

## HABITAT MURAL

(a preparation activity, for vocabulary and concepts)

### Basic Description:

Groups of 4-5 students will build a collage for an ecosystem, with the goals of understanding interactions in community, adaptations of plant and animal life to the habitat, and the dependence all life has on plants.

### Materials:

- Wump World, author Bill Peet
- Blue and Yellow Yarn; Thumbtacks
- Bristol board
- construction paper of varying colours
- markers
- scissors
- glue
- nature magazines
- pictures of the following ecosystems in each season: a forest, grassland, marsh and pond
- large jar
- two small jars
- masking tape
- pictures of plants and animals from each ecosystem

### Time Allotment:

- Introduction and vocabulary activity- one 40 minute period
- Activity- two to three 40 minute periods
- Follow-up- 10 to 20 minutes

### Procedure:

#### Introduction:

Read Wump World by Bill Peet. Explain to students they have been selected to help describe what life might look like on a planet that was found, with qualities similar to earth. This is so we might understand how we might fit in if we ever went to live there. There are some new words everyone needs to learn before beginning the project. A field trip will follow to introduce you to what the planet looks like.

The following background information is an outline for a discussion, designed to introduce new terms to students. This could provide the introduction for 'visual vocabulary' (LINK)

- What is a home? What is provided for you there?
- What is the home of plants? Of animals? Scientists call the home of plants and animals a '**habitat.**' What is it made of? (food, water, shelter, space.)
- Where does the energy come from that all plants, animals and humans depend on for life? (the sun)
- The plants and animals living in the different habitats have special characteristics that help them to feel at home(food, shelter, water, space). They form a **community**, since they all help one another to get energy from the sun. Plants are special members of the community since only they can turn the energy of the sun into food. This is why scientists call them '**producers**'. They call all other life '**consumers**' since they eat plants and other living things that get their energy from plants. Consumers are given the names 1<sup>st</sup>, 2<sup>nd</sup>, or 3<sup>rd</sup> order based on how close their food is to the sun's energy. This energy is passed to each other along what scientists call a '**food**

**chain**'. Since the whole community participates, all the food chains together make a **food web**. All this happens in every different kind of habitat. The relationships which make every habitat home for the community that lives there have a scientific name, and this is an **ecosystem**.

- What are some examples of plants that we use for food? Are there any plants you can think of that we don't use for food? Are they still useful? Do you have a favourite plant?
- What would happen if we didn't have enough plants to get energy from the sun, and pass it around?

### Activity:

1. Divide the class into small groups of 4 or 5. Each group will begin with a piece of bristol board on which to build a collage. Each group will pick their assignment out of a jar. This will include pictures of the habitat in a specified time of year, and a description of the ecosystem. Explain these are pictures taken from the new planet, for us to work from.
2. Label the two smaller jars 'habitat' and 'community' with the masking tape. Include a definition of each term on the label. For example, 'habitat: a division of the natural landscape usually defined by its plant communities', or 'the arrangement of food, water, shelter and space suitable to animals' needs'. For community, you could use 'plants and animals who live in a common habitat and are dependent on one another for energy'. Alternatively, discuss the meaning of habitat and community with the class, and have each student come up with their own definition, to paste on the appropriate jar. Inside the habitat jar, place four slips of paper labeled rock, weather, water, and soil. Have each group member pick a habitat role, doubling as necessary for groups of five. In the community jar, make two large and two small slips on paper. Label the large slips producer and the small slips 1<sup>st</sup>, 2<sup>nd</sup>, or 3<sup>rd</sup> order consumer. Have the bigger students take the large slips, smaller students take the small slips.
3. Each group will begin the collage with the construction paper and nature magazines, focusing on their habitat role.
4. Give students pictures of plants or animals suitable for their ecosystems. Have them make a list of the characteristics of each, focusing on those that help them get sufficient food, water, shelter and space. (Have each student invent and name a new plant or animal from these characteristics, to live in the new planet's ecosystem. Include a drawing of this new life form, or use it as a second name for the given picture.) Place the plants and animals in the habitat, where they can find food, water, shelter and space when they need it.
5. Push a yellow thumbtack into each element of the ecosystem the sun's energy passes through. (ie. Producer-1<sup>st</sup> order-2<sup>nd</sup> order-3<sup>rd</sup> order consumer-soil. Push a blue thumbtack into each element of the ecosystem water passes through. Use white thumbtacks to track oxygen, and black thumbtacks to track carbon dioxide in the ecosystem.
6. Give each group the opportunity to present their ecosystem. Have them each identify the members of their ecosystem by tracking through the food chains, and explain why the plants and animals are adapted to the habitat. Each group should have a list of characteristics of the ecosystem, structural adaptations of the members of the community to the habitat, and one or two food chains from the food web illustrated.

### Follow-up/Discussion:

This planet you have been researching is actually earth! You are now on your way to being members of the very communities you have visited and represented.

- How are you dependent on plants and animals now? How do we fit into the food web?
- How do we sometimes choose not to be members of the communities we have been looking at?
- How can we become better members of the communities we have around us, and how do we preserve their habitats?

### Extensions:

- Have each group add humans to their collage, in a place suitable to make them comfortable, at the same time keeping the rest of the community in their proper places.
- Pyramid of Life: Draw a triangle on the board. Explain that all the life represented in the ecosystems fits into the triangle. If the sun's energy was at the bottom, supporting everything,

what would the next level be? Have the students make suggestions until the triangle is filled through a food chain, with humans at the top. Have the plants (the bigger students) come forward to form the base, followed by the consumers. Challenge them to keep balanced, and think about how this is done. What does it mean for the importance of plants, and how much of them is needed.

- Repeat with succeeding classes to cover more ecosystems in different seasons, to create a diverse representation of the planet with all collages combined. Display the collages to join ecosystems and see how their communities might interact with each other using the yellow, blue and white yarn.
- Create a habitat in the classroom, or outside. Improve habitat in the local community



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