Webs of Life 5E Lesson Plan

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| Teachers: Ms. Clayborne, Ms. Moore, Mrs. Pardom, Ms. Stephens |
| Date: April 7th, 2016 (STEM Thursday) |
| Subject: ScienceGrade level: 4th |
| TEKS:9B) describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest. |
| Materials: Station 1: Food Webs* Styrofoam
* Bags labelled: producer, 1st level consumer, 2nd level consumer, 3rd level consumer, 4th level consumer
* Colored fishing line
* Pictures of predators and prey for food web
* Food Web Information Cards

Station Two:* Word cards with definitions on back
* Food chain Pictures

Station Three: * SMARTBOARD

Elaborate: *Catch Me if You Can** Pattern Blocks
* 3 colored ribbon (green, yellow, and red)
* Sandwich bags (one per student: snack, sandwich, quart)
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| Key Vocabulary: consumer, energy, food chain, producer, predator, prey |
| ENGAGE (5 minutes) 1. The students will watch a video:

 Spider-tailed Horned Viper: Persian Horned Viper <https://www.youtube.com/watch?v=7CjtQOc9euU>Eliciting Question:1. What is the purpose of the spider-tailed characteristic of the Persian Horned Viper snake?

Transition Statement: In the next activity, we will further explore the different parts of a food chain and how producers and consumers give and get energy.  |
| EXPLORE/EXPLAINSTATION ONE (20 minutes) FOOD WEB1. Students will be given a stack of pictures from a marine food web: phytoplankton, muscles, clams, oysters, trout, red fish, dolphins, sharks.
2. They will sort these cards into five groups: consumer, 1st level producer, 2nd level producer, 3rd level producer, 4th level producer.
3. The students will then take turns reading the: ‘I am a \_\_\_\_. I eat\_\_\_\_’ cards.
4. As they read a card, they will place it on the styrofoam in the appropriate place. They will then reread the cards.
5. During the 2nd reading, the students will put fishing line from predator to prey, identifying relationships within the food web.

STATION TWO (10 minutes)1. Tell students they will be engaging in another game to explore food chains.
2. The students will be given individual pictures with names of producers and consumers.
3. The students will work in two separate groups to determine what part of the food chain they are a producers or consumer by determining if they give or gets energy from the other.
4. The students will have to place themselves in order by their pictures to create a food chain including the sun, plant, Level 1 consumers, Level 2 consumers, and Level 3 consumers.
5. Once students have collaborated as group members on the order of their pictures and creating their food chain in the specified order they will explain how the different members of the food chain receive and give energy.
6. The students will share with the whole group, what part of the food chain each of them belong to and the things they eat. For example, I am the sun. I give energy to the grass. I am a grasshopper. I get energy from the sun and give it to the lizard.

Eliciting Questions:1. Why do all living things need plants?
2. If the plant population in a food chain was to die off because of a drought, how would that affect the rest of the food chain?

STATION THREE (10 minutes) <https://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/foodchain.htm> Probing Question:* Why is the food chain important for all living things?
1. Explain to students that every living thing needs energy in order to live.
2. Tell students they will explore how living things get energy through the food chain by engaging in an online game. They will have to drag parts of the food chain to their correct place on the Smartboard. If a part of the food chain is dragged to an incorrect spot the part of the chain will not stay in the spot.
3. Once food chain is complete it will come to life and the students will watch the food chain in action.
4. Allow students to discuss their thoughts with each other on the food chain.
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| Transition Statement: Now that we have learned about food webs and food chains, let’s play a game to model how energy is transferred among living things. |
| ELABORATION (40 minutes)  ***Catch Me if You Can*** Probing Question:1. How is energy passed along a food chain from link to link?

Procedure for Game:1. Inform the students they are going to play a game of tag that will simulate a natural food chain.
2. Divide the students into three even groups. Each group will be assigned a different color of yarn. Have the students help each other tie the yarn around their wrists in a bow that can be easily removed at the end of the game.
3. Explain that the animals the students are simulating are represented by the colors of yarn. Students with brown yarn are grasshoppers, those with yellow yarn are lizards, and those with red yarn are hawks.
4. Discuss the predator/prey relationships in this food chain:
5. Hawks hunt only lizards.
6. Lizards hunt only grasshoppers.
7. Grasshoppers eat only grass. (Represented by the pattern blocks)

 5. Give each student a plastic bag to be used as a stomach and explain how  the game will work.1. Those students who are grasshoppers must gather pattern blocks from the ground and put it into their plastic bags.
2. The students playing lizards will try to tag the grasshoppers. If they are successful, the grasshopper is “dead” and the contents of their bag are emptied into the lizard’s bag.
3. The students playing hawks will try to tag the lizards, and get the contents of their bags.
4. Lizards and hawks may NOT pick up pattern blocks from the ground.

 6. For the animals to survive, they must not be tagged during the game and  their stomachs (plastic bags) must be filled by the game’s end:1. Grasshoppers- snack bag
2. Lizards- sandwich bag
3. Hawks- quart bag

7. In one round, RED pattern blocks will be put down as food. At the end of this round, students will be informed that the RED blocks represented toxinsProbing/Eliciting Questions:1. Why did the games end?
2. Which games were the shortest? The longest? Why?
3. How does area affect predator/prey relationships?
4. How is this game like a real ecosystem? How is it different?
5. Where does grass get energy?
6. Where does the grasshopper get energy? The lizards? The hawks?
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| EVALUATION (5 minutes) Draw your own food chainThe students will be instructed to illustrate and label their own food web. This is for the students evaluation, however, we should encourage the students to be creative and create food webs other than the ones we have demonstrated throughout the lessons.  |