

## Finding the Spot Spot 'Z'

Name \_\_\_\_\_ Date \_\_\_\_\_ Teacher \_\_\_\_\_

### Introduction:

In this activity, you will find a spot on the graph simply by locating the intersecting points of circles. The 'spot' is indicative of an unseen body such as a black hole or small planet in space or a very small particle of matter such as a proton, electron, or neutron. You should understand that the distances from certain specific points on your graph are to be likened to forces that are acting on the various points on the graph. When you write your conclusion, keep in mind the reasons for the activity;

- a. forces help determine unseen objects in space and unseen particles of matter,
- b. the scientific community is constantly trying to determine if the theories proposed by scientists are correct, and
- c. we have to employ reasoning to determine facts about our world and our universe.

### Materials:

- Ruler
- Compass
- Pencil

### Procedure:

1. Measure each distance from the points indicated in each step and then use a compass to draw a circle around the point. There will be points that are not used to find your spot. Draw each circle on the activity sheet only. If a circle would go beyond the edges of the paper, ignore that section of the circle.
  - a. 2.0 cm from H
  - b. 1.5 cm from M
  - c. 4.4 cm from O
  - d. 3.5 cm from C
2. After you have drawn all circles, you will notice a definite spot where all the circles coincide. This is your 'spot'.
3. Report the grid square of your spot. For instance, spot 'A' would be at grid 1,7.

**My Spot 'Z' is located:** \_\_\_\_\_

### Grid for your 'Spot'

		E				A			
	N								
					M				
		B					H		
				J					O
		R			P		C		
	D								
				F					I
G						K			

**Questions:**

1. Consider the marked spots on the grid as large heavenly bodies that are exerting forces on each other, and are experiencing forces exerted on them from all of the other bodies. Explain a scientist might use this information to enhance what we consider to be known facts about the way our universe works. \_\_\_\_\_

\_\_\_\_\_

2. Considering the marked spots on the grid as small particles, explain how the knowledge of how large bodies in the universe affect each other would aid in a scientist's explanation of the existence of the smallest particles of matter. \_\_\_\_\_

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**Conclusion:** \_\_\_\_\_

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