

# Pop-up barnacle

## **Background information:**

Although they look more like shells, barnacles actually belong to the crustacean group, along with lobsters, crabs, crayfish, krill, and copepods. They start out their life as a swimming larva that looks and acts more like a typical crustacean, but soon they glue their head to a stationary object and begin building a permanent shell around themselves. Barnacles will attach to rocks, wood, large shells, or even the surface of very large animals such as whales!

Barnacles are commonly seen on the wooden framework of docks and piers, or on the bottom of old wooden boats. As you can see from the internal anatomy diagram, the head pretty much disappears and cannot be identified anymore. Its feet, called cirripeds, stick out the top, being used to gather food.

The barnacle is a creature of the tidal zone. This means that sometimes it is surrounded by water, when the tide is in, and sometimes it is in a dry environment, when the tide is out. The barnacle likes to be wet, so when the tide goes out, it closes up its shell very tightly, keeping enough water inside its shell to be able to survive until the tide comes in again. When the water returns, the barnacle opens up its shell and sticks out its feet to gather small bits of food particles. Then it pulls its feet back in and cleans the particles off and eats them.

Barnacles are hermaphrodites, which means they are both male and female. You will see both male and female parts if you look at the internal anatomy diagram. The barnacle has a very, very long male part that it sticks way out of the shell. The male part pokes around among neighboring barnacles, searching for any barnacle that has eggs ready. If it finds one, it squirts its sperm into that barnacle, fertilizing the eggs. The eggs then grow into free-swimming larva that leave the parent barnacle. They swim around for a few weeks, then find somewhere to stick, and start the whole cycle over again.

Photos of barnacles can easily be found by using the image search on Google.

## **You will need:**

- Copies of the pattern pages, printed onto card stock, if possible. (If you use paper, the problem will be getting the cirripeds to pop up automatically. They will be a bit limp. Thicker paper gives the cirripeds extra stiffness needed to pop up flawlessly. However, if you don't have card stock, go ahead and use paper. It will still be an interesting project.)
- Scissors
- White glue

## **Directions:**

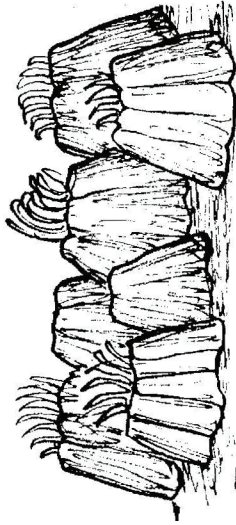
- 1) Cut out the 5 parts on the parts page.
- 2) Color any parts that you want to color on the parts page. Also, color anything you want to color on the main page, such as the internal anatomy of the barnacle. (Project does not absolutely require coloring, though. It can be left black and white if you wish.) You can use imaginative colors for the diagram of the insides because real barnacle innards don't have much color at all and therefore it can be hard to see the different parts. Diagrams often use unrealistic colors.
- 3) Fold the large page in half, along the center line, as indicated by the dotted line (exactly on line). Open it up again.
- 4) Bend the large, circular barnacle around to make a cone shape and secure by gluing the glue flap. Fold the barnacle flat, with the glue tab fold making one of the seams. (This is the position the barnacle will be in when the page is closed.) Let this seam dry for a few minutes.
- 5) Glue the circle showing the larva onto the circle on the main page.
- 6) Glue on the two flaps that cover the anatomical view of the barnacle. Make sure just the skinny glue flaps get glued down so that the flaps will open all the way to reveal the inside of the barnacle.
- 7) Bend the tab at the bottom of the cirriped piece and glue it right along center fold as indicated by the rectangle.
- 8) Fold the edges of the barnacle where indicated by the light gray lines. Then carefully slide the barnacle over the cirripeds, so that the cirripeds are sticking up through the center hole. Position the barnacle so that the fold lines of the barnacle match up with the fold line in the center of the page. Apply glue to those bottom edges and press and hold these edges for a minute to make sure they are secure.
- 9) When all parts are dry, fold the page in half very slowly and carefully, so the cirripeds slip into the barnacle and the barnacle folds in half. Once the page is satisfactorily closed, press firmly. Now when you open it, the barnacle should pop right up again and the cirripeds should pop up out of the barnacle. If this does not happen, you may need to "trouble-shoot." If assembled correctly, though, the project should not need much adjustment.



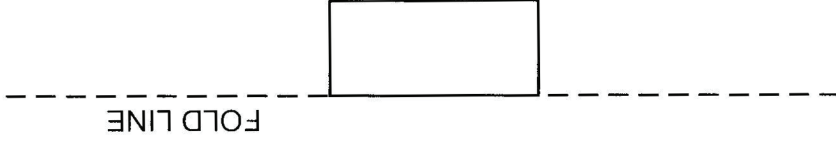
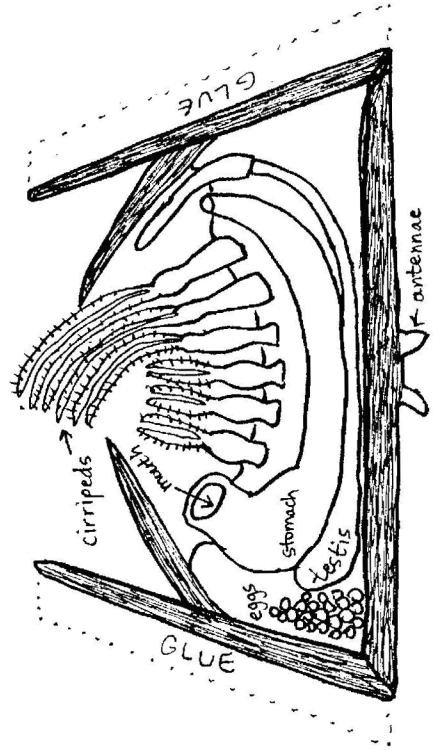
# BARNACLES

## ARE CRUSTACEANS, JUST LIKE CRABS AND LOBSTERS

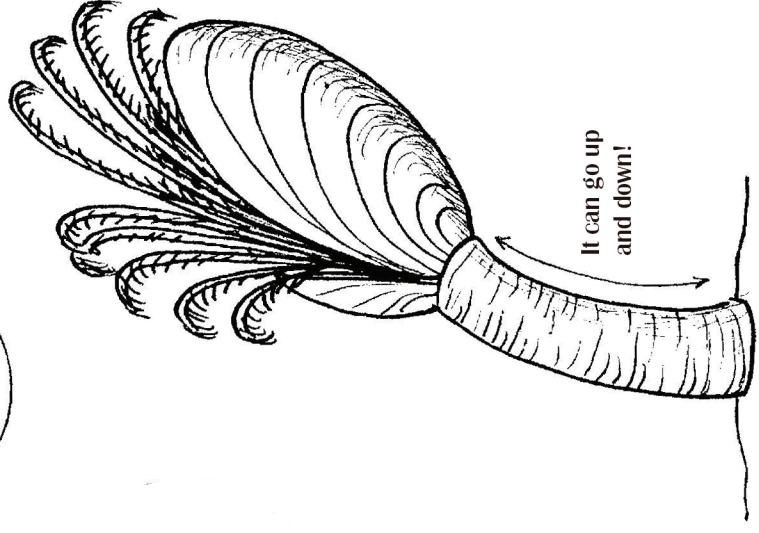
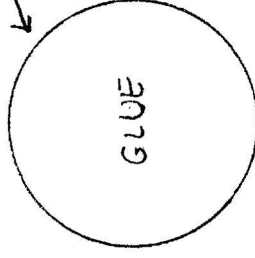
Barnacles attach themselves to rocks and ships, and also to animals such as whales, crabs and clams. They eat by sticking their feet out of their shells and straining plankton out of the water. During low tide, when there is no water, they keep their shells closed.



### INSIDE A BARNACLE:



Baby barnacles look like this. They can swim around. Then they glue their head to something and never move again!



GOOSENECK BARNACLE

Barnacles are both male AND female!  
(Animals like this are called "hermaphrodites.")

