

Title: X Marks the Spot
Subject: Math, Geography, Technology
Grade: 5-8

Objectives:

Students will describe how to get from a starting point to a finishing point by giving directions.
Students will convert units of measurement.
Students will utilize Pictometry Online to create a treasure map.

PA Standards:

2.3.5.A

Select and use appropriate instruments and units for measuring quantities (e.g., perimeter, volume, area, weight, time, temperature).

7.1.6.A.4

Basic spatial elements for depicting the patterns of physical and human features: point, line, area, location, distance, scale.

3.7.7.D

Apply computer software to solve specific problems.

Materials:

Computer with Pictometry Online
Pre-made treasure maps for places in the classroom
Student Directions Sheet (see below)

Instructional Accommodations:

Pair struggling student with student who is not struggling when switching maps.
Assign fewer line segments to create for map.

Procedures

Introduction:

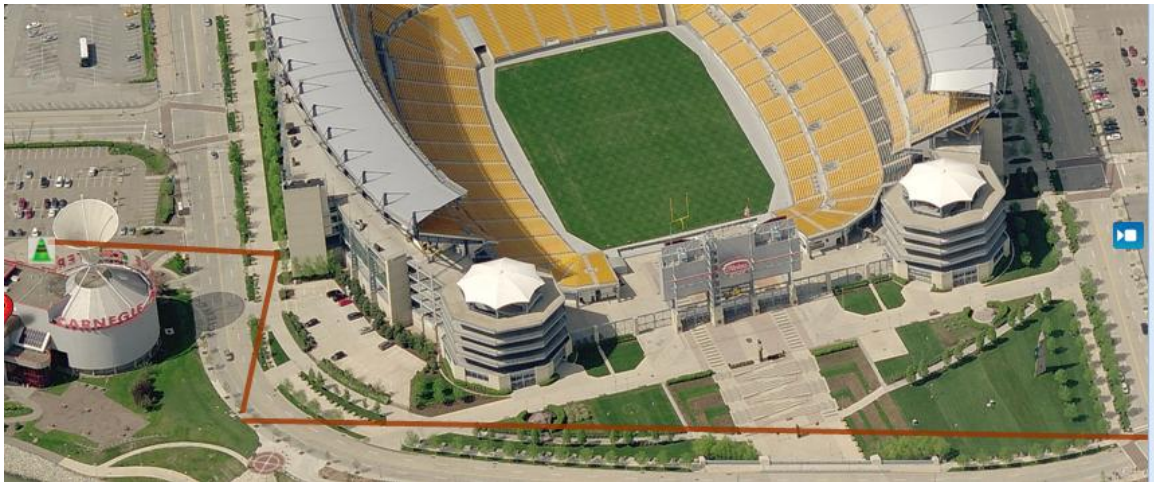
1. Make treasure maps indicating distance and directions to various points in the classroom. These maps can be pictures of the classroom, or just written directions. Some of these “maps” should be specific and some should not, to show the importance of writing good directions. Break students into small groups and hand out the maps at the beginning of class.
2. Ask groups to find the treasure that is hidden by using the map.
 - a. Some should be able to; the groups with the non specific maps won’t.
3. Discuss why it was important to follow the directions and for the directions to be specific.
4. Tell students they are going to make their own treasure maps on the computer, and it is very important that they be very, very specific. Ask students that had maps that were non-specific how easy it was to find their treasure. Now ask students that had very specific maps. How did having clear and specific directions help?

Development:

1. Model the whole process, thinking aloud as you go:
 - a. Open Pictometry Online and log in
 - b. Hand out instructions to students
 - c. Choose a spot to make your beginning (you may let them choose anywhere they want or give them a beginning point)
 - i. MAKE SURE YOU USE (AND HAVE THEM USE) THE FIRST IMAGE FOR WHEREVER YOU CHOOSE, SO THAT NORTH IS

THE TOP DIRECTION ON THE COMPASS! Do not rotate the picture! This is so that students do not get confused while making/following maps.

- d. Mark your starting point using the marker tool (it looks like 2 people and has a down arrow)
- e. Click on marker and type home (or whatever you and your students decide would be an appropriate) for description.
- f. Decide where treasure will be and mark, click on it, and type X for description.
- g. Click on line tool.
 - i. Draw lines to get from starting point to ending point.
 1. Lines MUST be as close to directly North, South, East, or West (to avoid confusion) as possible!!! This is very important, stress this!!! May need to explain compass/directions.
 - ii. You may come up with a total number of lines you want them to have, or give range, like 5-7 lines, for example.

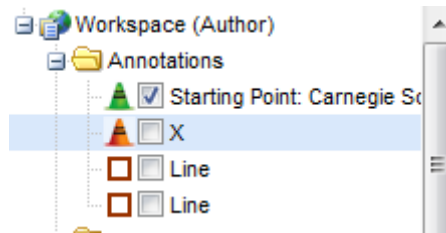


- h. Click on the distance tool
 - i. Tell students that this is the step that actually helps us to write our treasure maps, so be VERY, VERY careful!!!
 - ii. By clicking on the starting point and dragging to the end point of a line segment, when you release the mouse, you will see in the bottom left hand corner the distance of that line segment.
 - iii. Write the distance on paper.
 - iv. Also write whether it is North, South, East, or West
 - v. Do this for each line segment, in order, from the starting point to the ending point.
 - vi. Again, stress how important it is to be very careful while doing this!
 - vii. Example: Go North for 10 feet.
Go West for 12 feet.
Etc



Distance: **232.27 Feet**

- i. Now we want to hide the end point marker and all lines, so they don't know where it is!
 - i. On the left hand side, there is a section called "Workspace."
 - ii. In this section, there is a place that is called "Annotations."
 - iii. Click in any of the boxes to make markers appear/disappear (a check mark means it'll be visible; no check mark means not visible).
 - iv. Click in the box of the end point marker and all of the lines to make them disappear for now.
 - v. The only things that you should see now that you've added is the home marker.



- j. NOW, you should have your treasure map all done!
- k. Write your directions from your starting point to your ending point (X). Be sure to include direction and distance. Your partner will use these directions to try to find your treasure. Type these in Microsoft Word, and print them so that your partner has a written copy.
- l. You will leave your instructions by your computer and switch with a partner.
- m. At your partner's computer, follow their treasure map instructions, by using the distance tool and drawing lines of the correct **distance and direction** to get from their starting point to hopefully their end point.
- n. When you finish, click in the box of the other marker to see if you were close!
 - i. You may also click in the boxes of the lines of your partner to see how their lines were drawn.
- o. Print maps and hand in
- p. Pair with closest to end point on both should get a prize (tell students this before they begin for motivation)
- q. Have students reflect on their experience in their journal. Prompts include: Tell whether you were close to their x or not and why you think you were close or far away. Also write if your partner was close to your x and why you think they were close or far.
- r. You will talk with your partner about what you wrote in your journal (why you think you were close or not).

- s. Class will discuss results.
2. Allow students to complete assignment.

Closure:

1. Discuss students' results and why they think they were close or not so close.
2. Explain that there are many other neat tools that can be used with Pictometry online, like bearings, elevations, and many others.

Assessment:

Treasure maps

Journal entries

Discussion

X Marks the Spot!

You are going to be creating a treasure map using Pictometry Online! Before you begin, remember: **BE AS SPECIFIC AS YOU POSSIBLY CAN!!!** This will help you and your partner to succeed. (And the pair that can get the closest wins a prize!) Just follow the instructions below, and let's get started on our maps!

1. Make sure Pictometry Online is open on your computer.
2. Choose a location to do your map.
 - a. Type an address and use pan tool that looks like hand to move the screen around until you have your screen where you want it.
3. Choose a starting and ending point.
 - a. Mark the starting point by using the marker tool at the top.
 - b. Click on your starting point marker and write description.
 - c. Mark the ending point and type a description the same way.
4. Draw lines from the starting point to the ending point:
 - a. ***LINES MUST BE DIRECTLY NORTH, SOUTH, EAST OR WEST!!!*** Do not make lines northwest, southeast, etc.
 - b. Click on line tool, click at beginning point of line on map, stop pressing mouse, then click where you want that line to end.
 - c. Make _____ lines.
5. Now, it's finally time to make your treasure map!
 - a. Using the distance tool, click at the starting point of a line and DRAG and let go at end of line.
 - b. Distance will be listed at bottom left of screen.
 - c. Write **BOTH** direction and distance, like:
 - i. Go North 10 feet
 - ii. Go West 12 feet
 - d. Write instructions until you have directions and distances for each line, from the beginning to your end point.
6. Now, we need to hide our lines and end point, so somebody can use our map!
 - a. On the left hand side, there is a section called "Workspace."
 - b. In this section, there is a place that is called "Annotations."
 - c. To make anything appear/disappear, all you have to do is click in any of the boxes (a check mark means it'll be visible; no check mark means not visible).
 - d. Click in the box of the end point marker and all of the lines to make them disappear for now.
 - e. The only thing that you should see now that you've added is the home marker.
7. Leave your instructions at your computer and switch computers with your partner.
8. Go through their instructions, using the line and distance tool, until you get to their end point.
9. To see if you are close, click in the "Annotations" section on their end point marker to see how close you are. Click on their lines to make them appear to see how accurate your lines are.
10. Print your map just the way it is now.
11. Write in your journal:
 - a. Were you close to their x or not and why do you think you were close or far away.
 - b. Also write if your partner was close to your x and why you think they were close or far.