

MAKE A MAP USING A COMPASS

PLANNING YOUR EXPEDITION

Students will use the compass constructed in Expedition # 18 to complete this activity and should complete the homework assignment before attempting mapmaking.

This activity is designed for students to use the compass they built for a practical purpose. In this case, that purpose is to make up directions, follow directions to reach a predetermined point, and to make a map. Because you are giving students a reason for having constructed their compasses in the previous activity, it becomes more meaningful. Real-world orienting experience allows students to appreciate the compass as a navigational device.

Students learn to be precise in their measurements so that others can follow their directions and create a map from them since they will be evaluating one another's maps. Maps could take various forms, any of which should be acceptable, if the information is usable. Sharing and discussing maps made for homework lets you see what students consider usable maps and allows you to maintain control over the kinds of maps that are acceptable for this activity. Checking with the geography teacher provides added information of maps students are already familiar with.

There are several ways to complete this activity. Students develop their own directions for another group to follow or you supply the directions leading to a certain location or several locations. This depends upon how much time you wish to devote to this Expedition. If you decide to make up directions ahead of time, you will want to create several sets so that all of your students are not moving in the same direction at the same time. Let other teachers around the school know that your students will be outside doing this activity, in case they are testing or planning a quiet activity. You can require students to create their maps in groups or individually, or you could give them the choice. Two Itineraries are included here to accommodate either option.

- If you are having students create their own directions to a place of their choice, proceed as follows:**
1. Instruct students (in pairs or groups) to take their compasses and make up a set of directions leading to a predetermined place. For instance, "walk 3 feet west, 2 feet north, 5 feet northwest." Students can then add clues if they wish such as "walk 3 feet west, 2 feet north, you should see a sign. . . ."
 2. Also instruct students to map their route as they are making up the directions so that they have both written instructions and a graphic representation.
 3. Students exchange directions and try to follow the new ones, again mapping their route as they follow a new set of directions. When finished, each group will have two sets of directions and two maps.

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4. When all students have finished, the groups that exchanged sets of directions should sit down together and compare maps, noting similarities and differences, and difficulties they might have had following each other's directions.
 5. The Itinerary instructs students to make notes and answer questions in their Alpha Logs.
If you are giving students directions that you have made up leading to a certain destination, proceed as follows:
1. Instruct students (in pairs or groups) to take their compasses and follow your directions, mapping the route as they go.
 2. When students complete the route, have them sit in groups and compare maps, discussing similarities and differences and difficulties they had in following the directions.
 3. The Itinerary instructs students to make notes and answer questions in their Alpha Logs.

BACKGROUND INFORMATION

Compasses as navigational tools have been used since the 13th century. They are used for a variety of purposes by sailors, campers, cartographers, and explorers. Although early compasses took a different form than ones we

use today, the technology is the same: a magnetized needle that points north/south because of the Earth's magnetic field.

EXCURSIONS

Read an excerpt from Treasure Island (Part VI -- Captain Silver, The Treasure Hunt -- Flint's Pointer) by Robert Louis Stevenson that describes the treasure map. As a class discuss the problems that are encountered when using a map of this kind. What types of changes could take place over time that would affect a treasure map? (Students will probably note that trees and plants grow, weathering or erosion might change physical features, etc.) Point out that each person's "pace" is different depending upon their height, how quickly or slowly they are walking, whether they are walking uphill or downhill, etc. Students will determine that maps of this sort are unreliable at best and unusable at worst.

SC.D.1.3.1,4, SC.G.2.3.4

LA.C.1.3.1-4, 2.3.1, 3.3.2, LA.E.1.3.1-5, 1.3.2-8

Early cartographers sometimes could not see what they were mapping. Have students imagine that they were asked to map a country for which they have limited information. It is across the sea, is many months' journey, has a beach that leads to mountains which then becomes plains interrupted by yet another mountain range. Eventually another sea is reached after crossing two rivers. You can make up any description you wish that could represent a real place. Ask students to create a map from your description and compare it to an actual map. Students explain how they made their maps and the difficulties they encountered.

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They will evaluate their own work by determining how close they came to the actual map.

SC.H.3.3.5-7

SS.A.6.3.2, SS.B.1.3.1

Ask students to brainstorm kinds of maps. Offer a prize for the group that comes up with the most types of maps. This exercise helps students articulate different ways that maps are used, including concept maps.

SS.A.6.3.2, SS.B.1.3.1

If you are still reading aloud, either about the race to the North Pole or about Dilly McBean's magnetic hands, have students write about how information on compasses as navigational tools could

help the characters avoid a potentially dangerous or risky situation.

SC.C.2.3.1

LA.C.1.3.1-4, 2.3.1, 3.3.2, LA.E.1.3.1-5, 1.3.2-8

Have students research early maps of Florida on the worldwide web, CD-ROM, or using print media. Because Lake Okeechobee is so large, early cartographers did not imagine that it could be a lake. Instead they thought it was the ocean. This belief affected maps of Florida and thus exploration and settlement. Reports will bring historical mapmaking information to a local level enabling students to better visualize some problems associated with the making of maps.

SC.H.1.3.1-7, 3.3.5-7

SS.A.6.3.2, SS.B.1.3.1



Notes:

FOR YOUR PLANBOOK: Make A Map Using a Compass

Suggested time: 1 hour

Gear: student-made compass, paper

National Content Standards: A, B, E

Sunshine State Standards Benchmarks: SC.C.2.3.1, SC.C.2.3.2, SC.H.1.3.1, SC.H.1.3.4, SC.H.1.3.7, SC.H.3.3.6

Sunshine State Standards Benchmarks -- Language Arts: LA.B.1.3.1-3, 2.3.1-4, LA.C.1.3.1-4. 3.3.3

Sunshine State Standards Benchmarks -- Social Studies: SS.A.6.3.2, SS.B.1.3.1

Homework: Have students make a map from their home to the school. Assure them that you do not intend for this to be a map to scale, but one they would give to someone as directions to their home. Encourage those students who are worried about this assignment to use graph paper if that makes them more comfortable and remind them to use landmarks. One of the comments frequently made after Hurricane Andrew devastated Homestead, Florida, was that when all buildings, homes, and trees were flattened, it was difficult (if not impossible) for people to figure out where their homes were. There were no landmarks!

Homework Assessment: Accept any reasonable map as successful completion of this assignment. Maps should include major landmarks, ordinal directions, and approximate distances. This exercise will start students thinking about maps and, if they share them as a group completing the Expedition, they might eliminate difficulties.

Assessment: As part of the activity, students create a set of directions that can be followed by another group. The successful completion of the pre-set route demonstrates that the directions were usable and that the first group made the transition from prior activities to practical usage of a compass.

Students successfully follow your directions to a predetermined location. Completion of this part of the activity demonstrates that students are able to apply the information from other activities in a practical manner.

Students create a map using the given set of directions. Doing so indicates that students can transfer one type of information into a graphic representation of that same information. The map can be to scale or not (your choice depending upon the level of students). This is a good opportunity to discuss map scales in general. Because they are working in groups, students will need to state explanations about maps, how to make maps, and the use of maps before they decide what type of map to make.

MAKE A MAP USING A COMPASS

Itinerary

Using the compass that you constructed in “Building a Compass,” you will be making up a set of directions for another group to follow using their compass. At the same time, you will be mapping the route, so you must determine a destination before you begin. You are applying in a practical way what you learned from previous activities. You will use a compass to find a particular location.

Part I

1. With your group or partner choose a place somewhere on school grounds. Once you have decided on a place, start at the classroom door and describe that route using points on a compass. For instance, “Begin at the classroom door and proceed 15 feet west. Then go 5 feet north.” You can put in hints if you think your route is particularly difficult, such as “Begin at the classroom door and proceed 15 feet west. You should see the office door.” Try to make this a challenge.
2. Write the directions on a separate sheet of paper and also make a map of your route in your Alpha Log. Then return to the classroom.
3. In your Alpha Log, write your observations of any difficulties you had either with the directions or with the map.



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Part II

4. Exchange your written directions (not your map!) with another group.
5. Try to follow the new set of directions mapping the route as you go much as you did in the first part of the this activity. Take into consideration problems you had in making your map and use them to help you. When you are finished, return to the classroom.
6. Sit down as a group and discuss your map fixing anything that you believe is incorrect or unclear. In your Log, write down any observations that you made about your trip.

Part III

7. When the group with whom you exchanged directions returns, compare maps and answer the following questions in your Log. How do the maps compare with the original maps made by the group creating the directions? Compare and contrast the maps. What suggestions do you have for people giving directions? What would you do differently if you were to repeat this experience?
8. Make a list in your Log of occasions you might have to give directions to another person. Have you changed your idea of how to do this? What are some important elements of giving directions that you had not thought of before this activity?

MAKE A MAP USING A COMPASS

Itinerary

Using the compass you made for “Build a Compass,” you will be following a set of directions that leads you to a certain place. You use your compass as a navigational device as you would for camping. As you find your way, you will also be mapping the route. When you reach your destination, return to the classroom.

1. Take your compass and follow the directions, making a map of your route as you go.
2. When you return to the classroom sit down with another group, discuss the directions, and compare and contrast your maps.
3. Answer the following questions in your Alpha Log: How do the maps compare? Are they the same or different? What suggestions would you give to people writing directions? What would you do differently if you were to repeat this experience?
4. Make a list in your Log of occasions you might have to give directions to another person. Have you changed your view of how you would do this? What are some important elements of giving directions that you had not thought of before this activity?



