

## Create Your Own Creek Critter

In this activity, you will learn about the traits and adaptations that benthic macroinvertebrates have to survive in their habitats!

### Key Vocabulary:

**Benthic Macroinvertebrate:** Small animals that live in water, are big enough to see with the naked eye, and have no backbone. These will also be called critters in this activity!

**Adaptation:** a special skill or body part which helps an animal to survive and do everything it needs to do, like eat, move, and protect itself from predators.

**Habitat:** an animal's home

**Aquatic:** living or growing in water

**Pollution:** something that is dirty, unclean, and bad that enters the natural environment, like trash or oil.

### Introduction:

*Benthic macroinvertebrates* are small animals that live in water, are big enough to see with the naked eye, and have no backbone. These animals include many types of insects as well as other animals such as worms, mussels, and crayfish.

Most *aquatic* macroinvertebrates make their homes in rocks, leaves, and the sediment of streambeds and have *adaptations* to help them live there. But, some macroinvertebrates live in fast-moving water. They may have adaptations that help them hold on to rocky or hard surfaces such as hooked feet or suction cups; or flat, streamlined bodies that can handle fast moving water. And some macroinvertebrates live deep in the mud! All of the macroinvertebrates “breathe” by getting oxygen from the water. The macroinvertebrates that live in the mud have adaptations, like air tubes or air bubbles, to get their oxygen.

These creek critters are important in the food chain. . They provide food for fish and other aquatic organisms. Many of them are also key indicator species, which means they can tell us about the quality of the water where they are found. For example, some critters are not able to live in water with any pollution. So, when we find these critters we know the water is clean! If we don't, there is some type of pollution in the

water! we do not find these bugs, then it could possibly be due to some sort of pollutant or other impairment to the water body.

*Adapted from Utah State University*

Instructions for Creating your own Critter:

1. Today we are going to build our own Creek Critter, so make sure you read all of the instructions and turn on your imagination! To begin, grab a blank piece of paper and a pencil or marker.
2. **Write** down your answer to these questions on your piece of paper and keep your answers in mind as you create your own critter:
  - a. Where does your benthic macroinvertebrate live? In the muddy bottom, in the rocks, or on a plant? Somewhere else?
  - b. How will your critter move around its habitat? Swim using its legs, crawl along the bottom with long legs, float around randomly? You can pick something else too!
  - c. What does your critter eat? Some benthic macroinvertebrates eat plants and some eat other smaller benthic macroinvertebrates.

3. First, **draw** the body of your critter! The body can be any shape that you want. My critter is going to look like this:



But your critter's body can be any shape that you want because all critters are different. Remember, we are designing a benthic macroinvertebrate who lives in the water. What body shape will make it easier for your critter to swim, or to hide, or to catch its food? Maybe its head be pointed so it can move quickly through the water?

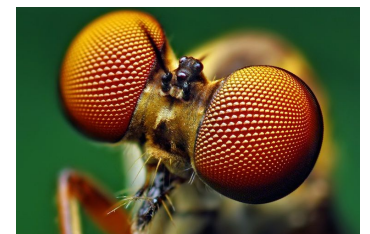
4. Next, let's **draw** the legs of your critter. There is a lot to consider when designing a critter's legs:
  - a. How many legs does it have? 6 legs, 10 legs, 100 legs? Does your critter even have legs?

- b. Where are the legs located on the body? Does your critter have 2 legs close to its head and 4 legs on its middle? Or are all of its legs close to the front or back?
    - c. Make sure to think about what will work best for your critter. Will long legs make your critter swim too slowly? Does it need legs to paddle and legs to balance?
5. While we are looking at your benthic macroinvertebrate's legs, let's get a little more specific. **Choose one of these options to draw on your critter's legs.** Don't forget to think about your critter's diet and habitat.
  - a. **Claws** - This can be used to protect the invertebrate from other invertebrates or to hang on to rocks when the water gets rough!
  - b. **Suction Cups** - This can help your benthic macroinvertebrate hold onto rocks and plants.
  - c. **Hooked feet** - This can help your invertebrate hold onto different substrates and plants.
6. Does your critter have a tail? What purpose does your tail serve for your critter? Some tails help with swimming, some help with balance, and some invertebrates don't even have a tail. **Draw your tail and then explain here why you chose that specific tail or no tail at all:**

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7. Many benthic macroinvertebrates have **compound eyes** to help them detect movement in the water. Having compound eyes is like having lots of small eyes that are able to see in different directions. This lets our critter see fast movement and look in two directions at once! The eyes help them protect themselves from predators and helps them find prey. **Draw** large compound eyes on your critter. They can look like this:

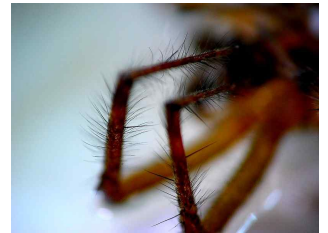


8. Benthic macroinvertebrates also have several different ways to sense or feel the things around them. **Draw both of these sensory adaptations on your benthic macroinvertebrate:**

a. **Antenna** - These are used to sense food, water, and surroundings. What type of food would your critter be sensing with its antenna? How would your antenna help your invertebrate survive?



b. **Hairs on head or body** - These little tiny hairs all over your benthic macroinvertebrates body and head will help them to sense movement and chemical changes in the water around them. Why might it be important to know about chemical changes in the water?



9. Critters also have special mouthparts that help them to eat their food.

- Will your insect need teeth to shred other benthic macroinvertebrates?
- Will your insect need flat teeth to scrape algae off of rocks?
- Draw the teeth that your invertebrate will need to eat its food.**

10. The most important adaptation for your benthic macroinvertebrate is what allows them to breathe underwater. Our critter doesn't breathe like you do and needs a special addition to be able to breath underwater. **Choose one of the following breathing options for you invertebrate and then draw it in your picture:**

- Gills** - These allow you invertebrate to breathe dissolved oxygen from the water just like a fish does!
- Air Bubble** - Some insect will hold an air bubble over their body so they are able to breathe underwater.
- Breathing Tube** - Some insects have a breathing tube that is attached to them that allows them to breathe oxygen from the surface.

11. Finally, look at all of the traits that you have drawn on your invertebrate and label each of them. Use an arrow to point at each body part and then label each body part. For extra fun, write down WHY you chose to give your invertebrate that body part!

12. Extra Credit:

- a. Write a descriptive story about your creek critter! Make sure you include all of its special features and why you added them. Tell your story to your family!
- b. Visit [Macroinvertebrates.org](http://Macroinvertebrates.org) and find a benthic macroinvertebrate that looks like the one that you have created!
- c. If you want to share your critter with us at the Cumberland River Compact - feel free to send it to [catherine.price@cumberlandrivercompact.org](mailto:catherine.price@cumberlandrivercompact.org)! Or tag us on Instagram (@crcompact) or Twitter (@The\_Compact).
- d. If you want to see more about what we do at the Cumberland River Compact, visit our website at [www.cumberlandrivercompact.org](http://www.cumberlandrivercompact.org) !