



Pirate Treasure Hunt

The Big Idea:

To find hidden treasure, you need a good map. Today you'll be pirates who map the seas, and then you'll use coordinates to find the treasure before anyone else!

You Will Need:

- ★ To print: Ocean Object Coordinates
- ★ To print: 4-6 sheets of Pirate Graph Paper
- ★ Pair of scissors
- ★ String or ribbon
- ★ Markers: 2 colors
- ★ Masking tape
- ★ Measuring tape for giant grid

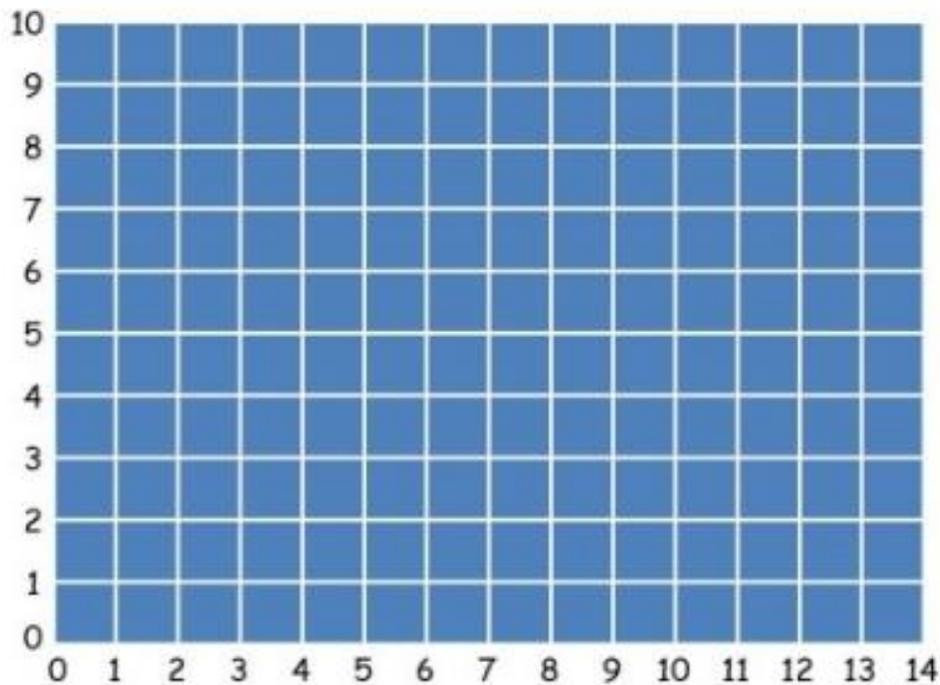
The Math Behind the Scenes:

In this geometry activity, kids use an ordered pair of numbers to describe points on a plane.

- ★ **coordinates**: an ordered pair of numbers, e.g. (1, 2)
- ★ **point**: a location on the grid where lines intersect

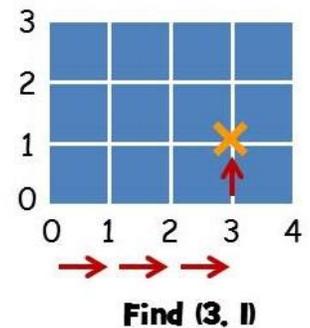
Making a Giant Grid

1. Using your tape measure and masking tape, create a square on the floor that's 55 inches tall and 77 inches wide.
2. Make a tic mark every 5.5 inches along all 4 masking tape strips.
3. Stretch strips of tape across to connect the tick marks, forming a grid pattern.
4. Starting at the bottom left corner, use one marker to number the grid points along the baseline (X axis) from 0 to 14.
5. Use a different colored marker to label the Y axis from 0 to 10.



Getting to the Point

Face the grid. Explain that they will find (3, 1). The first number is the x-coordinate and is found by starting at 0 and counting across the x-axis. The second number is the y-coordinate and can be found by counting up from 0 on the y-axis. If they get mixed up, remind them that x comes before y in the alphabet!

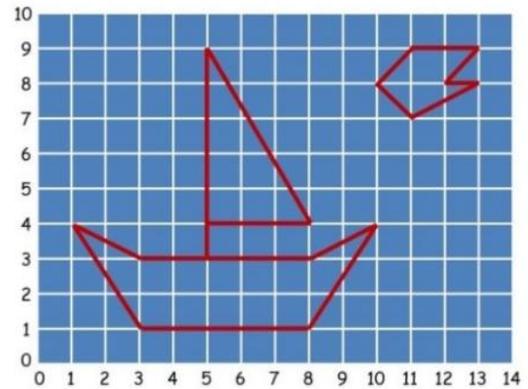


Make Your Map

Now use the string or ribbon to make a treasure map!

- ★ Hand the string and tape to the kid closest to 0, 0.
- ★ Read off the first pair of coordinates in the 1st Ocean Object column: (3, 1).
- ★ That player finds the intersection that's 3 spaces to the right of (0, 0) and 1 space up. The player tapes the string to that intersection then leaves the spool of string on the grid for the next player or continues on.
- ★ The next player gets the next pair of coordinates (8, 1) and a piece of tape. S/he finds the location on the grid, unwinds the string to that spot, gently pulls it straight and tapes it there.
- ★ Continue rotating players through the coordinates in the 1st Ocean Object column.
- ★ Cut the string when the 1st Ocean Object is complete.

- ★ Repeat steps 2 – 7 for the 2nd and 3rd Ocean Object coordinates.
- ★ Encourage the kids to guess what the pictures might be.
- ★ Your final map will look like this. DON'T REVEAL THIS PICTURE to keep the surprise!



Hunt for Treasure

Pretend to be pirates racing to capture the treasure on your island!

- ★ Make 2 teams of kids or play against a parent!
- ★ Each player picks an Ocean Coordinate Pair and finds it on the game board using the skills they learned while making the map – remember x then y!
- ★ If your coordinates land you on any part of the ship or sail, either inside the ribbon or on it, you're stuck on board the ship.
- ★ If you land in the ocean, use your life raft (a 6-inch piece of string) to try to get onto the island. Hold one end of the string on your spot and stretch the string from there to the island.
 - If your life raft CANNOT reach the island, you're stuck in the ocean.
 - If your life raft reaches any part of the island, your team is 1 step closer to reaching the treasure! Mark your initials on the island.
- ★ After every turn, put your coordinate pair in a discard pile.
- ★ The first team to reach the island twice captures the treasure!

Picture This! (grades 3-5)

Now that you've made a map by plotting given coordinates, try reversing the process. Draw a picture with straight lines, determine the coordinates for each new line, and see if others can recreate your picture!

- ★ Clear the tape from the Giant Grid.
- ★ Take a piece of Pirate Graph paper and a pen or pencil.
- ★ Create your own picture with no more than 12 connected lines and write down the coordinates in the order they need to be connected.
- ★ Call out the coordinates to a parent or friend and have them plot out the picture using the string and tape.
- ★ Have them try to guess what the picture is as it's being made.
- ★ DO NOT cut the ribbon at the end of each picture. Otherwise you might not have long enough pieces for another turn!

Riddles and Questions

Kindergartners: If you start at 2 and hop 6 numbers across, where will you land?

1st-graders: If you start at 2, hop 7 numbers across, then keep hopping across 3 more numbers, where will you land?

2nd-graders: Choose 2 points on the grid. What is the difference between their y-coordinates?

3rd-graders: Find the area of your picture by counting its square units. How many square units in all?

4th-graders: Does your picture have symmetry? If so, find the line of symmetry. If not, how do you know?

5th-graders: How would your picture change if you multiplied every x-coordinate by 2, and every y-coordinate by 3?

Answers:
PreK: 8.
K: 12.
1st: Answers will vary.
2nd: Answers will vary.
3rd: Answers will vary.
4th: Answers will vary.
5th: Answers will vary.

Ocean Object Coordinates

1st Ocean Object:

(3, 1)
(8, 1)
(10, 4)
(8, 3)
(3, 3)
(1, 4)
(3, 1)

2nd Ocean Object:

(5, 3)
(5, 9)
(8, 4)
(5, 4)

3rd Ocean Object:

(11, 7)
(10, 8)
(11, 9)
(13, 9)
(12, 8)
(13, 8)
(11, 7)

Ocean Coordinate Pairs

9, 10	2, 8	3, 4	9, 3	12, 3
1, 5	11, 9	8, 7	8, 4	4, 2
9, 5	6, 7	12, 8	7, 2	5, 10
10, 4	10, 8	14, 3	1, 1	8, 9
5, 7	7, 5	5, 0	0, 8	3, 3
11, 8	13, 7	12, 6	10, 7	12, 9