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<tr>
<td>☐ Evaluation</td>
<td>☐ Musical/Rhythmic</td>
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<td>☐ Interpersonal</td>
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<td>☐ Intrapersonal</td>
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**Delivering The Lesson:**
<table>
<thead>
<tr>
<th>Portion &amp; Timing</th>
<th>Grouping:</th>
<th>Introduction:</th>
<th>Materials</th>
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</thead>
<tbody>
<tr>
<td>Minds On: 10 mins</td>
<td>W</td>
<td>S</td>
<td>I</td>
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<tr>
<td>Action: 15 mins</td>
<td>W</td>
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<tr>
<td>Consolidate: 10 mins (Likely extended into next day)</td>
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<td>S</td>
<td>I</td>
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<table>
<thead>
<tr>
<th><strong>Systems in Action</strong></th>
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<tbody>
<tr>
<td><strong>ssroom_solutions/2010/03/investing-energy-transfer-using-music-and-lasers</strong></td>
</tr>
<tr>
<td>For another centre of mass video, consult the Balancing Utensils Video</td>
</tr>
<tr>
<td><strong>Roll Can – Balancing Utensils Table Trick – Sick Science! #009</strong></td>
</tr>
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</table>