Lesson Plan: Rivers, Ponds, and Lakes, Oh My!

By: Kandie White and Janis Spracher

Target Grade: Kindergarten

Teacher Prep Time: 30 minutes

Lesson Time: 2 hours and 10 minutes (we recommend doing this lesson over 3 days)

- Part 1:
  - 15 minutes - Water Sources
  - 20 minutes - Creeks, Rivers, and Lakes
  - 15 minutes - Questions
- Part 2:
  - 20 minutes – Over and Under the Pond
  - 20 minutes – Patterns in Freshwater Habitats
- Part 3:
  - 10 minutes – Habitat, Habitat
  - 15 minutes – Freshwater Habitat Sketch
  - 15 minutes - Questions

Lesson Overview:

After looking at a map, photos, and a picture book about freshwater habitats, students will identify and discuss the needs of local freshwater plants and animals. They will also use music, hand signals, and sketching to further explore connections within the habitats and express the patterns of needs they discover.

Learning Objectives:

- Students will be able to identify different plants and animals that are found in and around freshwater habitats and recognize patterns in what these organisms need to survive.
- Students will be able to rephrase their comments into scientific questions and identify the process (observe, measure, research) they would need to use to collect the answer to their question.

NGSS:

K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.

- **Science and Engineering Practice**
  - #1 Asking Questions and Defining Problems
    - Asking questions and defining problems in K-2 builds on prior experiences and progresses to simple descriptive questions that can be tested.
      - Ask and/or identify questions that can be answered by an investigation.
- **Disciplinary Core Idea**
  - K-LS1.C Organization for Matter and Energy Flow in Organisms

        - All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.

- **Cross Cutting Concept**
    - #1 Patterns
        - In grade K-2, children recognize that patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.

Where This Lesson Fits in:

This lesson is part of a larger unit on habitats. It focuses on only freshwater habitats. After this lesson, you would need to cover other habitats such as oceans, desert, mountains, etc. This lesson can be used with the EEI Unit, *The World Around Me* as either an extension or a replacement for section 2. Additionally, these lessons could be a great precursor to a life cycle investigation of a plant or animal.

Materials Needed:

- Map (that includes the local freshwater habitats)
- Local freshwater habitat pictures (unique one per student)
- Sentence strips (15, have 9 made up with questions already, see question section Day 1)
- Symbol cards for observe, measure, and research (slides)
- Colored markers, crayons or colored pencils (one set per student)
- Pencils
- Tape
- Over and Under the Pond by Kate Messner YouTube Link (https://www.youtube.com/watch?v=490uChIgbnk&disable_polymer=true)
- Plant/animal photos from Over the Under the Pond and other local animal (slides)
- Symbol cards for air, water, shelter, food, light. (slides)
- Song, The Habitat Song (https://www.youtube.com/watch?v=VVPyjukPxFA)
- Optional Videos - Lake Cachuma (https://www.youtube.com/watch?v=1XPzFs5F1VI), Pond Life (https://www.youtube.com/watch?v=uHdZb0LJZNQ)
- Handouts – Freshwater Habitat
- The Needs of Animals Song (optional) YouTube Link
- What Do Plants Need to Live Video (optional) YouTube Link

Teacher Prep:

- Print out local freshwater habitat pictures and plant/animal photos
- Make copies of freshwater habitat handout
- Prep videos or other visuals.

Lesson Sequence:

*For this activity we recommend that students mainly work by themselves, though it is indicated in the lesson plan when they should pair up.

Part 1: *(Use the example google slides to streamline your in-person instruction and/or as a remote learning adaptation.)*

15 minutes	**Water Sources** ● Have students tell you where they could see water. ○ Examples: the faucet, pools, lakes, creeks, rivers, ponds, oceans, etc. ● Put up a map of the area. Tell students that we are going to focus on natural water sources in our area. If students have not mentioned them already, bring up Lake Cachuma, Santa Ynez River, and creeks in the area of your school (e.g: Mission Creek) Show where these are on the map (and you can also use Google Earth to show this). ● Have students share their experiences with these bodies of water. 
20 minutes	**Creeks, Rivers, and Lakes** ● Give students a unique picture of a local creek, river, or lake. Have students partner up. Have them talk about if they think their picture is of a creek, river, or lake. Have them tell their partner one thing that they see and one thing that they wonder. ● Have them rotate partners three times and repeat the process. ● Have students come to the front of the room and tape their picture under either a creek, river, or lake heading on the whiteboard or chart paper. ● Discuss what makes something a creek, river, or a lake. ● Have students share patterns they saw between their pictures and things that they wondered.
20 minutes	**Questions** ● Show students the symbol cards for observe, measure, and research, and teach them the hand signals: observe (pretend to use binoculars), measure (pretend to use a measuring tape), and research (pretend to open a book). ● Have students try to take what they were wondering about and turn it into a question with support from you and other classmates. If they can come up with questions, write them on a sentence strip. ● Have them use their hand symbol to show how you would collect data for the questions.

	● If students cannot generate questions, use some of the premade questions below. ○ Research: ▪ How much water can Lake Cachuma hold? ▪ How long is the Santa Ynez River? ▪ What was the water level in Lake Cachuma in 2015 (or the year I was born)? ▪ How old is Lake Cachuma? ○ Observe ▪ What type of animals live at (local creek)? ▪ How many eagles can you see at Lake Cachuma in a day? ▪ Does Lake Los Carneros have fish? ▪ Is the water moving in one direction? ▪ Are there animals living around the water? ▪ Can you hear animals by the lake? ○ Measure ▪ How much does a fish in the Santa Ynez River weigh? ▪ What temperature is the water in Lake Cachuma? ▪ How fast can you walk around Lake Los Carneros? ▪ How tall is a piece of grass growing beside the lake? ● As you wrap up part 1, set the stage for part 2, by encouraging the students to begin to think about some of the creatures that live in our local freshwater habitats.
Part 2: *(Continue to use the example google slides to streamline your in-person instruction and/or as a remote learning adaptation.)*	
20 minutes	**Over and Under the Pond** ● Read the book Over and Under the Pond. On each page stop and have students identify plants/animals on the page. Show students the photo of that plant/animal and put the cards in a stack. ● Have students identify local plants/animals that they have seen in freshwater habitats. Show students the picture of the plant/animal and add it to the stack ● Pass out the cards to the students making sure that each student has at least one card.
20 minutes	**Patterns in Freshwater Habitats** ● Have one student stand up and share their card with the rest of the class. Ask the other students what does this plant/animal need to survive? Make sure that they talk about shelter, food, light, and air if needed. As you identify other things that the organism needs, have those students stand up. When needed, hand out additional cards such as water, light, and air. ○ Example: Student with the Great Blue Heron stands up. The student suggests they need food, and the food that they eat is small fish. Have the students with small fish stand up. Students suggest that they need shelter and that their shelter is a nest. Ask students what nests are made from? They might say tree branches. Have the student with a tree stand up. Students might suggest they also need

<table>
<tr><td></td><td>to drink water. Since no student would have a water card, hand a water card to a student and have them stand.
<table>
<tr><th>Card that is standing</th><th>Others that stand</th></tr>
<tr><td>Great blue heron</td><td>Fish, trees, water, air</td></tr>
<tr><td>Water Lily</td><td>Water, light, air</td></tr>
<tr><td>Moose</td><td>All plants, water, air</td></tr>
</table>

Repeat this process 4 times.
Ask students what patterns did you notice about what plants and animals need? They should generate for plants: light, water, and air and for animals: food, water, shelter, and air.
Show students the symbol cards for food, water, shelter, air, and light and teach them the hand signals for food (pretend you are eating a sandwich), water (make waves with your hand), shelter (make a triangle with your hands over your head), air (blow out and move your fingers), and light (make a circle with your hands).
Have one student stand up. Tell the other student to look at their cards and if they think the organism held by the standing student needs their card, raise their hand.
Call on one student, have them show their card, tell students on the count of three to show the hand signal for why the organism needs the card.
Repeat this process four times.
As you wrap up part 2, quickly review the hand signals for food, water, shelter, air, and light, so that students will be ready to use them again in part 3.
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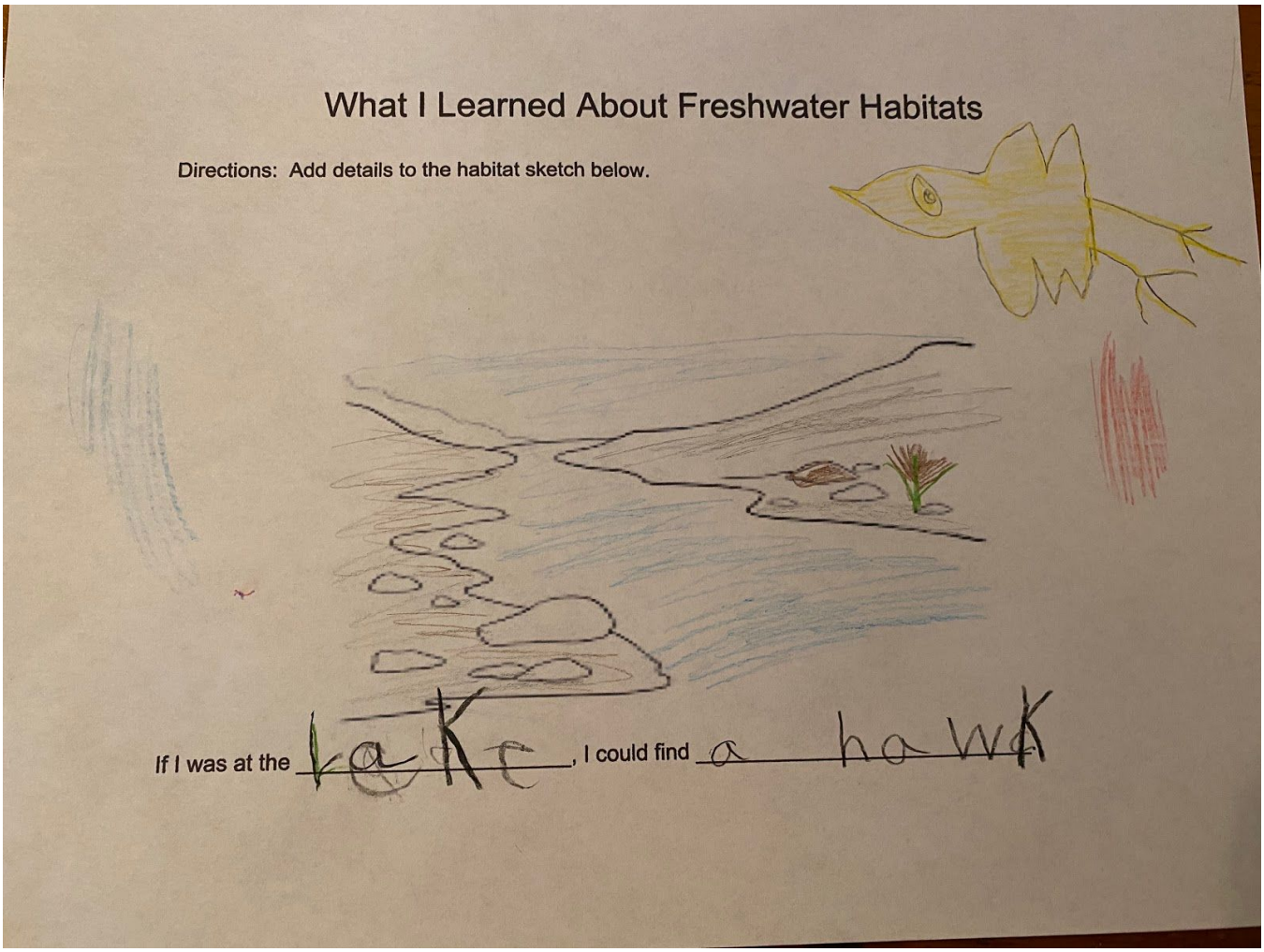
<tr><td colspan="2">Part 3: (Continue to use the example google slides to streamline your in-person instruction and/or as a remote learning adaptation.)</td></tr>
<tr><td>10 minutes</td><td>Habitat, Habitat
Play students the song “Habitat, Habitat” and sing it together.
Have students use the hand signals when they come up in the song.</td></tr>
<tr><td>15 minutes</td><td>Freshwater Habitat Sketch
Give each student a freshwater habitat handout.
Have students draw their organism (from part 2) where it would be in the habitat.
If they had more than one organism, they may pick which one to draw.
Have students draw in at least one thing that their organism needs.
Have students draw in at least one thing that needs their organism.
Go around and have students tell you if they are drawing a creek, lake, or river habitat and what they could find out if they were there. Fill this into the sentence frame: If I was at the _____ I could find out _____.</td></tr>
<tr><td>15 minutes</td><td>Questions
Have students share their picture and what they could find out if they were there.
Example: If I was at the creek I could find out if frogs live in the water.</td></tr>
</table>

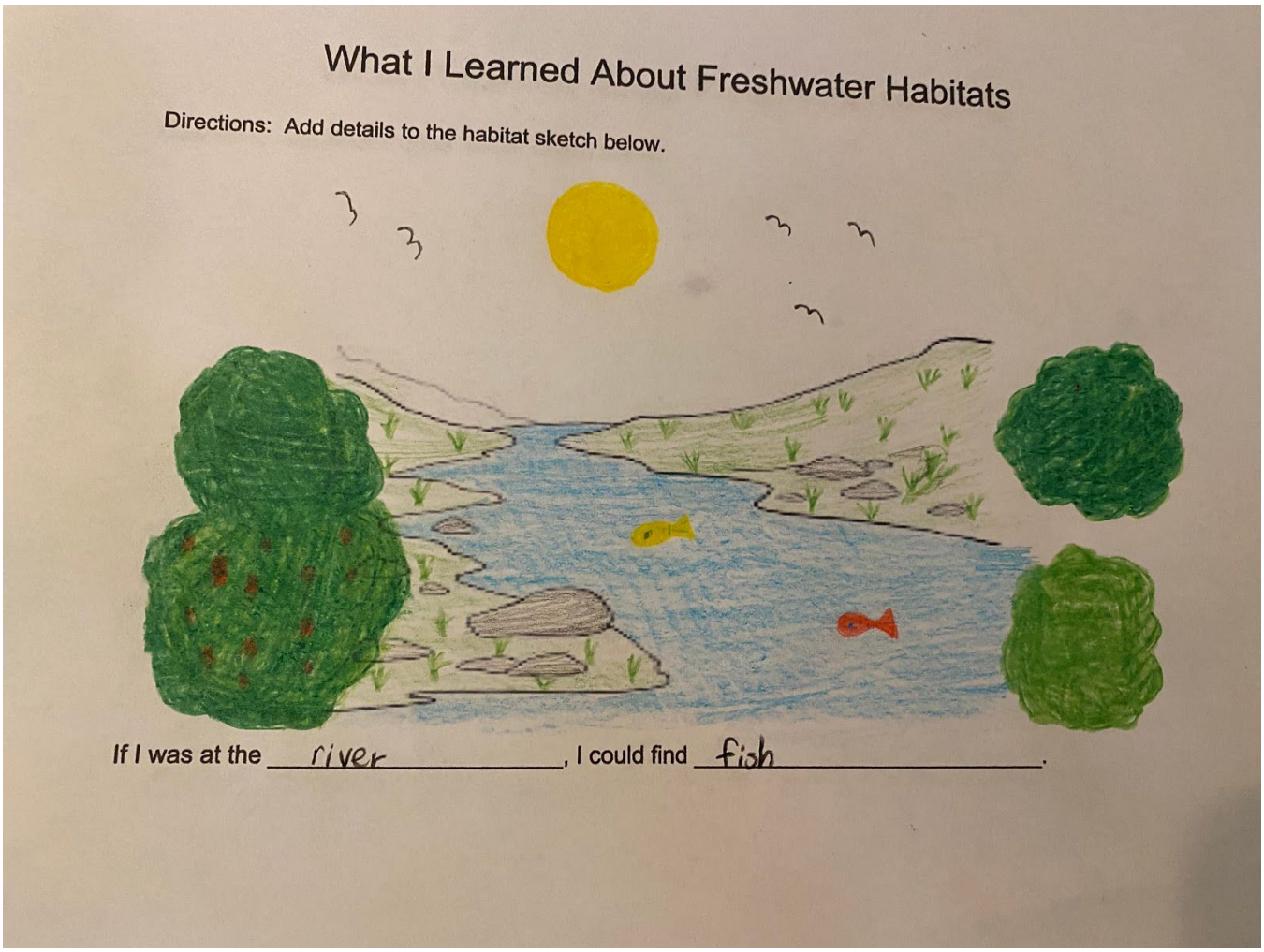
	● Have the class take the statement and determine the question the person would be investigating. ○ Example: Do frogs live in the water? ● Then have students use their hand signals to show if they would observe, measure, or research something to find the answer to the question.

Examples of Student Work:

If I was at the _____, I could find _____



What do hawks eat? (Observation or Research)



How long is one of the fish in the river? (Measurement)