



PATHFINDERS LESSON PLAN 2

SCHOOL PROPERTY MAPPING

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| TEACHER: | SUBJECT: Social Studies: Geography, Mathematics: Geometry |
| TOPIC: Utilizing GPS coordinates to create a map | FORMAT: |

COMMON CORE STANDARDS:

Geography 6

3. Geographic tools can be used to gather, process and report information about people, places and environments. Cartographers decide which information to include and how it is displayed.
 4. Latitude and longitude can be used to identify absolute location.
 5. Regions can be determined, classified and compared using data related to various criteria including landform, climate, population, and cultural and economic characteristics.
 6. The variety of physical environments within the Eastern Hemisphere influences human activities. Likewise, human activities modify the physical environment.
- 6.G.1** Through composition into rectangles or decomposition into triangles, find the area of right triangles, other triangles, special quadrilaterals, and polygons; apply these techniques in the context of solving real-world and mathematical problems.
- 6.G.2** Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l w h$ and $V = B h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
- 6.G.3** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

ESSENTIAL QUESTIONS:

1. Can I input coordinates and use the GPS unit to find that location?
2. How can the ability to read GPS coordinates be used in real life situations?
3. Can I measure distance with a GPS unit?

I CAN STATEMENTS (LEARNING OBJECTIVES):

- I can accurately input GPS coordinates and use the GPS unit to find that location.
- I can find my current location coordinates using the GPS unit.
- I can use the GPS unit to measure the distance between two locations.
- I can use GPS coordinates to create maps.

MATERIALS:

GPS unit (provided by Park District), paper, pencil, folder or clipboard to write on.

LINKS:

<https://www.miamicountyauditor.org>

ACTIVITY:

Now that students are familiar with the functions of the GPS unit, they will go out to the schoolyard and map the perimeter of the property. First they will use their paper and pencil to draw a sketched perimeter of the area of their school yard that they intend to map. Next students will have to mark a waypoint in their GPS from any location of the perimeter on their map, then travel to their next location in order to find the distance between the two points. Once the student enters the first waypoint and travels to the next location, the GPS will show how far away the student currently is from their first waypoint. Students will use this information to add measurements to each leg of the map while they sketch and add details as they go.

The students will continue in this manner until they have recorded the measurements of their school yard on their map. With the completed drawing, students can use geometry to measure the area of the school property and other aspects. Optional: students can also go onto the county auditor's website to check their calculations and see how this lesson can be applied in real-life careers.

EVIDENCE OF ACTIVITY (WHAT TO TURN IN):

Students will turn in their completed maps.