

Gr. 4 – Understanding Life Systems

Habitats and Communities

Twisting and Turning

Specific Expectations:

2.3 Use scientific inquiry/research skills to investigate ways in which plants and animals in a community depend on features of their habitat to meet important needs.

2.5 Use appropriate science and technology vocabulary, including *habitat*, *population*, *community*, *adaptation*, and *food chain*, in oral and written communication.

3.3 Identify factors that affect the ability of plants and animals to survive in a specific habitat.

3.7 Describe structural adaptations that allow plants and animals to survive in specific habitats.

Big Idea (for lesson):

Students will investigate how plants interact with their environment, and specifically will explore how some plants reproduce through means such as producing keys to transport seeds.

Accommodations:

- Increase time
- Visual Aids
- Manipulatives
- Chunking
- Step-by-Step
- Scaffolding
- Copy of Notes
- Student Grouping

Differentiated Instruction:

- Content: Use demo to show the content as you offer verbal descriptions.
- Process: Have students work in pairs and support each other if physical impediments exist.
- Product: Students may show their final product in pairs, and communicate their findings either verbally, visually, or through written means.
- Other: _____

Bloom's Taxonomy:

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

Multiple Intelligence:

- Verbal/Linguistic
- Logical/Mathematical
- Visual/Spatial
- Bodily/Kinesthetic
- Naturalist
- Musical/Rhythmic
- Interpersonal
- Intrapersonal

Delivering The Lesson:

Portion & Timing	Grouping:			Introduction:	Materials
Minds On: 10 mins	W <input checked="" type="checkbox"/>	S <input type="checkbox"/>	I <input type="checkbox"/>	Teacher can start with a discussion on adaptation, and have students try to list some	

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				<p>adaptations that animals have developed. If stuck, a few possible examples to look at are camels (which are tolerant to the dryness of the desert), sloths (which have special claws to hold themselves when they sleep, and to use for eating). Check out the following site for additional examples: http://www.bbc.co.uk/nature/adaptations With this resources, you can talk about the variety of adaptation strategies: adapting to extremes, animal intelligences, behavioural patterns, communication and senses, ecosystem roles, feeding habits, life cycles, locomotion, morphology, predation strategy, reproductive strategy, social behaviour, survival strategy.</p>	
<p>Action: 20 mins</p>	<p>W <input checked="" type="checkbox"/></p>	<p>S <input checked="" type="checkbox"/></p>	<p>I <input checked="" type="checkbox"/></p>	<p>Have students build their own Twisting & Turning widgets according to the instructions on the handout. Teacher can circulate and ask questions of the different groups: -What sort of things have to be in place in the surrounding environment of a plant for the adaptation of the plant seeds to be successful? <i>(Answers may vary: a very dry or wet season could prevent the seed from sprouting when it falls; overcrowded foliage or abundance of herbivores are also factors; pollution of soil or groundwater; insects that infest the tree and damage the seeds' tails.)</i> -Why do you think some seeds have longer tails or double seeds? <i>(Answer: Perhaps to get a longer flight path so that the seeds get further from the parent plant; some seeds may be doubled to better the chances of one being successfully deposited and planted.)</i> -What are some other ways that a "pod" plant can have its seeds spilled? <i>(Answer: if an animal knocks against it, or a bird/insect lands on the plant.)</i> -Do you see any similarities between a flying seed and a kite? What are some similarities and differences?</p>	<p>Twisting and Turning Handout (Materials listed)</p>

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<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>Yarn Food Web Activity:</p> <ul style="list-style-type: none"> -Card labels: frog, mosquito, heron, perch, turtle, crayfish, fallen leaves, maple trees, aquatic plants, sunlight, algae, birds, berries, bears, mushrooms, humans, ferns, snails, bees, minnows. -Hand out an activity card to each student, keeping the “sun” card for yourself. There may be some doubles, but this is fine. -Have students stand in a circle, and hold out their cards so everyone may see. -Holding onto one end of the yarn, throw the wad to another students whose card is affected by the “sun” (should be any of them). Have students continue to do so until the yarn returns to you. -While all students are connected, ask them what would happen if all of the perch fish died? Tell the students who are hold the perch to yank their string, and the rest of the students to yank their string when they feel a tug as well. Let this drive home the fact that when even one species becomes extinct or extirpated from the local food web, the other species are affected by this as well. -Ask all students with forest-related cards to tug at the same time. Have all students who felt a tug raise their hand. What does this tell us about the importance of the forest ecosystem? How could the other animals adapt to this absence? -Ask all students with lake-related cards to tug at the same time. Have all students who felt a tug raise their hand. What does this tell us about the importance of the lake ecosystem? How could marine plants and animals adapt to this loss? -Ask a student to please collect the cards and another to roll the string back up. 	
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