

NEBULAR THEORY

Origin of the Solar System

Name _____ Class _____

Earth's origin has been debated for a long time. Many questions are still unanswered. Probably the most widely accepted theory at present is the Nebular Theory. Study the following diagrams. Cut out the diagrams. Put them in order on your desk. Have your teacher okay your order. Then paste them in order. Add the appropriate label underneath each diagram. Finally, answer the Summary Questions.

-nebula

-protosun forming

-protoplanets forming

-moons forming

-solar system

-spinning planetary disk

SUMMARY QUESTIONS:

1. Define Nebular Theory.
2. List the six stages of the nebular theory in order from beginning to end.
3. What force causes the gas cloud (also called a nebula) to begin to contract?
4. As the nebula begins to shrink and spin, what else does it begin to do?
5. What begins to take shape in the center?
6. At what point does the protosun become a star?
7. What do the largest clumps surrounding the protosun begin to form?
8. How do the inner protoplanets differ from the outer protoplanets?

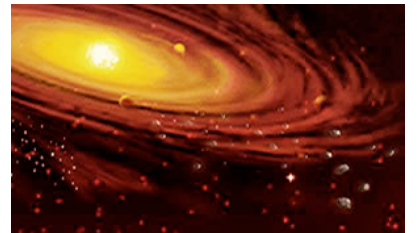
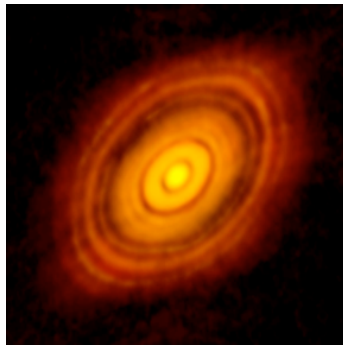
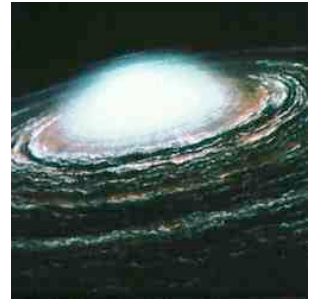
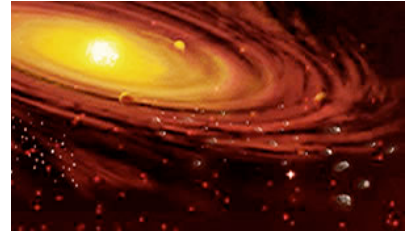
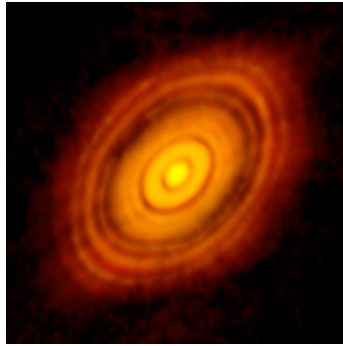
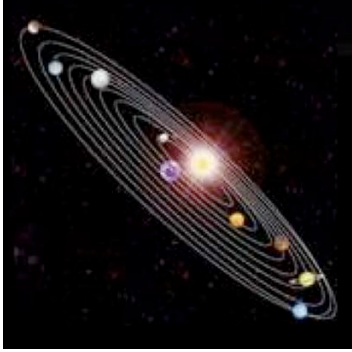
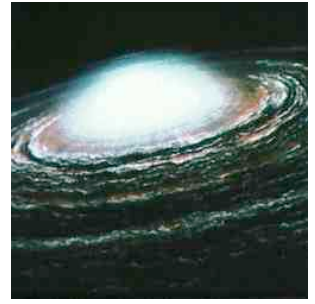
Why?

9. As the newly formed planets begin to cool, what do the smaller clumps begin to form?
10. How does the Nebular Theory explain why Pluto is so different from the other outer planets?
11. What is the asteroid belt?

Where is it located?

How does the Nebular Theory explain the formation of the asteroid belt.?

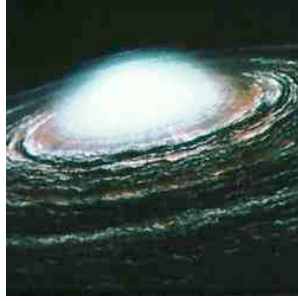
12. Near the very edge of the solar system, astronomers think that other clumps that did not form into planets (or moons or asteroids) form a huge icy cloud called the Oort Cloud. What do astronomers think this might be the home of?



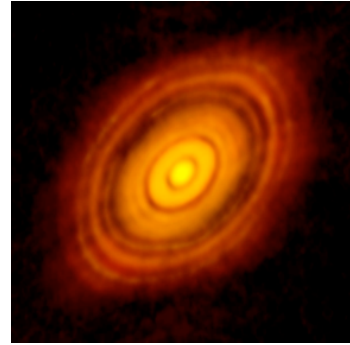
ANSWERS:



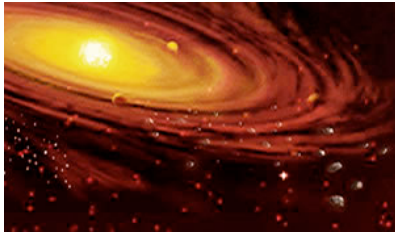
-nebula



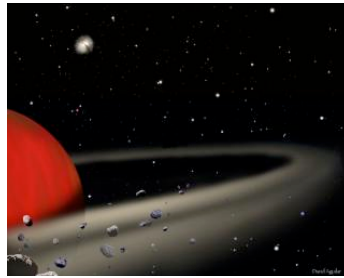
-protosun forming



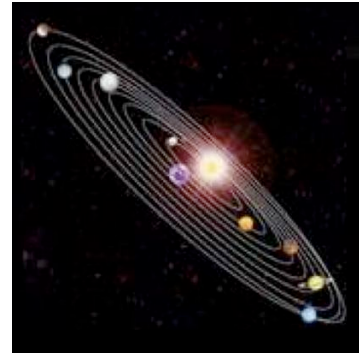
-spinning planetary disk *



-protoplanets forming



-moons forming



-solar system

* **Note:** This is an actual photo! Just discovered in November 2014. See the following for details: <http://www.popsci.com/article/science/astronomers-capture-beautiful-image-distant-planets-forming?src=SOC&dom=fb>

SUMMARY QUESTION ANSWERS * :

1. Theory that states the solar system began as a huge cloud of dust and gas which later condensed to form the sun and planets

2. Nebula, protosun forming, spinning planetary disk, protoplanets forming, moons forming, solar system

3. Shock waves from a nearby supernova explosion

4. It also begins to flatten

5. Protosun

6. When the gravitational forces begin to fuse hydrogen into helium (fusion)

7. Protoplanets

**8. Inner protoplanets - most of their lightweight gases are boiled away,
Outer protoplanets - the lightweight gases did not boil away so they appear much larger**

Why? because of the heat from the nearby sun

9. Moons (Protomoons)

**10. Perhaps one of Neptune's moons broke away or was pushed by an impact)
because Pluto appears to be similar to Neptune's moons**

11. Rocklike objects between Mars and Jupiter that may not have formed into a protoplanet

12. The home of Comets

*These answers are taken from Prentice Hall, Earth Science.

Suggestion: Project the answers (out of order, of course) and let your students answer using this "Answer Bank."