

AQUATIC ECOSYSTEM

TOOL KIT

2

AQUATIC INVERTEBRATES



GUIDING QUESTIONS

- *What types of aquatic invertebrates are found in this ecosystem?*
- *What factors affect the types and numbers of aquatic invertebrates?*
- *What can aquatic invertebrates tell us about the health of aquatic ecosystems?*

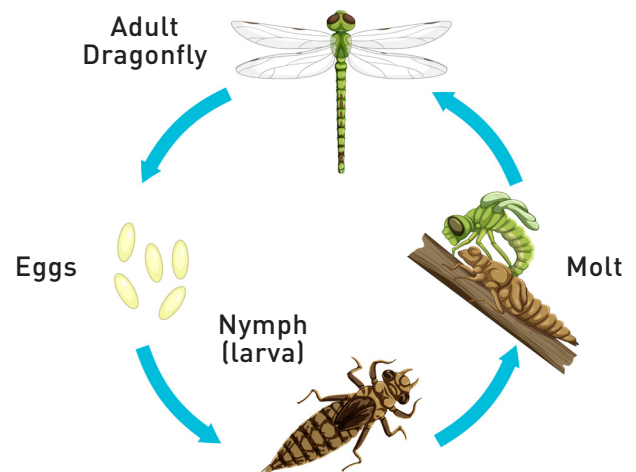
INTRODUCTION

Aquatic ecosystems provide habitat for many different species of animals, and although we might not always see them, these ecosystems are home to huge numbers of **aquatic invertebrates**! These are animals that live in water and do not have a backbone. Some of these invertebrates live their whole life cycle in the water and others only live part of their life cycle in the water. The type and number of aquatic invertebrates we find can tell us about the health of the aquatic ecosystem. Let's take a closer look at the aquatic invertebrates!

MATERIALS FROM KIT

- **Aquatic Invertebrate Identification Guide**
- **Observation Tub**
- **Dip Net**
- **Two Way Viewer**
- **Invertebrate Pollution Indicator Species Card**

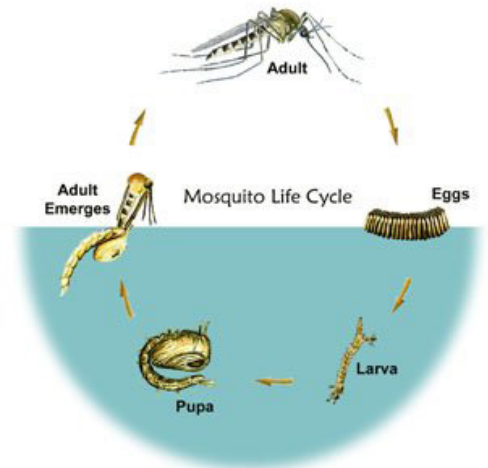
Lifecycle of a Dragonfly



https://www.freepik.com/free-vector/life-cycle-dragon-fly-white-background_13635229.html

INSTRUCTIONS

1. Fill the **Observation Tub** with pond water.
 - Don't worry if you get some debris, but try to make sure the water isn't too muddy.
2. Use the **Dip Net** to gather invertebrates.
 - Aquatic invertebrates like to hide. Try swishing your net through plants, flipping over rocks, skimming the bottom.
3. Place everything you have caught in the **Observation Tub**.
 - It can be helpful to turn the dip net upside down and pour a little bit of water over the net to rinse creatures into the observation tub.
4. Use the top of the **Two Way Viewer** to scoop up and isolate invertebrates.
5. Pour water and invertebrates into the small tray of the two way viewer and place the top back on. Look through both sides to get an up-close view of the invertebrate.
6. Use the **Aquatic Invertebrate Identification Guide** to determine which species you have.
7. Use the **Invertebrate Pollution Indicator Species Card** to evaluate the health of the aquatic ecosystem.
8. When you are finished return everything back into the water.



<https://www.epa.gov/sites/default/files/styles/small/public/2013-06/lifecycle.jpg>

GRADE 4-6 EXPLORATION

- How do the invertebrates behave and interact with each other in the observation tub?
- Did you find larvae, pupae, or nymphs? Consider how these invertebrates will change as they mature.
- What did the number and types of aquatic invertebrates tell you about the health of the ecosystem?

GRADE 7+ EXPLORATION

- Consider the relationships between different aquatic invertebrates and other wetland animals. Can you think of examples of symbiosis in this aquatic ecosystem?
 - **Mutualism** = both species benefit
 - **Commensalism** = 1 species benefits, the other is unaffected
 - **Parasitism** = one species benefits, the other is harmed
- Why do you think certain species thrive at this site and others do not?