

Gr. 8 – Understanding Life Systems

Form and Function

Weird Wonder

<p>Specific Expectations:</p> <p>2.1 Follow established safety procedures for handling apparatus and materials and use microscopes correctly and safely.</p> <p>3.1 Demonstrate an understanding of the postulates of cell theory.</p> <p>3.6 Describe the organization of cells into tissues, organs, and systems.</p>			
<p>Big Idea (for lesson):</p> <p>Students will learn about specialized cells, particularly the rods and cones of the eye, and try out different optical illusions that trick their eyes.</p>			
<p>Accommodations:</p> <p><input checked="" type="checkbox"/> Increase time</p> <p><input checked="" type="checkbox"/> Visual Aids</p> <p><input checked="" type="checkbox"/> Manipulatives</p> <p><input checked="" 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: Students may show their final product in pairs, and communicate their findings either verbally, visually, or through written means.</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>Teacher can do a demonstration to introduce optical illusions. See the following website for complete details:</p> <p>http://www.stevespanglerscience.com/!</p>	<p>Large mirror</p> <p>*Weird Wonder</p> <p>– Optical Illusion</p> <p>– Magic</p>

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				ab/experiments/flying-with-mirrors Mount the mirror horizontally, and straddle the mirror with one foot on each side. Then raise your foot from in front of the mirror, making it look like you are flying. Ask students why their brain seems to perceive the image as someone who is levitating? (<i>Answer: Since the image is in the same position and orientation as a leg on the other side of the mirror, our brain is convinced that it is making a normal observation.</i>) *An alternative to show students is the “Magic Arc” video, or do a demonstration of it yourself.	Arc.mp4
Action: 15 mins	W <input checked="" type="checkbox"/>	S <input checked="" type="checkbox"/>	I <input checked="" type="checkbox"/>	Have students make their own Weird Wonders according to the instructions on the handout. Teacher can circulate and ask questions of the different groups: -What colours do cones perceive? (<i>Answer: Each cone perceives either red, blue or green light, and combine to form the other shades and colours.</i>) -How do you think different cones are related to a person being colour blind? (<i>Answer: Colour blindness occurs when one or more of the cone types are faulty.</i>) -Do you think issues such as a detached retina would affect colour vision? (<i>Answer: Yes; flashes of light and floating spots are warning signs to be looked into.</i>) -How do you think Optic Neuropathy (inflamed optic nerve) affects vision? (<i>Answer: May cause blurry vision and blind spots.</i>)	Weird Wonder Handout (Materials listed)
Consolidate: 20 mins	W <input checked="" type="checkbox"/>	S <input checked="" type="checkbox"/>	I <input type="checkbox"/>	There are three types of optical illusions: literal, physiological, and cognitive optical illusions. Conduct a jigsaw activity for students to explore the 3 types of optical illusions.	Samples of literal, physiological, and cognitive optical illusions.

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				<p>Provide definitions and examples of each type of optical illusions, or have the specific groups do online research on their own through computer access. Be sure that students connect the mental images to the physical organs involved, and their role (brain and eye).</p>	<p>Write-up of each illusion for students OR Computer access</p>
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