

Developing Map Skills *Teacher's Guide*

Students use the Watershed Atlas website, compasses and USGS maps to develop map skills.

GRADE LEVEL: 6th -12th

SUBJECT AREA/COURSE: Environmental Science, Geography, Math

SUNSHINE STATE STANDARDS:

SCIENCE:

6th Grade:

- Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida. (SC.6.E.6.2)

9th-12th Grade:

- Discuss the effects of technology on environmental quality. (SC.912.L.17.15)

SOCIAL STUDIES:

- Uses a variety of maps, geographic technologies including geographic information systems (GIS) and satellite- produced imagery, and other advanced graphic representations to depict geographic problems. (SS.B.11.4.1)
- Understands the advantages and disadvantages of using maps from different sources and different points of view (SS.B.1.4.1)

MATH:

6th Grade:

- Find the perimeters and areas of composite two-dimensional figures, including non-rectangular figures (such as semicircles) using various strategies. (MA.6.G.4.2)

7th Grade:

- Justify and apply formulas for surface area and volume of pyramids, prisms, cylinders, and cones. (MA.7.G.2.1)
- Use formulas to find surface areas and volume of three-dimensional composite shapes. (MA.7.G.2.2)
- Determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and apply these relationships to solve problems. (MA.7.G.4.1)

8th Grade:

- Big Idea2: Analyze two- and three-dimensional figures by using distance and angle. (MA.8.G.2)

9th-12th Grades:

- Geometry Standard 1: Points, Lines, Angles, and Planes
 - Students understand geometric concepts, applications, and their representations with coordinate systems. They find lengths and midpoints of line segments, slopes, parallel and perpendicular lines, and equations of lines. Using a compass and straightedge, patty paper, a drawing program or other techniques, students also construct lines and angles, explaining and justifying the processes they use. (MA.912.G.1)

Name:

Date:

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ACADEMIC OUTCOMES/LESSON OBJECTIVES:

1. Students will be able to discuss and demonstrate how certain terms are used when working with maps.
2. Students will be able to locate objects on a map using longitude and latitude.
3. Students will be able to recognize the shape of various water bodies by analyzing the contours of the bodies of water.
4. Students will organize data in a meaningful table.

TEACHER BACKGROUND INFORMATION: The instructor should be able to use a compass. There are many books available to explain the compass terms of bearing and heading. Simple outdoor activities can be done as a pre-lab to illustrate the meaning of these terms. Locating objects on your campus would be a simple activity that could be done according to compass directions.

The teacher will also need to select the study lakes on the website and obtain maps of Hillsborough and Pinellas County, Florida or appropriate USGS Quadrangle maps. The USGS Quadrangle maps are available for purchase online or from outdoor sport stores. Check to see if you have access to the newest maps. (Save older maps for land use change studies.) Assign the lakes to groups of students in an order such that the maps can be shared by student teams.

MATERIALS NEEDED (STUDENTS/TEACHER): Access to computers, Internet connections with www.Hillsborough.WaterAtlas.org bookmarked, compasses (for basic skills), USGS Quadrangle maps or street maps of the study areas, copies of the student handouts.

SAFETY: If an outdoor compass practice is included, discuss behavior and performance expectations.

VOCABULARY: longitude, latitude, bearing, quadrangle map, elevation and contour intervals, degrees, minutes, and seconds

AUTHOR: Brian Keyes: Brian_Keyes@scps.k12.fl.us. – Modified from the original lesson plans created for the Seminole County Watershed Atlas.

Name:

Date: