

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

### How big is the Moon? How big is the Earth?

**Directions:**

1. On your desk, you have a variety of circle templates.
2. Arrange the circles in size from smallest to largest across your desk.
3. Each lab partner will take a turn to choose any two circles.
  - a. One will represent the **Earth** and one will represent the **Moon**.
4. Measure the diameter of each circle in cm and record in the chart below.
5. Determine how many Moons will fit across the diameter of the Earth.
6. Record in the chart below.

Lab Partners					And the answer is...
EARTH (cm)					
MOON (cm)					
# of Moons					

### How Far away is the Moon?

**Directions:**

1. Choose any size circle
2. How many 'Earths' would you have to line up next to each other to equal the distance between the Earth and the Moon?
3. Measure the diameter of your "Earth"
4. Record the diameter and how many "Earths" you would need.
5. Multiply the diameter by the number of "Earths" and record below.
6. Have your partner take a turn

Lab Partners					And the answer is...
EARTH (cm)					
# Earths					
Distance (cm)					



<----- How many "Earths" would fit between the Earth & Moon? ----->



## How many Moons would fit inside of the Earth?

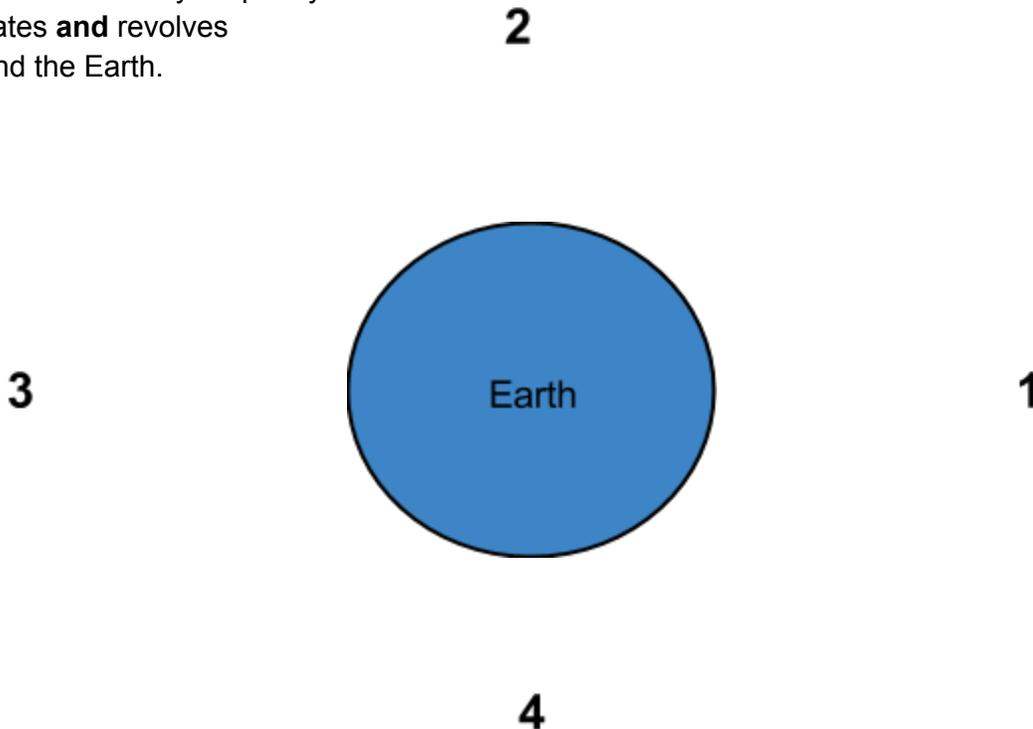
### Directions:

1. On your desk is a container of pennies
2. Count out 50 pennies
3. If one penny represents the Moon, how many Moons (pennies) would fit inside the Earth's Volume? (Imagine filling an empty fish bowl with marbles)
4. Pass the pennies to your partner, repeat
5. Count how many pennies are in each pile and record below

Lab Partners					And the answer is...
Inside the Earth					
Left over pennies					

### Rotation vs. Revolution:

**Directions:** Draw your penny as it rotates **and** revolves around the Earth.



## Answer Key

Comparing size of Earth and Moon - Circle templates locates at:

[https://middleschoolscienceblog.files.wordpress.com/2015/02/earth\\_moon\\_sizes\\_templates.pdf](https://middleschoolscienceblog.files.wordpress.com/2015/02/earth_moon_sizes_templates.pdf)

Lab Partners	Bobby	Susie	Jane	Timmy	And the answer is...
EARTH (cm)	<i>Students will have a variety of answers, most students end up choosing a moon that is roughly <math>\frac{1}{2}</math> to <math>\frac{1}{3}</math> the size of the Earth. The 5.5 inch circle would be the closest for the Earth and 1.5 inch circle for the Moon</i>				<b>14 cm (5.5")</b>
MOON (cm)					<b>3.8 cm (1.5")</b>
# of Moons					<b>3.7</b>

How many "Earths" away is the moon?

Lab Partners	Bobby	Susie	Jane	Timmy	And the answer is...
EARTH (cm)	<i>Students will have a variety of answers, most students underestimate the distance.</i>				<b>Any size</b>
# Earths					<b>30</b>
Distance (cm)					<b>Any size times 30 = cm</b>

How many Moons would fit inside the Earth?

Lab Partners	Bobby	Susie	Jane	Timmy	And the answer is...
Inside the Earth	<i>Students will have a variety of answers, most students end up underestimating the number of Moons that could fit inside the Earth</i>				<b>49</b>
Left over pennies					<b>1</b>

*Note - some sources say it is 1 vs 50, others 1 vs 49, the source I used had the ratio 1:49*

Rotation vs Revolution - detailed directions and answer from:

<http://discovery.nasa.gov/musical/interactive/ssmPdfs/PennyMoonQuarterEarth.pdf>