

Mapmaker, Mapmaker, Make Me a Map

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Overview

Topic: Geography, Map Skills. This lesson centers on basic map skills and the importance of cardinal directions on a map. Students will create a simple map, including a key or legend and a compass rose. Students will use the Internet to practice their map skills.

Time Allotment

Two or three 45-minute sessions

Media Components

Geography Skills #6, Direction 

Websites:

For whole class work:

Interactive map

teraserver.homeadvisor.msn.com/default.asp

This site allows users to access an aerial photo of their current location, such as their city, or even their neighborhood. They can use the zoom in and out feature, and shift north, south, east, or west to explore the region.

For individual work:

The Orientometer

www.nationalgeographic.com/xpeditions/activities/02/getoriented.html

This site allows users to demonstrate their knowledge of cardinal and intermediate directions using The Orientometer.

Learning Objectives

The student will be able to:

- create a compass rose and use it to determine the directions of north, south, east and west
- use a compass for the purpose of orientation on a map
- create and demonstrate proficiency in using a simple map

(This lesson addresses Va. SOL Social Sciences K.3, 1.4b, 1.5, 2.6; Computer/Technology C/T 5.3; Math 2.19)

Materials

For the student:

- compass Rose Drawing Sheet (attached)
- circle Template for creating an 8" symmetrical compass rose (attached)

Per class:

- 4 red items placed randomly around the classroom, the one closest to the Northern point of the room should have treats inside.
- blackboard or overhead for demonstration drawing
- chalk or vis-a-vis pen
- 1 chart labeled with a large "N" for north
- printed map of the school community
- printed map of the United States or the World



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Per cooperative groups of 3 – 4 students:

- colored pencils
- compass

Per student:

- 8" x 11" piece of paper
- pencil
- printout of the satellite picture of school community
- 8" x 8" piece of paper, (Extensions)
- 2 long and 2 short craft sticks (Extensions)
- glue (Extensions)

Preparation for Teachers

Prior to teaching, have all Internet sites bookmarked for easy access during the lesson. The “Orientometer” site should be bookmarked on classroom computers for easy access by students during their individual time in the computer center, or on the computers in the lab for whole class use. You should preview the video and cue it as indicated in the Learning Activities section.

Familiarize yourself with the lesson format and be sure to have all materials ready as listed in the materials section.

When using media, provide students with a **FOCUS FOR MEDIA INTERACTION**, a specific task to complete and/or information to identify during or after viewing of video segments, websites, or other multimedia elements.

Introductory Activity: Setting the Stage

1. Tell students they are going to play a little Treasure Hunt game to help them learn about directions. Say “I have hidden a treat in something red that is in an area of my room closest to the direction of north.”
2. Call on several different students. They will point to the objects previously placed in the classroom, or at other red objects they see around the room.

3. Point out that different students think that north is in a different area of the room. Ask, “What direction is north in my room? What do we need to do to find out?” Someone may think of using a compass, but most will try to guess. Say, “Let’s see if this video tape will help us figure out what we need.”

4. **CUE** the video at the title screen “Geography Skills Direction.” Provide students with a **Focus for Media Interaction** by saying, “I want you to listen for what direction the people are going in at the beginning of this videotape.”

5. **START** the video and **PAUSE** after the words “...They went thataway.” Ask, “What direction did they go in?” (Students will answer “thataway.”) Ask, “What direction is thataway?” (Some students will say “north,” others may say it depends on where you are).

6. Provide students with a **Focus for Media Interaction** by saying, “I want you to see if you can find something that may help you find which way is thataway.” **RESUME** and **PLAY** until after the narrator says “...A Map.” Ask, “What can you use to help you find your way?” (a map)

7. **FOCUS:** Say, “Let’s look at this next section of video and figure out some of the turns we need to make. You really have to think about “left” and “right.” **RESUME** video and **PAUSE** when the narrator says “...The straightest route may be the fastest.” Using a vis-a-vis pen to draw right on the screen, or using a pointer, ask, “Which way do we have to turn to get to cottage country from the center of town?” Show them the point at the center of town, then where the cottages are located. (straight, then left, then right, then left)

8. **FOCUS:** Say, “Let’s look a little further on the video to see if we were right.” **RESUME** and **STOP** when the narrator says, “...and at each one, turn in the correct direction.” Ask, “Did we make the correct turns to get from the center of town to cottage country?” (yes)

9. **SAY,** “Let’s make a map to help us find our way in this classroom.”

Pause vs. Stop

When using a video interactively with students, teachers need to decide when to use **PAUSE** and when to use **STOP**. **PAUSE** the video when the anticipated discussion or activity will take less than two minutes. **STOP** for longer periods. Pausing for too long at one time can cause video heads on the VCR to become clogged which may require cleaning to correct.

Time Cues

To synchronize your VCR with the time cues that are included with this lesson, zero/reset your time counter at the very beginning of the program, before the introduction and titles. Time cues are expressed as “minutes:seconds;” for example, 3:15 means three minutes and fifteen seconds.

Learning Activities

1. Ask students to take out a pencil, and hand out a piece of 8” x 11” white paper to each student. Have them print a title across the top of the paper **Our Classroom**. Show them by writing on the overhead or the blackboard.
2. Demonstrate drawing a landmark, such as the teacher’s desk or the location of the blackboard or overhead as a starting point on their map, by drawing a rectangle.
3. Add the students’ desks or group tables to the drawing, having students do each action after you demonstrate it on the overhead. Continue drawing simple shapes to symbolize various items in the room. Demonstrate making a legend in one corner with some of the symbols, such as the desks (rectangles), chairs (u-shape coming out from the desk rectangle), etc.
4. Tell students to mark lightly on their paper where the red objects are in the room. Say, “Now we have a map to help us find the treasure.” Who can tell me which red item is the treasure? (again the answers should vary). Say, “I guess we still need more information. There is a special tool that mapmakers use to help them make maps. It tells them what direction is north. Does anyone know the name of the tool?” (a compass) Take out a compass and show the students how it works.
5. Have each group find out which red object is in the northern area of the room by using the compass. Demonstrate drawing an arrow on their classroom map which points north and make sure students do exactly the same thing on their own map.
6. Say, “Now turn your map so the arrow points “up” and draw a capital “N” right above the arrow. If that is north, which way is south?” (just below the arrow) “Good, now write a capital letter “S” below the arrow.” Have students complete the compass rose by labeling the East and West points with an “E” and “W.” Ask, “Does anyone know the term we use for these four directions?” (cardinal directions). Explain this terminology to the students.
7. Say, “Who can point to the area of my room that is facing north?” (call on students until someone answers the question correctly) “Can you see the red object that is in the northern area of my room?” (name object) “Right!”
8. **FOCUS:** Say, “Let’s watch a little more of the video. I want you to watch for what the motorcyclist has to do to find his place on the map.” **PLAY** and **STOP** when the narrator says”...The map must be oriented to the landscape.” Ask, “What did the motorcyclist have to do to orient himself on the map?” (turn it upside down) “Did we have to do that to our classroom map?” (yes, when we used the compass to find north so we could draw a compass rose on our map)
9. **SAY**, “Look at your classroom map. Can you find your own chair on the map? When you find it, lightly color it in.” Monitor the students as they orient themselves on the map to be sure they have marked the correct chair as their own. If they get it wrong, give them a hint by telling them where another student’s chair is located. When they orient themselves to that, they can usually find their own chair. Share the treats with the class as a reward for their hard work.

Culminating Activity

1. FOCUS: Say, “We are now going to look at a satellite picture of our school community taken from outer space. We will first have to search for our city. In what city is our school located?” (name your city) Click on the previously bookmarked website:

terraserver.homeadvisor.msn.com/default.asp

2. Demonstrate doing a search by typing in the City and State in the search boxes provided. When the picture appears, zoom in until you can see some landmarks, such as a baseball or football stadium, or parking lot near your school. Ask, “Does anyone see something that looks familiar?” You may have to help students by providing suggestions on what to look for. Remind students that to orient themselves on a map they have to find familiar landmarks, such as rivers, intersections of roads, etc.

3. After students have oriented themselves on the map, ask, “How can you figure out in what direction a compass rose should be drawn on this map? Think about our last activity when we drew a map of our classroom.” (You need to find north by using a compass.)

4. Hand out a copy of the satellite picture to each student. Say, “compare your picture with the map on the TV screen. We're now going to go outside to find a good landmark to orient ourselves on our maps.”

5. Take students outside to an area of the playground or field that is familiar and is easily recognizable on the map. Have them line their map up with the real landscape, using the edge of the playground or field as their landmark. Have each group of students use their compass to find the direction of north. They should draw an arrow on the map pointing in the direction of north.

6. Take students back inside the classroom and hand out the “How to Draw a Compass Rose” sheet. Tell them to turn their map so the arrow points up, and label it with an “N,” just as we did on the classroom map. Take students through the process of drawing a compass rose, step by step, by demonstrating on

the overhead or blackboard. Have students transform the arrow on their map into a compass rose, making sure the original arrow points north. Label the cardinal directions of N, S, E, and W. Show students a commercially printed map, such as the classroom map of the world. Have them find the compass rose on that map. Explain that most maps are drawn so that north is toward the top and south is toward the bottom.

Assessment

1. Give students a map of the floor plan of the school. Have them find a landmark on the map to orient them on it. Using a compass, students should find the cardinal direction of north and create a compass rose on the school map which correctly shows north, south, east and west.

2. FOCUS: Say, “When you visit the computer center in the classroom (or computer lab) today, I want you to go to the site I have bookmarked called The Orientometer. Keep track of your score as you go through the activities. The game will allow you to practice and assess how well you know your cardinal directions.” Demonstrate how to play the game by visiting the site listed below, then have students individually click on the site to play the game:

www.nationalgeographic.com/xpeditions/activities/02/getoriented.html

The Orientometer Game will allow students to assess their knowledge of the cardinal directions, and even discover and use intermediate directions. In the game there are nine boxes arranged in a square. The student space is in the center square. Students are instructed to go “north.” They should click on the square above the student box. They continue the game by clicking on the box that is located in the direction they are told to travel from the student box.

Community Connections

1. Contact the city planner in your town and have them visit your class to talk about how and why the city has been laid out as it is on the satellite map. Have them show maps of other areas of the city.
2. Have students email friends or family in other areas of the city (or in other cities) to exchange satellite map pictures of where they live.

Cross-Curricular Extensions

Language Arts

- Have students read trade books about maps and mapmaking, such as *Me On the Map* by Joan Sweeney, and *How to Draw Maps and Charts* by Pam Beasant and Alastair Smith.
- Use mapping words as spelling words for the week: cardinal and intermediate direction, north, south, east, west, compass, compass rose, legend, etc.
- Have pairs of students hide small treats (treasure) somewhere on the school grounds. Each pair of students should write out a description of the route to find their treasure, making sure cardinal directions are part of the description. For example, go out the door to the playground and turn north. Proceed past the sliding board and turn east. Go in this direction for ten paces and then turn north again. Have pairs exchange their written directions with another group. Each group should then try to find the other treasure.

Math: Using colored pencils or markers, have students create a compass rose. They can begin with the circle template included with this lesson, transferring it to an 8” square of white paper. Symmetry and creativity should be the focus of this lesson as students add arrows, triangles, cardinal and intermediate directions (the direction between two cardinal directions) to complete their designs.

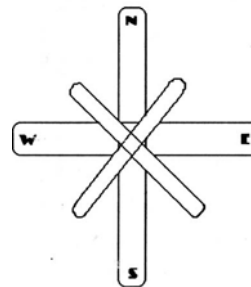
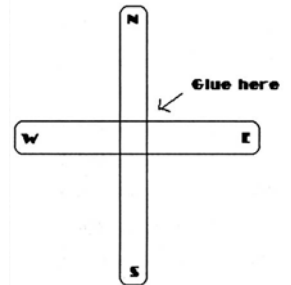
Social Studies:

- Gather the class around a large map of the United States. Have students identify their own state. Choose students one at a time to come to the map

to indicate answers to questions, such as “What state is located to the north of our state? What state is located to the south? Have students continue the game by making up their own questions.

- Have students create different maps relevant to what they are learning, such as a map of their home or bedroom, a map of reference sections of the library, a map of location of Indian tribes in Virginia, etc.

Art: Create a compass rose using small and large sized popsicle sticks or craft sticks. Students should glue two large sticks into an “X” and two small sticks into another “X.”



Label the large sticks with the cardinal directions of “N,” “S,” “E,” “W.” Label the smaller sticks with the intermediate directions, if desired. A magnet can be glued to the back.

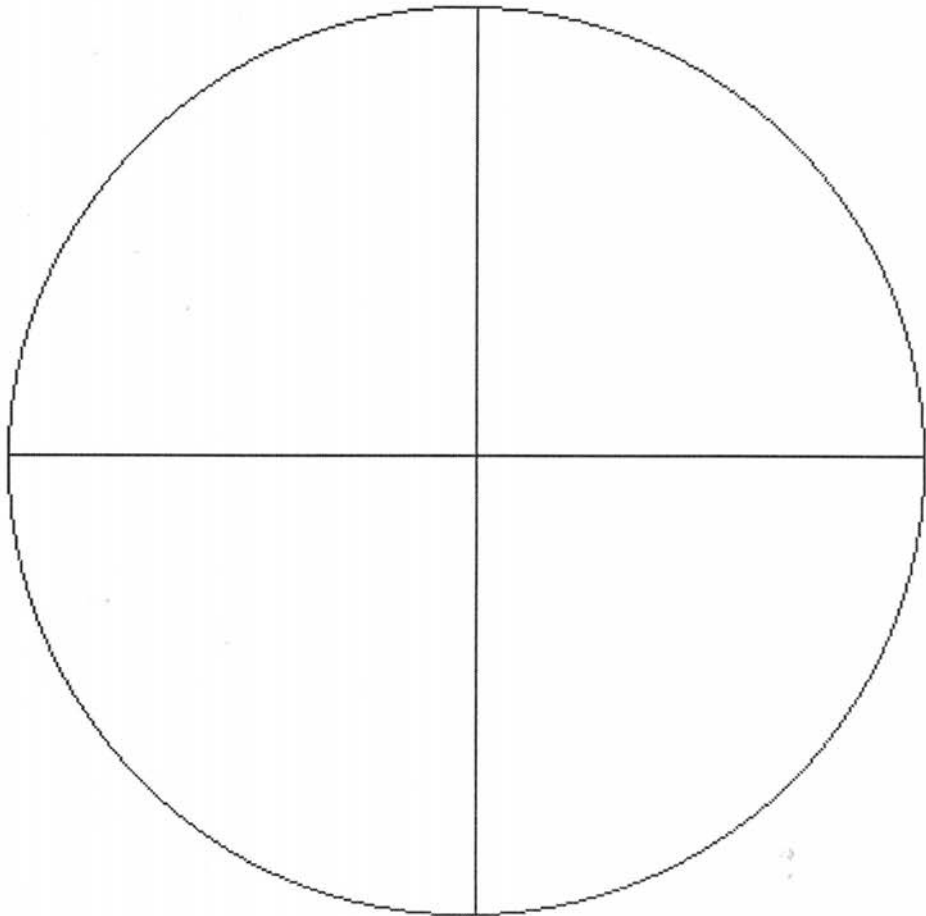
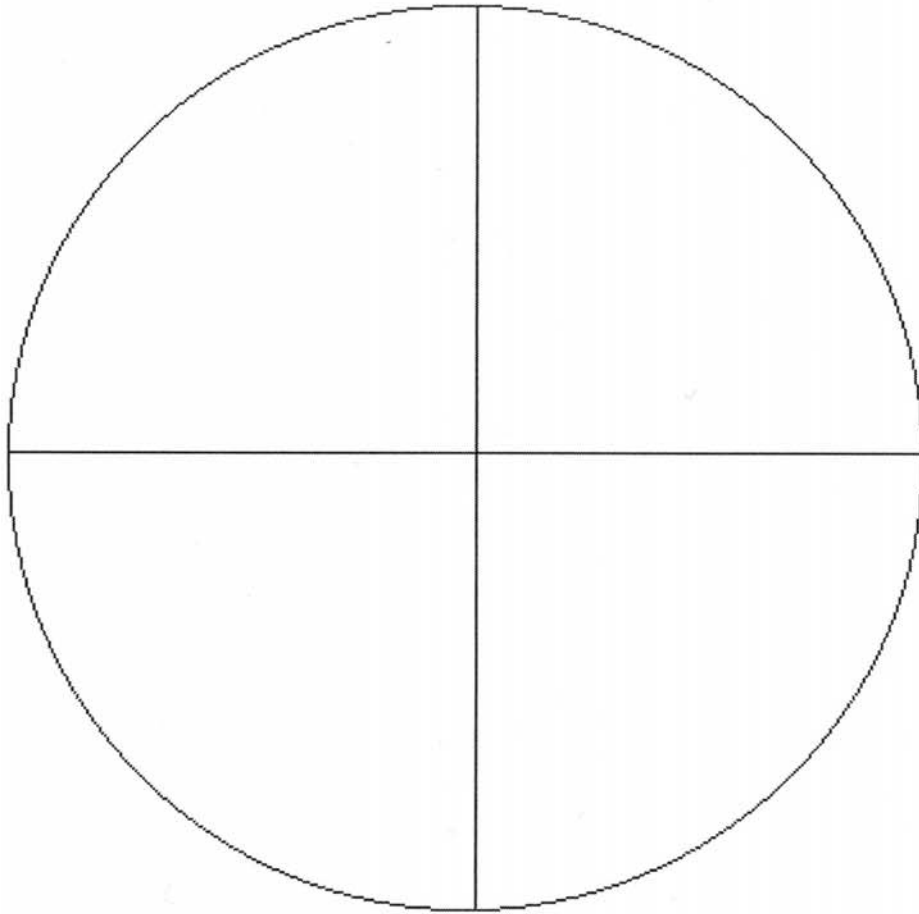
Technology: Using the satellite picture website: teraserver.homeadvisor.msn.com/default.asp have students type in names of famous places, such as Washington, D.C., and compare the street layouts to the printout of their own city map.

CIRCLE TEMPLATE

Fold an 8" x 8" piece of paper in half and then into quarters. Cut out one of these circle templates and place in the exact center of the 8" x 8" papers, lining up the straight lines on the circle template with the fold lines. Trace circle. Then use the direction sheet labeled *Making a Compass rose*. Create a large compass rose using a ruler and colored pencils.

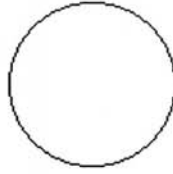
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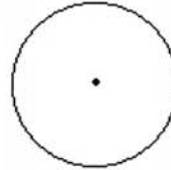


MAKING A COMPASS ROSE

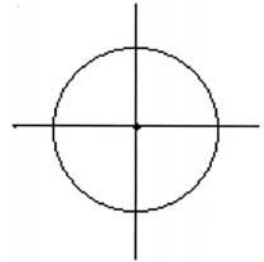
1. Draw a small circle on your map where you would like to place the compass rose



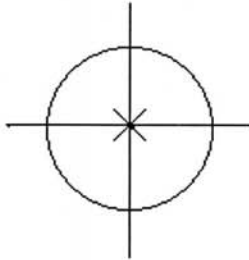
2. Draw a dot in the center of the circle



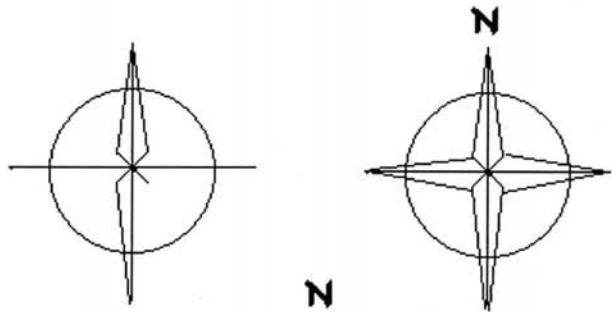
3. Draw 4 lines radiating out from the center of the dot (north, south, east and west.)



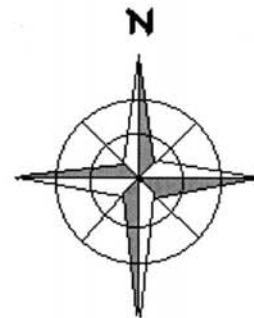
4. Draw a small X over the center dot.



5. Draw lines from the end of each compass point to the ends of the X to form directional arrows. Draw an "N" above the top arrow



6. Create a pattern around your compass rose. For example, you could add another circle and fill with pattern, add intermediate directions with shorter arrows, etc. Color your design with colored pencils.



OTHER IDEAS AND PRACTICE SPACE:

