

Solar System Review Sheet KEY

Use this sheet to check your answers for accuracy. Answers do not need to be word-for-word the same. However, important details should be included.

1. Describe physical, mental, and visual models:

Physical models: represent a thing/concept; they can be touched/manipulated;

Mental models: your ideas/everything you think or believe to be true about a topic;

Visual models: show the most important aspects of a topic/thing without words

2. Give an example of each type of model:

Physical = model car, globe

Mental = thoughts about old people, teenagers, statue of liberty

Visual = picture, diagram, icon

3. What two things are all models based on?

MANY observations, AND the assumption that things keep acting how they did in the past

4. What are they used for?

They help us know/understand the topic; explain how things work; help you make accurate predictions; help you think of new areas to investigate.

5. What happens if a model is not accurate or if new information doesn't fit? (What do you do 1st? Next?)

First, fixed/change it slightly to help new info/observations fit the old model;

Next, it can be thrown away, but only as a last resort.

Learning Goal #2: Use pages 34-39 in your notebook and the "Galileo's footsteps" worksheet.

6. Tell what each scientist contributed to our understanding of our solar system and universe:

Scientist	Observation/Contribution
Ancient Greeks	Geocentric universe; Earth at center w/everything orbiting it in perfect circles
Ptolemy	added epicycles to the geo-centric model; made it more accurate (even though it was wrong)
Copernicus	First to say the Sun is at the center of the solar system (heliocentric model)
Kepler	used the scientific method/math to prove the planets' orbits were ellipses
Galileo	used telescope to discover Jupiter's moons; supported the heliocentric model; was proof people could see
Newton	explained gravity as the force that keeps the Earth and Moon in orbit together
Hubble	Discovered other galaxies; proved the universe is expanding.

7. What is the main difference between the geocentric and heliocentric models of planetary motion? **The geocentric model has Earth at the center of the solar system or universe; heliocentric has the sun at the center with everything orbiting it.**

8. How did technology and/or new methods help to change the model of the solar system?

Telescopes made the discovery of Jupiter's moons and other galaxies possible; using math/scientific method helped prove the heliocentric model was correct.

9. What three requirements must an object meet in order to be considered a planet? **It must orbit the sun, have enough gravity to pull itself into a round shape, and must have cleared other objects from its orbit.**

10. Describe the common characteristics of the terrestrial, gas giant, and dwarf planets: **Terrestrial planets (small, rocky, dense); the gas giants all are made of liquid/gas hydrogen and helium; all are large. The dwarf planets are all very small; most are very far from the sun and are very cold (other than Ceres).**

11. Describe how the major objects in the solar system are arranged. (Describe the spacing and order of the planets.) **The first four planets are close to the sun and are spaced closely together. The rest are spaced very far apart. The order is: Mercury, Venus, Earth, Ceres, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Haumea, Makemake, Eris**

12. Why are dwarf planets not considered to be “planets”? In particular, why is Pluto not a planet anymore? **They meet some but not all of the criteria for being a planet. Pluto has not cleared out its neighborhood of other objects.**

Write definitions for each of the following terms:

14. Gravity **The force that attracts all objects towards each other**

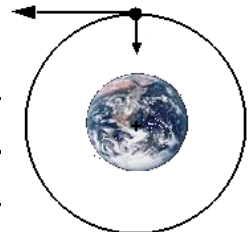
15. Law of Universal Gravitation **Every object in the universe pulls every other object towards its center**

16. Mass **The amount of matter in an object**

17. Weight **A measurement of the force of gravity on an object**

18. What is Newton's First Law of Motion? **An object at rest will stay at rest, and an object in motion will stay in motion with constant direction and speed unless acted on by a force. (Things keep doing what they're doing unless forced to change.)**

19. In your own words, explain why objects remain in orbit. _____
Objects remain in orbit because the force of gravity and the
object's inertia (forward motion) are balanced.



20. Explain why you would weigh less on the moon than on Earth. **The moon has less mass than the Earth does, which means it has less gravitational pull. The lower gravity would pull less on my mass, meaning I'd weigh less.**