

Model of the Planets' Relative Sizes NAME _____/66

This activity will give you an idea of the relative sizes of the planets. Planets are always represented as being about the same size mostly because their pictures are either blown up or shrunk down to fit on a single piece of paper. Gas giants are truly giant compared to the terrestrials. This activity is also designed to help you memorize the order of the planets. The saying “**My Very Excellent Mother Just Served Us Nachos**” is useful in remembering the order (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune).

Materials:

-Printer paper -Colored Pencils or Crayons -Ruler -Drawing Compass -Scissors

Directions:

A) Measure, draw, and cut out paper circles of appropriate diameters to demonstrate the relative size of each planet. Below are the sizes for each planet:

Mercury: 1 cm	Venus: 2.2 cm	Earth: 2.4 cm	Moon: 0.6 cm
Mars: 1.4 cm	Jupiter: 28 cm	Saturn: 24 cm	Uranus: 10.2 cm
Neptune: 9.9 cm	Pluto: 0.6 cm		

B) Color, add rings, etc. to make each model planet look like the real thing (Pics on pages 649-659)

C) Line up the model planets left to right on your paper from the closest to the sun to the furthest, then glue them in place. Be sure you understand that, while the relative sizes of the planets are to scale, ***the distances between the planets will not be***. In fact, at the scale used to make the model planets, we would need 1030 yards (a little over a 1/2 mile) to lay out the distances between the planets. (See table below)

Distance from the Sun

<u>Real (miles)</u>	<u>Model (yards)</u>
Mercury 36,000,000	10
Venus 67,000,000	19
Earth 93,000,000	26
Mars 142,000,000	39
Jupiter 483,000,000	134
Saturn 885,000,000	246
Uranus 1,787,000,000	496
Neptune 2,800,000,000	778
Pluto 3,699,000,000	1028 (more than 10 football fields)

Questions Part 1: (pages 649-653)

- 4pts 1. Name the 4 inner planets in order.
- 4pts 2. Name the 4 outer planets in order.
3. What are the 4 inner planets primarily made of?
4. What are the 4 outer planets primarily made of?
5. Which group of planets is the densest?
6. Which group of planets is the largest?
7. How long is Mercury's day?
8. Why is it so hot on Mercury during the day?
9. What temperature does it get down to at night on Mercury?
- 2pts 10. Does Mercury have an atmosphere? Why or why not?
11. Could we ever live on Mercury?
12. What is special about Venus's day and year?
- 2pts 13. How does Venus spin? What does this mean for the "sunrise-sunset?"
14. How hot is it on Venus?
15. Could we ever live on Venus?
16. Mars and Venus both have an atmosphere that is mostly carbon dioxide. Why does Venus have a horrible greenhouse effect, and Mars does not?
17. What are the winter temperatures like on Mars?
18. What is frozen at Mars' poles?
19. When Mars has hurricane force winds, what speed are they?
20. Does a Mars hurricane bring rainfall? (Does Mars have a water cycle?)
21. Could we ever live on Mars?

1. What is Jupiter's mass compared to the other planets?
2. What is Jupiter's day (1 rotation)?
3. What is the hydrogen like on Jupiter? (from outside to inside how does it change?)
4. What is Jupiter's core like?
5. What is the great red spot?
6. How fast are the winds that go around Saturn?
7. What is Saturn's largest moon?
8. How many rings are in Saturn's ring system?
9. What are Saturn's rings made of?
10. Which planet spins sideways?

5pts

11. What 5 substances is Uranus made of?
12. How many moons does Uranus have?
13. Which planet is the windiest in the solar system?
14. When the great dark spot is visible, what is it?

2pts

15. Which planet is the coldest? Why is it coldest?
16. What is Neptune's largest moon?
17. Which of the gas giants has rings?
18. Why is Pluto not considered a planet?

2pts

19. How is Pluto's orbit different from the other planets'? There are 2 ways.
 - 1
 - 2
20. What happens to Pluto when it gets closer to the sun?
21. Which group of planets have the greatest distances between them?