How Did The Solar System Form?

Not a "Bang"

- **Recall** – What was the Big Bang Theory?
- **Big Bang Theory** = Proposes that the **universe** began as a single point and has been expanding ever since.
- So what theory do scientists have about how our **solar system** formed?

Today's Main Idea

The **Solar Nebular Hypothesis** describes the formation of our Solar System (sun and planets) from a nebula around 4.6 billion years ago.

Step 1

- A **nebula** was present in our location

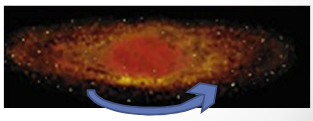
Nebula = Large cloud of interstellar gas

Draw a nebula for your comic strip

Step 2

- Gravity began to compress the nebula, moving the dust and gas into a rotating disk.
- Current Evidence: All of the planets revolve around the sun in the same plane and direction.

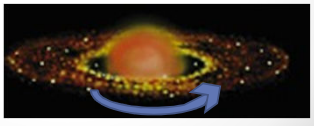
Draw a spinning pancake shape with a bulge at the center for your comic strip



Step 3

- The mass of hydrogen in the center was under so much pressure that it combined with other hydrogen atoms creating helium. This was the birth of our star, the sun.
- Fun Fact! The majority of mass from the nebula was attracted to the center by the force of gravity. 99.85% of all the mass in the solar system is in the sun.

Draw a XXX for your comic strip



Step 4

- **Planetismals** (early planets) began to grow in size from the clumps of matter and slam into each other as they revolved around the early forming sun.
- Where did our largest planets form? Close to or away from the sun?

Draw planetismals around the sun for your comic strip

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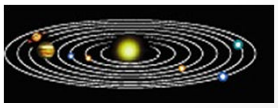
Step 5

- Gas giants (large gaseous planets: Jupiter, Saturn, Uranus, Neptune) form far away from the sun and the inner planets (Mercury, Venus, Earth and Mars) also start to take shape.
- The extra debris makes up the asteroid belt

Draw a solar system for your comic strip



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Review Animation

http://astronomyonline.org/Animations/SAO/SolarSystemFormation.mov

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Explore HW Question

- **Explore today's main idea with this question:**

Would it be possible for a gas giant to form close to the Sun? Explain.

Helpful Textbook Pages: 793 -797

Vocabulary for Next Time

- Fusion
- Nucleus (plural form is nuclei)
- Radiation

Helpful Textbook Pages: Glossary

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