EPS 100
Test Review: Astronomy

Name: Key

Part 1: Objects in The Universe

1-14. Match these terms to the descriptions below.

Binary	Solar Flares	Nebula	Meteor	Asteroid	Meteorite	Black Hole
Galaxy	Comet	Constellation	Supernova	Andromeda	Circumpolar	Milky Way

1. A rock from outer space that hits the Earth Meteorite
2. A "dirty snowball" of rock and ice that orbits the sun Comet
3. A group of millions or billions of stars that is held together by gravity Galaxy
4. A collection of stars that can be connected, dot-to-dot, to form a picture or pattern Constellation
5. This describes a star system with two stars that orbit one another. Binary
6. An area of super-strong gravity surrounding an infinitely small and dense point of matter – where not even light can escape. Black Hole
7. This is not our galaxy, but it is the closest galaxy to our galaxy. Andromeda
8. Our galaxy Milky Way
9. A rock, smaller than a planet, that orbits the sun Asteroid
10. The explosive death of a very large star Supernova
11. This describes stars that may be seen all year long. Circumpolar
12. A cloud of dust and gas that can form into a solar system Nebula
13. A rock from space that is passing through the Earth's atmosphere; a "shooting star" Meteor
14. Giant explosions on the surface of the sun Solar Flares

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15. List the planets, in order, based on their nearness to the sun.
Closest: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
16. Which way does a comet's tail point?
Away from the sun
17. List all of the planets that have rings.
Jupiter, Saturn, Uranus, Neptune
18. Where are the coldest planets?
Far from the sun
19. Which planets are mostly gas?
Outer planets (Jupiter and beyond)
20. One color star that you will not see is green.
21. Where is the asteroid belt?
Between the orbits of Mars and Jupiter

Part 2: Solar System Formation

22. Before the solar system took its current form, it was called a nebula, and it contained *dust* and *ice*. Describe the nebula that gave rise to our solar system.

a. What materials made up the nebula's *dust*?

Rock and Metal

b. What materials made up the nebula's *ice*?

Mostly Hyrogen and some Helium

c. Describe the nebula's size, compared to today's solar system.

Much larger

d. Describe the nebula's temperature.

Colder

e. Describe its motion.

Slowly rotating

f. Describe its shape.

No shape

23. As time passed, the size of the nebula changed.

a. Describe the change in its size.

Got smaller

b. Why did the nebula's size change in this way?

Gravity compressed it

24. As the size of the nebula changed, its motion also changed. Describe the change in the nebula's motion.

Spun faster

25. The change in the nebula's motion caused a change in its shape. What shape did it become?

Disk

26. Describe how the temperature of the nebula began to change. Did it heat up or cool down?

Heated up

27. Why did the temperature begin to change?

Because it was compressed by gravity.

28. Birth of The Sun:

a. Our sun's energy comes from a process called Nuclear fusion.

b. Our sun's main fuel is Hydrogen.

c. When this fuel is used up, it turns into Helium.

29. Why don't the inner planets have large gas layers, like the gas giants?

"Frozen gas" near the sun was melted, vaporized, and blown away by the sun.

30. The planets are in stable orbits. They do not fly away from the sun, and they do not get pulled in to the sun.

a. What prevents the planets from flying away from the sun? Gravity

b. What prevents the planets from being pulled in to the sun? Momentum

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Part 3: The Young Earth

31. The early Earth was a hot, molten liquid. What caused the outside of the Earth to form a solid crust?

The coolness of outer space

32. Scientists used rock samples to find the age of the earth. Where did they get those samples?

Meteorites

33. What is the approximate age of the Earth?

4.6 Billion Years

34. How do scientists think the moon was created?

Another planet hit the Earth and broke off material that became the moon.

35. According to the video you watched, where do scientists think much of the Earth's water came from?

Meteorites/meteors

36. Before about 3.5 billion years ago, there was no oxygen on the Earth. Scientists think the Earth's oxygen was first produced by blue-green algae (Cyanobacteria)

37. Where did most of our planet's coal, oil, and gas deposits (i.e. "fossil fuels") come from?

Decayed plants that were covered up by layers of soil and rock

Part 4: The Greenhouse Effect

38. Water is the number one greenhouse gas. List the next two most important greenhouse gases, and list one source of each of them.

Greenhouse gas: Carbon Dioxide Comes from: Decomposition and Burning Fossil Fuels

Greenhouse gas: Methane Comes from: Swamps, Cow flatus (farts)

39. What effect do atmospheric greenhouse gases have on infrared radiation (heat radiation)?

Greenhouse gases block infrared radiation

40. What effect do atmospheric greenhouse gases have on sunlight?

"GHGs" → Greenhouse gases allow sunlight to pass through.

41. Where does most of the infrared radiation (heat radiation) in our atmosphere come from?

Infrared is given off by the Earth's warm surface.

42. Explain briefly how greenhouse gases warm the atmosphere? Make sure that you describe the role of sunlight, greenhouse gases, the Earth's surface, and infrared radiation.

Sunlight passes through GHGs in the atmosphere and hits Earth's surface. Earth's surface warms up and gives off infrared radiation that is held in by GHGs.

43. Actual greenhouses are used to raise plants that need a warm environment. What part of a greenhouse plays the same role that greenhouse gases play in Earth's atmosphere?

The glass in a greenhouse is like the greenhouse gases in our atmosphere. It lets sunlight in, but it prevents infrared radiation from escaping.