Name: _____ Class: _____ Date: _____ ID: A

Solar System Short Study Guide

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

____ 1. Bodies of interplanetary debris that orbit the Sun with most in the area between Mars and Jupiter are called ____.
a. meteors
b. comets
c. asteroids
d. meteorites

____ 2. Small, icy bodies that have highly eccentric orbits and can be found in the Oort cloud or the Kuiper belt are called ____.
a. meteors
b. comets
c. asteroids
d. meteorites

____ 3. Interplanetary material that enters the Earth's atmosphere and collides with the ground rather than burning up is called a(n) ____.
a. meteor
b. comet
c. asteroid
d. meteorite

____ 4. The eccentric orbit of ____ is 50 AU from the Sun at aphelion and almost 30 AU from the Sun at perihelion.
a. Jupiter
b. Pluto
c. Uranus
d. Neptune

____ 5. What two gas giants appear blue because of the methane in their atmosphere?
a. Jupiter and Saturn
b. Saturn and Uranus
c. Neptune and Uranus
d. Jupiter and Neptune

____ 6. The result when Earth intersects a cometary orbit is a(n) ____.
a. asteroid shower
b. aurora borealis
c. loss of satellite communication
d. meteor shower

____ 7. What causes the sideways push that is responsible for precession?
a. the Moon’s gravitational force on Earth
b. Earth’s nearly circular orbit
c. Earth’s distance from the Sun
d. the Sun's gravitational force on Earth

Matching

Match each item with the correct statement below.

a. Kepler’s second law
b. Law of universal gravitation
c. Interstellar cloud
d. Solar nebula
e. Retrograde motion
f. Planetismals

____ 8. Can condense and become concentrated enough to form a star and possibly planets
____ 9. The movement of a planet in an opposing direction across the sky
____ 10. The disk of dust and gas that formed the Sun and planets

____ 11. An imaginary line between the Sun and a planet that sweeps out equal amounts of area in equal amounts of time

____ 12. The statement that describes the relationship among the masses of two bodies and the force and distance between them

Match each item with the correct statement below.

a. meteor
b. interstellar cloud
c. belt
d. comet
e. 1 astronomical unit
f. precession

____ 13. Earth's average distance from the Sun: 1.496×10^8 km

____ 14. The wobble of Earth's axis caused by the Moon's gravitational force on Earth

____ 15. Cloud of gas and dust from which stars and planets are formed

____ 16. Interplanetary material that burns up and becomes a bright, glowing streak of light in Earth's atmosphere

____ 17. Small, icy body made of ice and rock that has a highly eccentric orbit around the Sun

Short Answer

18. Describe an ellipse and how it differs from a circle.

19. Discuss the current hypothesis regarding the origin of Saturn's ring system.

20. Which are the gas giant planets?

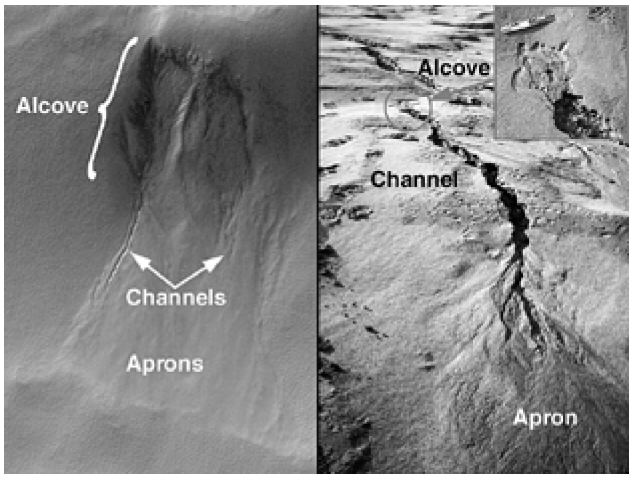
21. Which planet has a reddish color caused by a high iron content?

Possible Present-Day Sources of Water on Mars

In recent years, the *Mars Global Surveyor* spacecraft observed features that suggest there may be current sources of liquid water at or near the surface of Mars. These small features—about the size of a sport utility vehicle—have been compared to the features left by flash floods on Earth. The features look like gullies formed by flowing water and the deposits of soil and rock transported by these flows.

The gully landforms on both Mars and Earth are divided into three parts: the alcove, the channel, and the apron. The alcove is a deep channel with a collapsed region at its upper end. At the other end is an apron, or area of accumulated debris that appears to have been transported down the slope. The Mars gullies have been observed on cliffs and appear to be extremely young.

The presence of liquid water on Mars has implications for the questions of past and present life. If life did develop on Mars, and if it survives, these landforms are the place to look for it. If water is available, human exploration crews to Mars could access and use it. The water could be used for drinking, creating breathable air, and extracting oxygen and hydrogen for rocket fuel.



22. Why is the presence of liquid water on Mars important? How could it help humans?

Solar System Short Study Guide
Answer Section

MULTIPLE CHOICE

1. C
2. B
3. D
4. B
5. C
6. D
7. A

MATCHING

8. C
9. E
10. D
11. A
12. B

13. E
14. F
15. B
16. A
17. D

SHORT ANSWER

18. An ellipse is an oval shape that is centered on two foci. A circle is a special ellipse where the distance between the two foci is zero. An elliptical orbit is not at a constant distance from the Sun as a circular orbit would be.
19. Astronomers hypothesize that Saturn's rings are made of particles of debris left over after a moon was destroyed by a collision with an asteroid or other object. New ring systems may form for the same reason.
20. Jupiter, Saturn, Uranus, Neptune
21. Mars
22. Water is necessary for life. If the gullies are new, that means there is a possibility that life has existed on Mars, not only in the past, but also presently. If life did develop there, the gullies would be the place to find it. Also, water would help humans who may land on Mars. It could be used to drink, to create breathable air, and to extract oxygen and hydrogen for rocket fuel.