

**Activity 2.3 Clean Sweep: Insecta Trifecta**

**Introduction**

***Scientific Inquiry: Guiding Question – How do the whirligig beetle’s adaptations guide its specific feeding behaviors?***

**Lesson Objectives:**

At the end of this lesson, you will be able to:

1. Model, illustrate, and annotate the biological processes of the whirligig beetle.

**Equipment**

* Internet access
* Modeling clay
* Graph paper

**Procedure**

Working with your Clean Sweep partner, complete the following steps to learn more about the whirligig beetle and its adaptations.

1. Watch the video: [**https://www.youtube.com/watch?v=RIbzOeNcaxE**](https://www.youtube.com/watch?v=RIbzOeNcaxE) and write down your observations. Think about what you are seeing and why that behavior may be happening.
2. Research the anatomical structure of the whirligig beetle. Specific features to focus on include: eyes, body shape, and appendages. Draw out your design of a whirligig beetle on graph paper.
3. Create a model of a whirligig beetle out of modeling clay and crafting materials. This model should be located in the same area of a body of water that a live whirligig beetle would reside.
4. Research the Optimal Foraging Theory and draw out on graph paper using dashed lines the movements that a beetle would make. Shade areas of the graph paper with areas of no food, minimal food, and plentiful food. Then include a legend or key to identify food availability. Think about what other organisms might also use Optimal Foraging Theory.

**Conclusion**

1. Observe the different groups’ designs of the whirligig beetle. What are some of the similarities and differences between designs?
2. Explain optimal foraging theory and produce examples of species other than the whirligig beetle that best describe the theory.