Annapolis Maritime Museum & Park
410-295-0104
www.amaritime.org

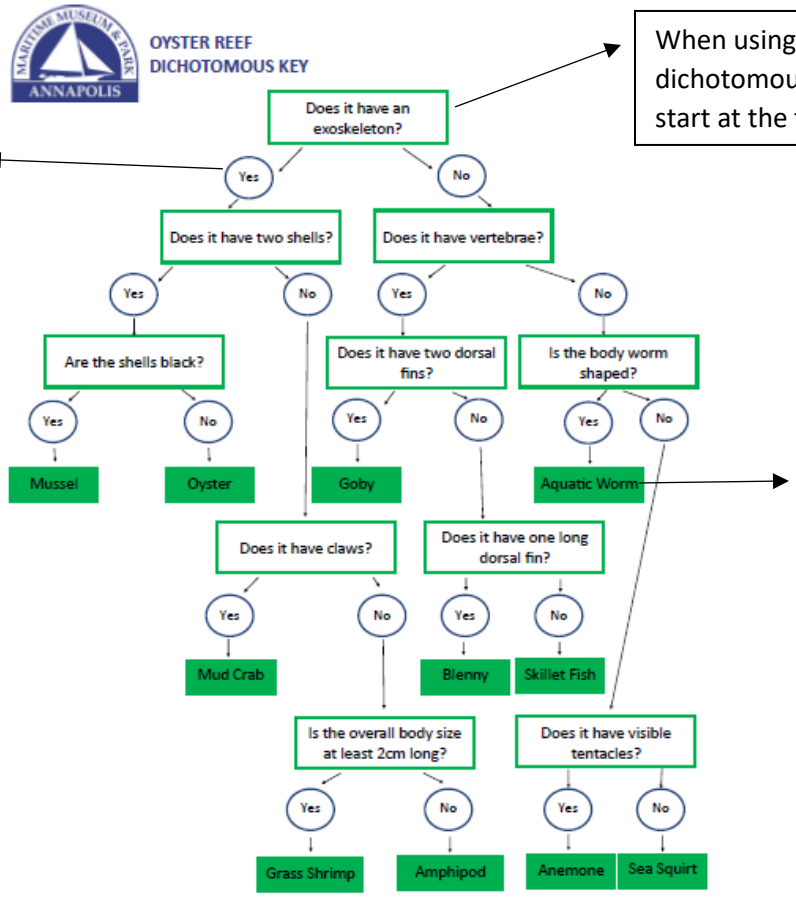
How to Use a Dichotomous Key

Dichotomous keys are tools used by scientists to identify unknown specimens, usually organisms. They can only be used to identify organisms that are within the subset that the key was designed for. For example, a key for butterflies can only identify butterflies, not moths; a key for freshwater fish cannot identify saltwater fish, etc. The key most used by the Annapolis Maritime Museum & Park is used to identify a subset of organisms that live on oyster reefs.

The prefix "di-" means two. A dichotomous key breaks down identification into two mutually exclusive options at each step. To use the key, the scientist starts at the top, or beginning, and sees which of the two options apply to their organism. Based on their answer, the key directs them to a new question. They continue in this way until reaching an endpoint, the name of an organism. While the concept of using a dichotomous key is fairly simple, the process can be confusing, as some answers are not obvious by looking at an animal alone. If the identification doesn't make sense, it often means that one of the previous questions was answered incorrectly. Let's look at an example using our key.

Follow the "yes" or "no" arrows to find your next question.

When using a dichotomous key, start at the top.



When you get to an identification, see if it makes sense. If you find that your animal is an "aquatic worm," but it looks like this:

…you might have answered a previous question wrong. Go back and check your answers.

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This is our organism. We will work through the dichotomous key to figure out what it is.

1. **Does it have an exoskeleton?**
    a. An exoskeleton is the hard, outer shell that some invertebrates have. Instead of having bones on the inside (an endoskeleton), they have a hard, outer shell to protect them.
    b. Yes, our animal does have an exoskeleton. So our next question is…
2. **Does it have two shells?**
    a. Some animals have one shell that encompasses their body, while other animals, like bivalves, have two shells connected by a hinge.
    b. Yes, our animal has two shells. Our next question is…
3. **Are the shells black?**
    a. No, our shells are more brownish-gray than black. So…
4. **We have an oyster.** Does this make sense? If it didn't, we could go back and try seeing what result we would get if we answered some of the questions differently. In this case, our answer makes sense and our animal is an Eastern Oyster.

Some Helpful Hints:

- When determining if an organism has an exoskeleton, think about if you have eaten one and if you had to remove an outer shell.
- Vertebrae is another word for a spine. Think about if your animal has bones on the inside or if they are soft and squishy.
- The dorsal fin is the top fin on a fish. Some fish have one and some have two.
- Make sure to always see if your final answer makes sense. If it doesn't, go back and see where you might have made a mistake.