Program Title: Animals in the Water  
Duration: 30 minutes  
Audience: Frank Wagner kindergarteners  

Theme(s):  
Dragonflies have adaptations to survive in their habitat and we can all help keep that habitat clean.  

Goal(s): Review what aquatic macroinvertebrates are, review habitats and food chains and learn a bit more about macroinvertebrate adaptations, and what we can do as people to help keep their water clean.  

Objective(s):  
Students Will Be Able To (SWBAT): 
Identify the river as a habitat for animals including macroinvertebrates.  
Students recall the four components of a habitat (food, water, shelter, space) and share where a dragonfly lives.  
Recognize dragonfly adaptations and explain how it is adapted to live and survive in the river.  
Reading the “Are you a Dragonfly?” book, the teacher will pause, asking about the special “mask”, mouth, and behavior of a dragonfly. Those are adaptations that help it to survive. Students will pinpoint adaptations of dragonflies and other animals in the story.  
Discuss where dragonflies fit on the food chain in the river/pond habitat.  
Students engage in a discussion about what a dragonfly eats and what might eat a dragonfly, both when it is young and when it is an adult.  

Introduction: Remind students about their visit to Oxbow where they learned about the animals that live in the river, how they are connected in their habitats, and how together we can help them by keeping the water clean. Share with students that the Oxbow Farmers sent a book to learn more about a special aquatic macroinvertebrate: the dragonfly!  

Before watching the YouTube book:  
Review what is an aquatic macroinvertebrate: "Aquatic" means water, "macro" means big (or big enough for us to see without using a microscope) and "invertebrate" means without a backbone, so an aquatic macroinvertebrate is a water bug that we can see with our naked eye. Some aquatic macroinvertebrates spend their entire lives living in water, although many just  

Materials:  
“Are you a Dragonfly?” by Judy Allen and Tudor Humphries  
https://youtu.be/xnULzIWTtA  
Power Point- How does the water flow?  
Adult and Baby Macroinvertebrates page  
Blue construction paper river added to your classroom CommuniTree  
Coloring pages (colors and scissors)
Post-Lesson Activity: Animals in the Water

live in the water when they are young, eventually metamorphosing, or changing, into flying adults!

Start the book “Are you a Dragonfly?” by Judy Allen and Tudor Humphries:

Pause @ 30 seconds in, the mother dragonfly is laying her eggs in her dragonfly habitat. Review Habitat: Food, Water, Shelter, and Space. Where does a baby dragonfly live? In a river or stream habitat! Let’s pay attention to what the baby dragonfly eats!

Pause @ 1 minute, there are a lot of features or characteristics that help this baby dragonfly survive. Does anyone remember what those features are called? We learned about adaptations when we talked about a squirrel and its bushy tail, claws, teeth, and the behavior (hiding/saving food) that helps it survive. What are some special adaptations of a dragonfly that help it survive? (A “grabber”/mask that is used to grab prey to eat; skin that sheds as the dragonfly grows, etc.) Are you like a dragonfly? Do you have these adaptations?

Pause @ 1:20min, a dragonfly is a hunter/predator, but also it may get eaten by other animals too! Remember, animals are connected to each other in the Food Chain, meaning they eat and get eaten. Energy travels from plants to animals to other animals in this way. Where does all that energy start from? Who is trying to eat a baby dragonfly? (Optional: discuss the adaptations of ducks and water beetles that make them especially adept at hunting/eating dragonflies).

Pause @ 3min, the dragonfly now has a new habitat: where does it live now? Now the adult dragonfly has some different adaptations. Can you name them? (Wings for flying, big eyes, breathing air, legs for catching food.) The adult dragonfly is eating different foods now that it’s in the air! What does it eat? Mosquitos, flies, midges (small flies), wasps, butterflies. What might eat a dragonfly?

End @ 3:55! Brief discussion about how we are people, not dragonflies, but dragonflies and people all need clean water to survive.

Let’s learn a bit more about what we can do to keep the water clean!

Using the “How does the water flow?” Power Point: Pause at each slide, asking students to share their ideas for keeping the water clean. If students are excited to just have a conversation about their ideas, or if you’re limited on time, just show slides 1,2, and 8.

www.oxbow.org
**Activity:**

1. Make a construction paper river for the base of your Oxbow CommuniTree, similar to this picture:

   Have students pick an aquatic macroinvertebrate to color. They can find out what kind of bug it is by looking at the “Macro and their adult forms matching sheet.”

2. Cut out the macroinvertebrates, look at their special adaptations.

3. Students can add their colored and cut-out macroinvertebrate to the river on the classroom CommuniTree.

**Checking for understanding questions:**

What is it called when animals have special features or behaviors that help them to survive in their habitat? What kinds of adaptations do water bugs have?

Where does a baby dragonfly live? Where does an adult dragonfly live?

What is a habitat? Food, Water, Shelter, Space. This is where a plant or animal lives in nature.

Is it only fish and bugs that need clean water? No! People do too! All life on this planet needs water.

Looking at your own macroinvertebrate that you cut out, what special adaptations might it have? What do you think it eats? Is it a hunter or plant-eater?

What can you do to keep the water clean?

**Conclusion:**

Have students color a macroinvertebrate for the classroom CommuniTree, and place it in its river habitat on the CommuniTree. Discuss what ways we can keep this water clean for animals like dragonflies. Ask students to recall what they learned about dragonflies or other macroinvertebrates. Was there anything surprising that you learned today?

Remind students that the next time they go to Oxbow, they’ll be learning about springtime on a farm and the things that plants need to survive!
Resources:
https://extension.usu.edu/waterquality/learnaboutriverwater/propertiesofwater/aquaticmacros

**NGSS Connections:**

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<tr>
<th>Dimensions from Framework</th>
<th>What students are doing</th>
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<td><strong>Science and Engineering Practices (SEP)</strong>&lt;br&gt;Obtaining, Evaluating and Communicating Information</td>
<td>Through the story and slideshow, students have a chance to review topics introduced on their fieldtrip, engage with new information, and share their ideas and observations.</td>
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<td><strong>Disciplinary Core Ideas (DCI)</strong>&lt;br&gt;K-LS1: Structures and Process: Use observations to describe patterns of what plants and animals (including humans) need to survive.&lt;br&gt;K-LS2: Ecosystems: Interactions, energy, and dynamics</td>
<td>Students make and share observations about what is included in an aquatic habitat and how macroinvertebrates have special adaptations to help them survive there.&lt;br&gt;Students review the concept of food chains in which animals eat each other (or plants) to get energy to survive.</td>
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<td><strong>Crosscutting Concepts (CC)</strong>&lt;br&gt;Structure and function</td>
<td>Students share their observations about the adaptations of aquatic animals and how some body parts may change as a macroinvertebrate matures, to help it survive in a different habitat.</td>
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