

Bug Biomimicry Pre-Program Activity



Time: 40 - 60 Minutes

Number of Students: Up to 30

Materials:

- Computer/projector setup
- Links to the videos
- Observation Sheets
- Pencils and colored pencils

Advance Preparation:

- Review the videos and select one, or a few, that are most appropriate for your class.
- Review the article “7 Cool Facts About Water Striders” from the Nature Conservancy Blog for some background information on water striders: bit.ly/WaterStriderArticle

Overview:

- Watching Water Strider Videos
- Thinking Routine: See, Think, Wonder
- Documenting Their Observations

Learning Objectives:

Students will ...

- observe water striders and document what they notice.
- practice their critical thinking skills by generating questions about the water striders for further investigation during the Bugs on the Move program.

Lesson Steps: Watching Water Strider Videos: 10 - 15 minutes

- As a class, watch a few of the videos offered in this guide. Each video is a little different from the others in the amount and style of narration. Before sitting down with your class take a look at the videos and choose the ones that you think would be the best fit. We recommend “WaterStrider1” from PBS and “WaterStrider2” from the MPG Ranch as a good starting point for most classes. All videos, regardless of their approach, feature footage of water striders in the wild.



Bug Biomimicry

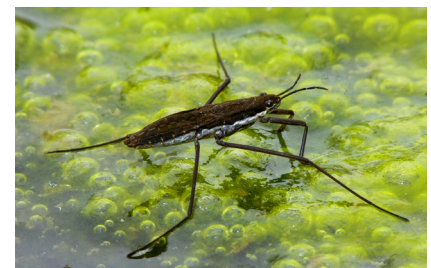
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Video	Description
http://bit.ly/WaterStrider1	A 3.5 minute long video from the PBS digital shorts series "Deep Look." This is a great overview of how water striders move and stay on top of the water.
http://bit.ly/WaterStrider2	A short video of water striders in action with no narration. This video is a few years old but was filmed at the MPG Ranch nearby.
http://bit.ly/WaterStrider3	This video from the BBC features slow motion footage of the striders. Its narration might be at too high of a vocab level for some classes.
http://bit.ly/WaterStrider4	This video is designed for younger students and features an on-screen narrator exploring a stream.
http://bit.ly/WaterStrider5	A simple video well suited for observing water striders in action. No real narration, good for observing their movements
http://bit.ly/WaterStrider6	A simple video well suited for observing water striders in action. No real narration, good for observing their movements

Lesson Steps: Thinking Routine: See, Think, Wonder: 10 - 15 minutes

- Let students know that as a group you'll be using an approach called "See, Think, Wonder" to understand the videos better. Encourage them to share their observations using these words as the stem of their sentences: "I see/saw...", "I think...", "I wonder..." If students have had experiences seeing or playing with water striders at home or in the park encourage them to share those observations with the class as well.
- Start the discussion about what they saw in the videos. Start broadly with a simple, "What did you see?" and move into guided questions if/when they get stuck: "What did they see the strider doing?", "What did they see happening to the water?", "How did they see them move?" At this stage attempt to keep them in the realm of what they actually saw on the video. If they make assertions about what they saw, ask them what their evidence is for that statement, or, "What makes you say that?" and "How do we know that, based on what we saw?"



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Consider writing down some of the words they use to describe the water striders up on the board. They can use this list later as they document their observations.

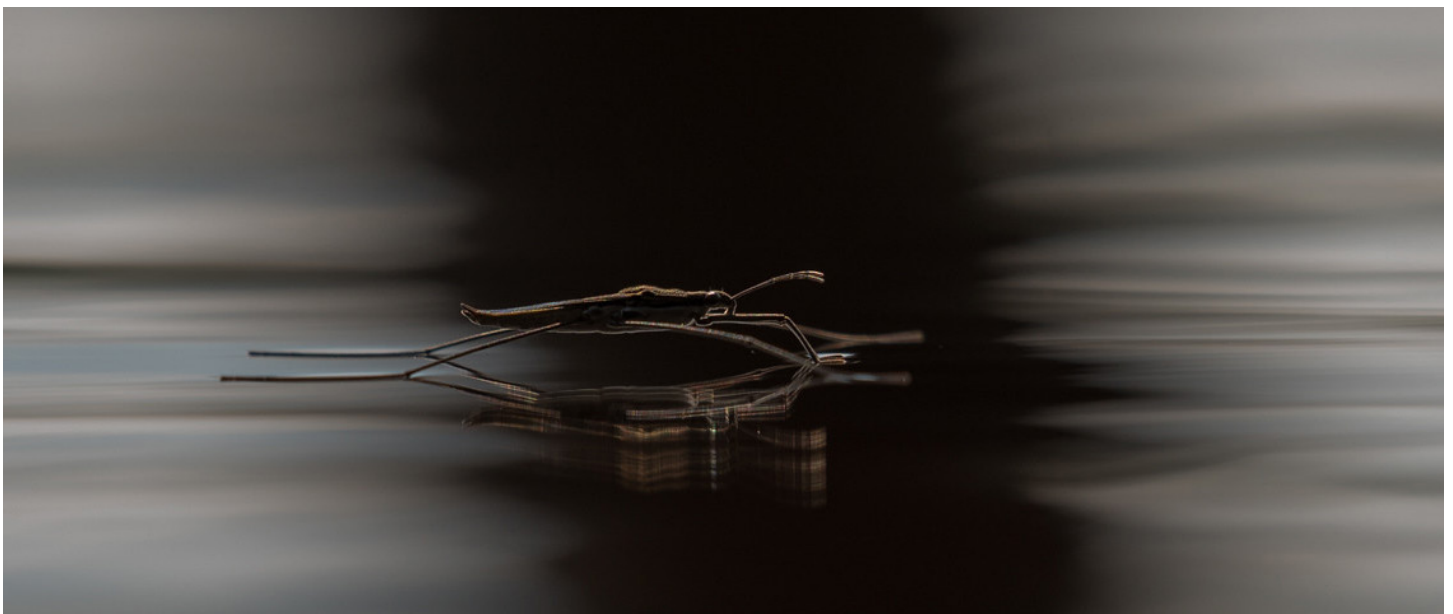
- After sharing their observations it's time to see what they think about the striders and what their observations mean. Ask students to share what they think their observations mean. For example, "I think water striders are good, sneaky predators." Encourage students to add evidence for their statements: "I think water striders are good, sneaky predators because each time there was prey in the water the striders were able to catch it and eat it. They never missed!"

Lesson Steps: Thinking Routine: See, Think, Wonder: Continued

- Wrap up the discussion by asking them about what they're still curious about. What are they wondering? Encourage students to share what still puzzles them, what they still want to know about the water striders. "I wonder if they ever have to fight with their prey or if they just wait for them to struggle in the water."

Lesson Steps: Documenting Their Observations: 10 minutes

- After the discussion wraps up have students draw and describe the water striders they saw in the video on the provided Observation Sheets. Students can use the words on the board from earlier in the discussion to write their description the water striders.
- Putting the video back up on the screen for students to reference can be helpful.
- Students will reference and use these Observation Sheets during the upcoming Bugs on the Move program. Collect these sheets for later use.



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Extensions: Scientific Method

The “See, Think, Wonder” Thinking Routine is very similar to the beginnings of the scientific method. Professional scientists observe something out there in the world (or in the lab), discuss what they think that might mean, test to see if their “thinking,” their hypothesis, was correct and wonder about what else they could learn.

The students’ observations (“See”), thoughts (“Think”) and curiosities (“Wonder”) about the water striders are a great place to jump off from if you’re wanting to cover the scientific method or scientific approach to problem solving. Consider asking students how they could find out the answers to their questions and potentially how they would design an experiment to test out the things they are still wondering.

Extensions: Math

Many students in Montana will have had experiences seeing water striders in the wild. Consider taking a poll of how many have and have not seen water striders before watching the videos. This is a great, simple, data set to create a graph from. You could broaden the data set by asking other teachers or students around the school. Looking at the data collected is a great opportunity to create hypotheses about what the data might mean: What does having a lot/a little number of people who’ve seen water striders say about the places we live?, Our personal habits?, Where we like to play and explore?



Water Strider Observations



Your Name: _____

What did you notice about the water striders? _____

Draw a picture of the water striders: