

Gr. 1 - Understanding Matter and Energy

Energy in Our Lives

Inertia Zoom Ball

<p>Specific Expectations:</p> <p>2.3 Design and construct a device that uses energy to perform a task.</p> <p>3.1 Demonstrate an understanding that energy is what makes the things they do or see happen.</p> <p>3.4 Identify everyday uses of various sources of energy.</p> <p>3.5 Demonstrate an understanding that humans get the energy resources they need from the world around them.</p>			
<p>Big Idea (for lesson):</p> <p>Students explore a law of motion (Inertia; Newton’s First Law) by building and playing with an Inertia Zoom Ball.</p>			
<p>Accommodations:</p> <p><input type="checkbox"/> Increase time</p> <p><input type="checkbox"/> Visual Aids</p> <p><input checked="" type="checkbox"/> Manipulatives</p> <p><input type="checkbox"/> Chunking</p> <p><input checked="" type="checkbox"/> Step-by-Step</p> <p><input checked="" type="checkbox"/> Scaffolding</p> <p><input checked="" type="checkbox"/> Copy of Notes</p> <p><input checked="" type="checkbox"/> Student Grouping</p>		<p>Differentiated Instruction:</p> <p><input checked="" type="checkbox"/> Content: Use demo to show the content as you offer verbal descriptions.</p> <p><input checked="" type="checkbox"/> Process: Have students work in pairs and support each other if physical impediments exist.</p> <p><input checked="" type="checkbox"/> Product: Have students verbalize their understanding or write in a journal.</p> <p><input type="checkbox"/> Other: _____</p>	
<p>Bloom’s Taxonomy:</p> <p><input checked="" type="checkbox"/> Knowledge</p> <p><input checked="" type="checkbox"/> Comprehension</p> <p><input checked="" type="checkbox"/> Application</p> <p><input checked="" type="checkbox"/> Analysis</p> <p><input type="checkbox"/> Synthesis</p> <p><input type="checkbox"/> Evaluation</p>		<p>Multiple Intelligence:</p> <p><input checked="" type="checkbox"/> Verbal/Linguistic</p> <p><input checked="" type="checkbox"/> Logical/Mathematical</p> <p><input checked="" type="checkbox"/> Visual/Spatial</p> <p><input checked="" type="checkbox"/> Bodily/Kinesthetic</p> <p><input checked="" type="checkbox"/> Naturalist</p> <p><input type="checkbox"/> Musical/Rhythmic</p> <p><input checked="" type="checkbox"/> Interpersonal</p> <p><input checked="" type="checkbox"/> Intrapersonal</p>	

Delivering The Lesson:

Portion & Timing	Grouping:			Introduction:	Materials:
<p>Minds On:</p> <p>5 mins</p>	<p>W</p> <p><input checked="" type="checkbox"/></p>	<p>S</p> <p><input type="checkbox"/></p>	<p>I</p> <p><input type="checkbox"/></p>	<p>To introduce the idea of energy transfer, the teacher could perform the following hook:</p> <p>-Hold a tennis ball on top of a basketball, and ask students what will happen if you let go.</p> <p>-Drop the balls at the same time and see see that the tennis ball will bounce off the larger ball and</p>	<p>- Basketball</p> <p>-Tennis ball</p>

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				<p>fly higher into the air. The kinetic energy from the basketball transfers to the tennis ball.</p> <p>-Ask students what is happening in this demo? <i>(Answer: the energy from the big falling basketball is being transferred into the small ball when they collide on the ground).</i></p> <p>-Ask students if they can think of any other situations where energy is transferred between two objects.</p>	
<p>Action: 25 mins</p>	<p>W <input checked="" type="checkbox"/></p>	<p>S <input checked="" type="checkbox"/></p>	<p>I <input type="checkbox"/></p>	<p>Have students follow the instructions on the handout to build an Inertia Zoom Ball in pairs. As the students build and test their Inertia Zoom Ball, ask them some questions:</p> <p>-How do you send the ball to the other player? <i>(Answer: by jerking the strings apart and sending energy from me to the ball).</i></p> <p>-Why does the ball sometimes slow down? <i>(Answer: the string and the ball rub, which means frictions slows it down.)</i></p> <p>-Feel the cord, and listen as you play. What do you notice? <i>(Answer: The cord feels warm because of the rubbing, and you can hear the movement of the ball. The movement energy is being transferred to sound and heat energy, slowing it down a bit.)</i></p>	<p>Inertia Zoom Ball – Handout (Materials listed)</p>
<p>Consolidate: 10 mins</p>	<p>W <input checked="" type="checkbox"/></p>	<p>S <input checked="" type="checkbox"/></p>	<p>I <input type="checkbox"/></p>	<p>Teachers can ask the following questions to connect what they've learned to real life:</p> <p>How do we use energy in different sports? <i>(Answers will vary: to kick, to run, to pedal, to swim, to throw, ...)</i></p> <p>How do we replenish our energy stores? <i>(Answer: by eating healthy foods and sleeping well).</i></p> <p>Another option is to mimic the tablecloth hook at the start of the lesson with something that students can try:</p> <p>-Give students a cup, card, and coin. Have them place the card over the mouth of the cup, and put the coin on the middle of the cup. If the paper is pulled quickly and straight out, the coin will fall straight down into the cup.</p>	