Seashells and Their Mollusk Inhabitants

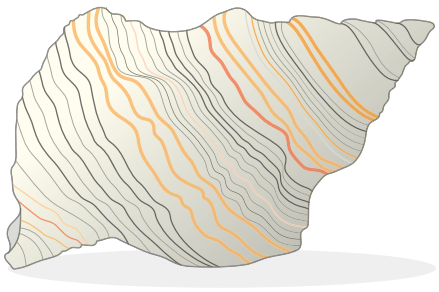
Topic

Seashells can generally be classified as the shells of either *bivalves* or *gastropods.*

Introduction

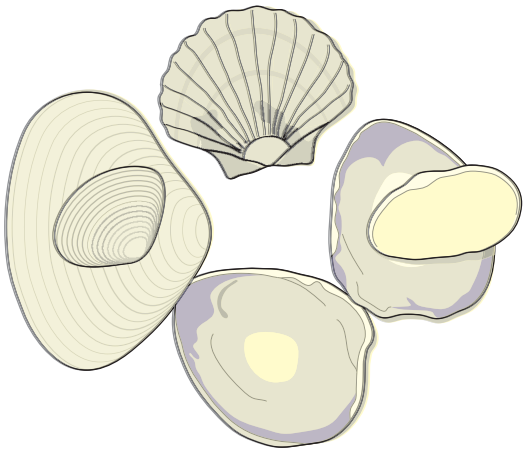
Seashells are the habitats of animals that belong to the *phylum* Mollusca. Most mollusks are fleshy, slug-like creatures that live inside one or more protective shells. The shells are composed of protein that is strengthened by calcium carbonate. Mollusks can be found in both salt and fresh water, as well as on the land.

There are seven classes that make up the Mollusca phylum. The largest classes are Gastropoda, Bivalvia, and Cephalopoda. Members of Cephalopoda, such as the squid and octopus, do not have external shells. Animals in class Gastropoda, a group that includes snails, have univalves, or single shells (Figure 1). Members of class Bivalvia, such as clams, oysters, and scallops, have two shells held together by a hinge (Figure 2).



gastropod

Figure 1



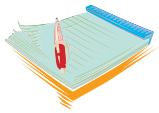
bivalve

Figure 2

When a mollusk dies, its hard shell is left behind. These shells can be classified and identified according to certain criteria. Shell color, design, shape, maximum size, minimum size, texture, and habitats in which they are found are a few of those criteria. In this exercise, you will identify several unknown mollusk shells.

Time Required

50 minutes



Materials

- *Golden Guide to Seashells* book or Internet sites on seashell identification, such as www.seashells.com
- sealed bag with 10 different seashells that have been labeled A to J
- ruler
- magnifying glass
- pencil

Safety Note **Please review and follow the safety guidelines.**

Procedure

1. Obtain a bag of seashells from your teacher. These shells have been labeled by your teacher A to J.
2. Get a copy of *Golden Guide to Seashells* or visit a site on the Internet, such as www.seashells.com, that has pictures of seashells.
3. Carefully empty your 10 shells on the table.
4. One shell at a time, beginning with A, provide information on the data table. Once the information has been recorded, use it to find the name of the shell in the guide book or on the Internet. Record the name and some fact about the mollusk that once inhabited that shell.

Data Table

Seashell	Univalve or bivalve	Shape (sketch or describe)	Texture or patterns	Color or colors	The name of the shell	A fact about its inhabitant
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						

Analysis

1. What was the most valuable criteria for identifying your seashells?
2. Were there more univalve or bivalve shells?
3. Examine the information you recorded about bivalves. List at least three characteristics that these mollusk shells have in common.
4. Examine the information you recorded about gastropods. List at least three characteristics that these mollusk shells have in common.
5. If you were walking along the beach and found a seashell with the mollusca inhabitant still inside, do you think you should keep it for your collection? Why or why not?

What's Going On?

Empty seashells can accumulate on the shore. Shells have characteristics that identify the species of the original inhabitants. After the mollusk dies, another animal, like a hermit crab, may eventually move into an empty shell. When collecting seashells, it is important to collect them judiciously. Some species of mollusks have been nearly driven to extinction by shell collectors that kill the animal inside in order to harvest its beautiful shell.

Want to Know More?

See Our Findings.

OUR FINDINGS

SEASHELLS AND THEIR MOLLUSKS INHABITANTS

Notes to teacher: Prepare a bag of 10 different shells for each group of students. Label the shells in each bag A to J. You can buy kits of 10 to 15 shells from biological supply companies, but if you live near the beach you can purchase large baskets of shells for a modest price or collect your own samples.

Copies of *Golden Guide to Seashells* are available through biological supply companies, in stores close to beaches, or in bookstores. Many identification sites with wonderful color photos and facts are available on Internet, such as www.seashells.com.

Analysis

1. Answers will vary. Students might suggest color or shape.
2. Answers will vary depending on the shells available for the lab.
3. All bivalves have two shells that hinge together on one side. The shells may show growth lines. Many have rough, tooth-like edges. The shells of bivalves protect the soft-bodied animals within.
4. Gastropods are mollusks that have only one shell. The animals have soft bodies and a muscular foot. The shells often have elaborate whorls and spirals.
5. Answers will vary. If a live mollusk is collected, it will most likely die. Even if it lives, the animal is removed from its breeding population.

SAFETY PRECAUTIONS

Review Before Starting Any Experiment

Each experiment includes special safety precautions that are relevant to that particular project. These do not include all the basic safety precautions that are necessary whenever you are working on a scientific experiment. For this reason, it is necessary that you read and remain mindful of the General Safety Precautions that follow. Experimental science can be dangerous, and good laboratory procedure always includes carefully following basic safety rules. Things can happen very quickly while you are performing an experiment. Materials can spill, break, or even catch fire. There will be no time after the fact to protect yourself. Always prepare for unexpected dangers by following the basic safety guidelines during the entire experiment, whether or not something seems dangerous to you at a given moment.

We have been quite sparing in prescribing safety precautions for the individual experiments. For one reason, we want you to take very seriously every safety precaution that is printed in this book. If you see it written here, you can be sure that it is here because it is absolutely critical.

Read the safety precautions here and at the beginning of each experiment before performing each activity. It is difficult to remember a long set of general rules. By rereading these general precautions every time you set up an experiment, you will be reminding yourself that lab safety is critically important. In addition, use your good judgment and pay close attention when performing potentially dangerous procedures. Just because the text does not say “be careful with hot liquids” or “don’t cut yourself with a knife” does not mean that you can be careless when boiling water or punching holes in plastic bottles. Notes in the text are special precautions to which you must pay special attention.

GENERAL SAFETY PRECAUTIONS

Accidents caused by carelessness, haste, insufficient knowledge, or taking an unnecessary risk can be avoided by practicing safety procedures and being alert while conducting experiments. Be sure to check the individual experiments in this book for additional safety regulations and adult supervision requirements. If you will be working in a lab, do not work alone. When you are working off site, keep in

groups with a minimum of three students per group, and follow school rules and state legal requirements for the number of supervisors required. Ask an adult supervisor with basic training in first aid to carry a small first-aid kit. Make sure everyone knows where this person will be during the experiment.

PREPARING

- Clear all surfaces before beginning experiments.
- Read the instructions before you start.
- Know the hazards of the experiments and anticipate dangers.

PROTECTING YOURSELF

- Follow the directions step-by-step.
- Do only one experiment at a time.
- Locate exits, fire blanket and extinguisher, master gas and electricity shut-offs, eyewash, and first-aid kit.
- Make sure there is adequate ventilation.
- Do not horseplay.
- Keep floor and workspace neat, clean, and dry.
- Clean up spills immediately.
- If glassware breaks, do not clean it up; ask for teacher assistance.
- Tie back long hair.
- Never eat, drink, or smoke in the laboratory or workspace.
- Do not eat or drink any substances tested unless expressly permitted to do so by a knowledgeable adult.

USING EQUIPMENT WITH CARE

- Set up apparatus far from the edge of the desk.
- Use knives or other sharp-pointed instruments with care.
- Pull plugs, not cords, when removing electrical plugs.
- Clean glassware before and after use.
- Check glassware for scratches, cracks, and sharp edges.

- Clean up broken glassware immediately.
- Do not use reflected sunlight to illuminate your microscope.
- Do not touch metal conductors.
- Use alcohol-filled thermometers, not mercury-filled thermometers.

USING CHEMICALS

- Never taste or inhale chemicals
- Label all bottles and apparatus containing chemicals
- Read labels carefully.
- Avoid chemical contact with skin and eyes (wear safety glasses, lab apron, and gloves).
- Do not touch chemical solutions.
- Wash hands before and after using solutions.
- Wipe up spills thoroughly.

HEATING SUBSTANCES

- Wear safety glasses, apron, and gloves when boiling water.
- Keep your face away from test tubes and beakers.
- Use test tubes, beakers, and other glassware made of Pyrex™ glass.
- Never leave apparatus unattended.
- Use safety tongs and heat-resistant gloves.
- If your laboratory does not have heat-proof workbenches, put your Bunsen burner on a heat-proof mat before lighting it.
- Take care when lighting your Bunsen burner; light it with the airhole closed, and use a Bunsen burner lighter in preference to wooden matches.
- Turn off hot plates, Bunsen burners, and gas when you are done.
- Keep flammable substances away from flames and other sources of heat.
- Have a fire extinguisher on hand.

FINISHING UP

- Thoroughly clean your work area and any glassware used.
- Wash your hands.
- Be careful not to return chemicals or contaminated reagents to the wrong containers.
- Do not dispose of materials in the sink unless instructed to do so.
- Clean up all residues and put them in proper containers for disposal.
- Dispose of all chemicals according to all local, state, and federal laws.

BE SAFETY CONSCIOUS AT ALL TIMES!