

ACTIVITY

Mapping the Classroom

You and your team will investigate how maps are used, and why they are important. You will also make your own maps! After you have completed the activity, respond to these questions in your journal.

- ▶ What is a map? What elements are needed in a map?
- ▶ How are maps created? What is the importance of scale in a map?
- ▶ How can maps be useful for scientists working in the field?

Gather with your team and choose a captain and a note taker for today, as well as an artist to illustrate the group's findings. Before you begin your investigation, consider with your team what you already know about maps and about your own classroom. Use the questions below to structure your discussion and jot down your notes.

- ▶ Why are maps useful? When are they used? What are the key components of maps?
- ▶ How are maps created? How does the mapmaker ensure that they are accurate? What clues help viewers read maps?
- ▶ How do people read maps? In other words, how do the elements of a map tell the viewer what he/she is seeing?

The captain will appoint group members to collect the required materials while the rest of the group reviews today's procedure. Before beginning, the captain will make sure that the group has all required materials, and that everyone knows the day's procedure.

The note taker will take notes on the group's findings for your team, and the artist will illustrate some of those findings. Remember to record your observations and explanations in your journal for your own research notes. Include drawings to illustrate your findings.

MATERIALS

- ▶ measuring tools (tape measure, rulers, etc.)
- ▶ activity sheets
- ▶ colored pens/pencils
- ▶ journals

PROCEDURE

1. Learn how to create a map of your classroom. Before you start, develop your hypothesis: What skills will be most important as you create your map of the classroom? What tools will you need to create an accurate map? Record your ideas on the activity sheet.
2. The first steps on your activity sheet will help you understand the idea of scale. After you have investigated scale, you can begin to create your map!

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GROUP WORKSHEET 1
TEAM _____

GROUP MEMBERS _____

CAPTAIN _____ **NOTE TAKER** _____

1. Before you begin investigating maps establish your hypothesis: what skills will be most important as you create your map of the classroom? What tools will you need to create an accurate map?

2. Maps must be drawn to scale; in other words, everything in the map must be reduced in size by the same ratio. How do you figure out what scale to use? Start by figuring out how to draw just a door or window of your classroom to scale. Your map will be kind of like an aerial view; and because your map is a two-dimensional representation, you don't need to show depth (though some maps, such as topographical maps, do). As a result, you won't need to measure height, just width. Measure the width of the door or window in meters and record your measurement below.

DOOR/WINDOW MEASUREMENT	
WIDTH	METERS

3. Remember, you are drawing your door/window much smaller than it is in reality, so you need to represent the actual measurement in a smaller space. For example, if your door is one meter wide, draw it as one centimeter wide; then your scale would be 1 meter = 1 centimeter. In that case, a three-meter wide blackboard would appear as 3 centimeters wide on your map. You could also draw a one-meter-wide door as 5 centimeters wide; then your scale would be 1 meter = 5 centimeters, and the blackboard would appear as 15 centimeters wide on the map. Don't get confused by the number of centimeters actually in a meter—you are not converting the meter to centimeters, but using centimeters to represent a meter so that you can draw the door/window in a much smaller space. To be sure you understand this, rewrite the chart above, but use centimeters instead of meters.

DOOR/WINDOW MEASUREMENT	
WIDTH	CENTIMETERS



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GROUP WORKSHEET 2
TEAM _____

4. Now that you understand scale, apply your understanding to the rest of the classroom. Fill in measurements for the items listed below and add other items that you want to include in your map.

PART OF ROOM	LOCATION IN ROOM, DISTANCE FROM WALL	ACTUAL MEASUREMENT	SCALE MEASUREMENT	OTHER FEATURES OF THIS ITEM TO INCLUDE ON MAP, E.G., COLOR
WIDTH OF CLASSROOM	Not applicable			
LENGTH OF CLASSROOM	Not applicable			
DOOR				
WINDOWS				
CHALK-BOARD				
TEACHER'S DESK				
STUDENTS' DESKS				

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GROUP WORKSHEET 3
TEAM _____

5. You now have sizes and relative locations of things in the classroom. Next figure out exactly how far each thing is from another. You might start with objects that are near one wall. After you have drawn the outlines of the classroom to scale, start filling in the other items, based on their distance from the walls. Before you start with a map drawn to scale, draw a rough copy of your map, showing the items you want to include in the map and offering a general sense of where each item is and how big it is.

6. Explain what other clues you'll need to offer to help viewers read your map. For example, what will you include in the key?

7. You are ready to begin a map of your classroom, drawn to scale! Use a separate sheet of paper. You may want to use graph paper to ensure that you draw everything exactly to scale. Good luck!

GROUP DYNAMICS

Comment on the way your group worked together. Explain any problems you encountered and how you solved them.