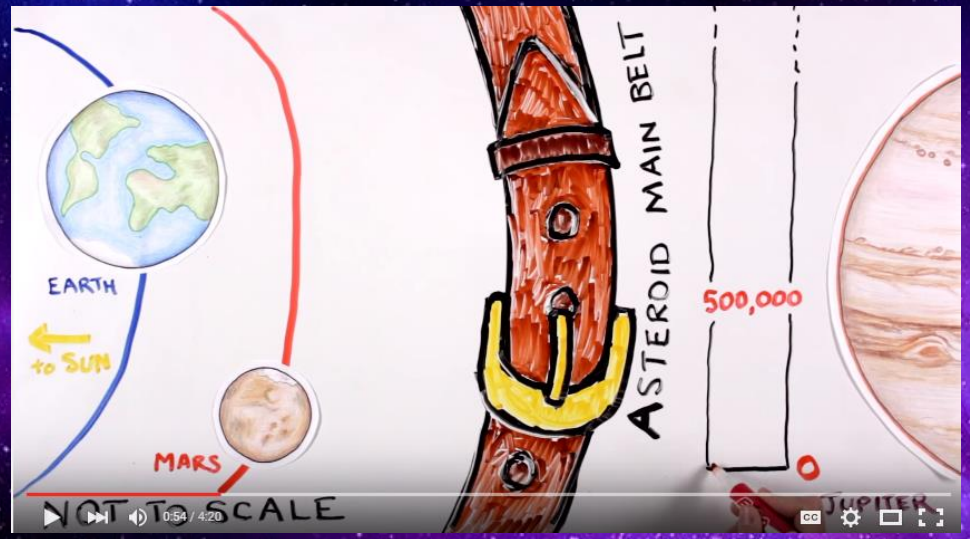
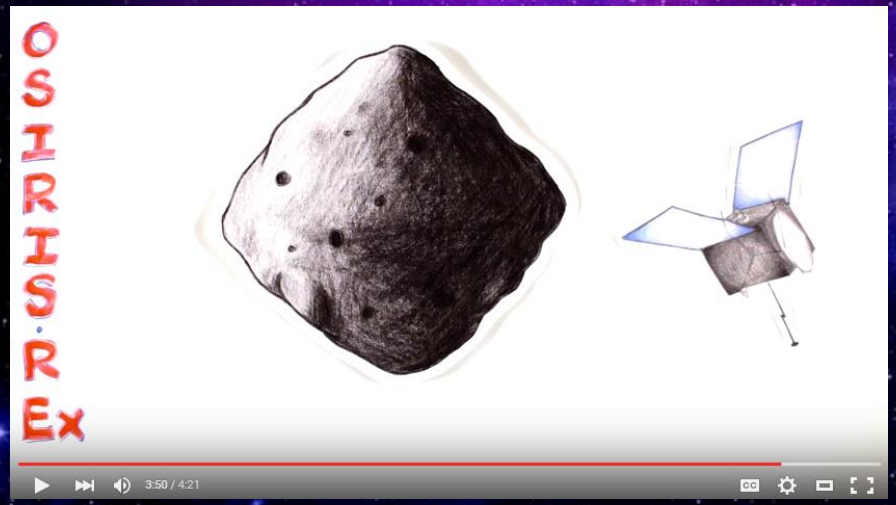
Why Study Asteroids?



Asteroids: Fact or Fiction?

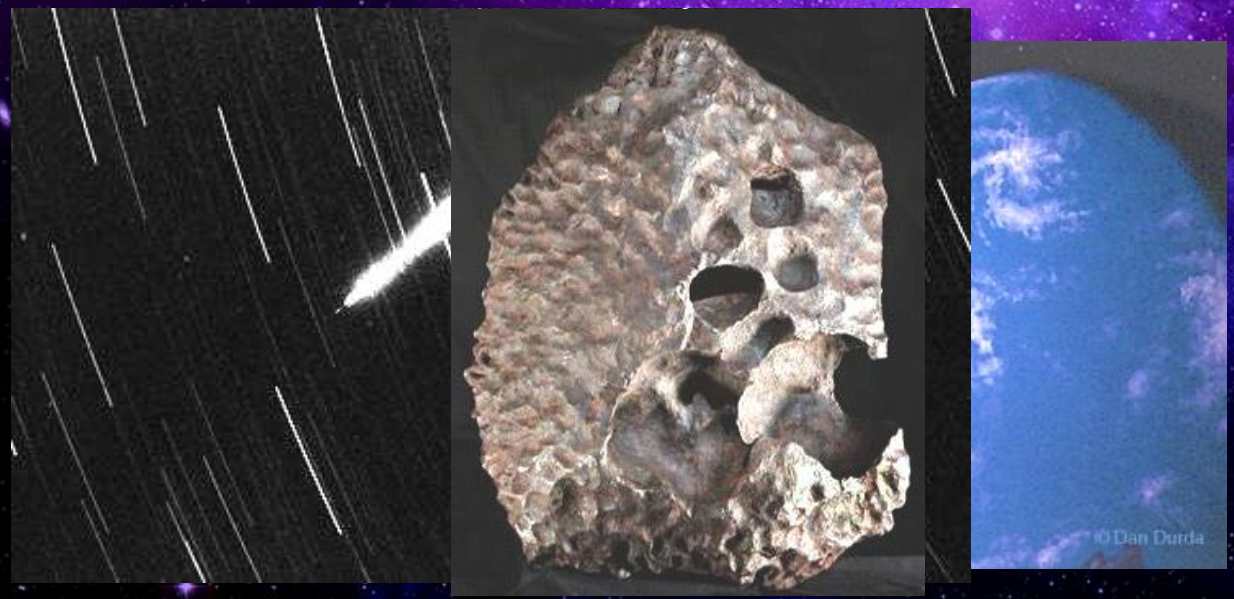
What is OSIREX-REx?



What are Asteroids Made of?

Space Rocks Defined

- Meteoroid: Small (less than 10 meters) rock/metallic object IN SPACE
- Meteor: The light produced when a meteoroid ENTERS THE ATMOSPHERE (sometimes called a “shooting star”)
- Meteorite: A natural rock/metallic object from space that has fallen to EARTH’S SURFACE



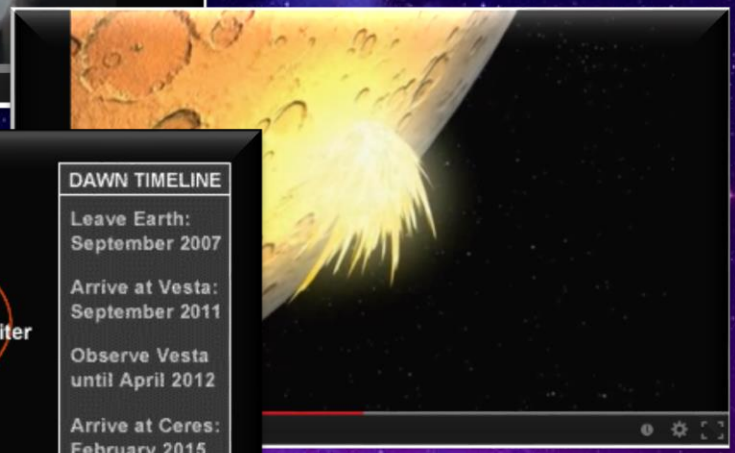
A METEOROID is a meteoroid entering the atmosphere at high velocity.

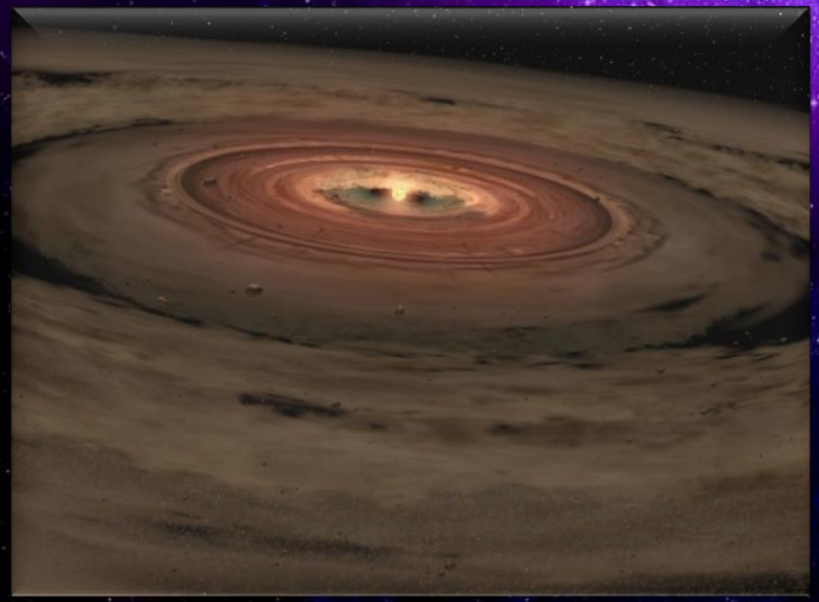
A METEOR is a part of the meteoroid that survived atmospheric entry and reached the ground.

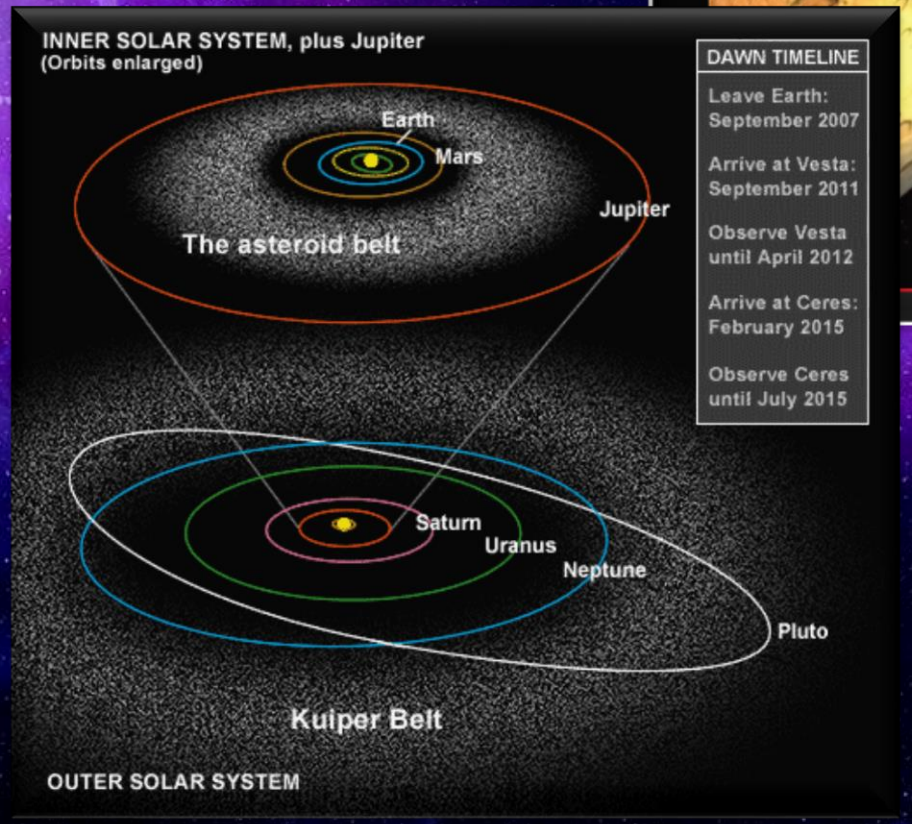
A METEORITE which is a meteoroid approaching the Earth.

Space Rocks Defined

- Where do they come from?
- Why study space rocks?
- Samples of the early Solar System
- Meteor Showers (Comet Tails)
- Impacts!! – Planetary Protection

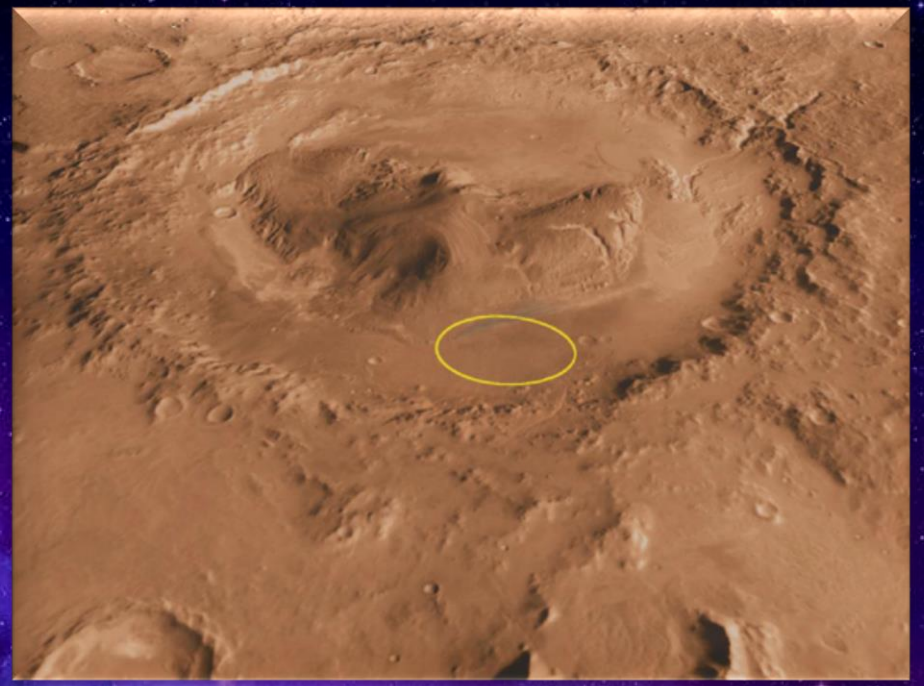




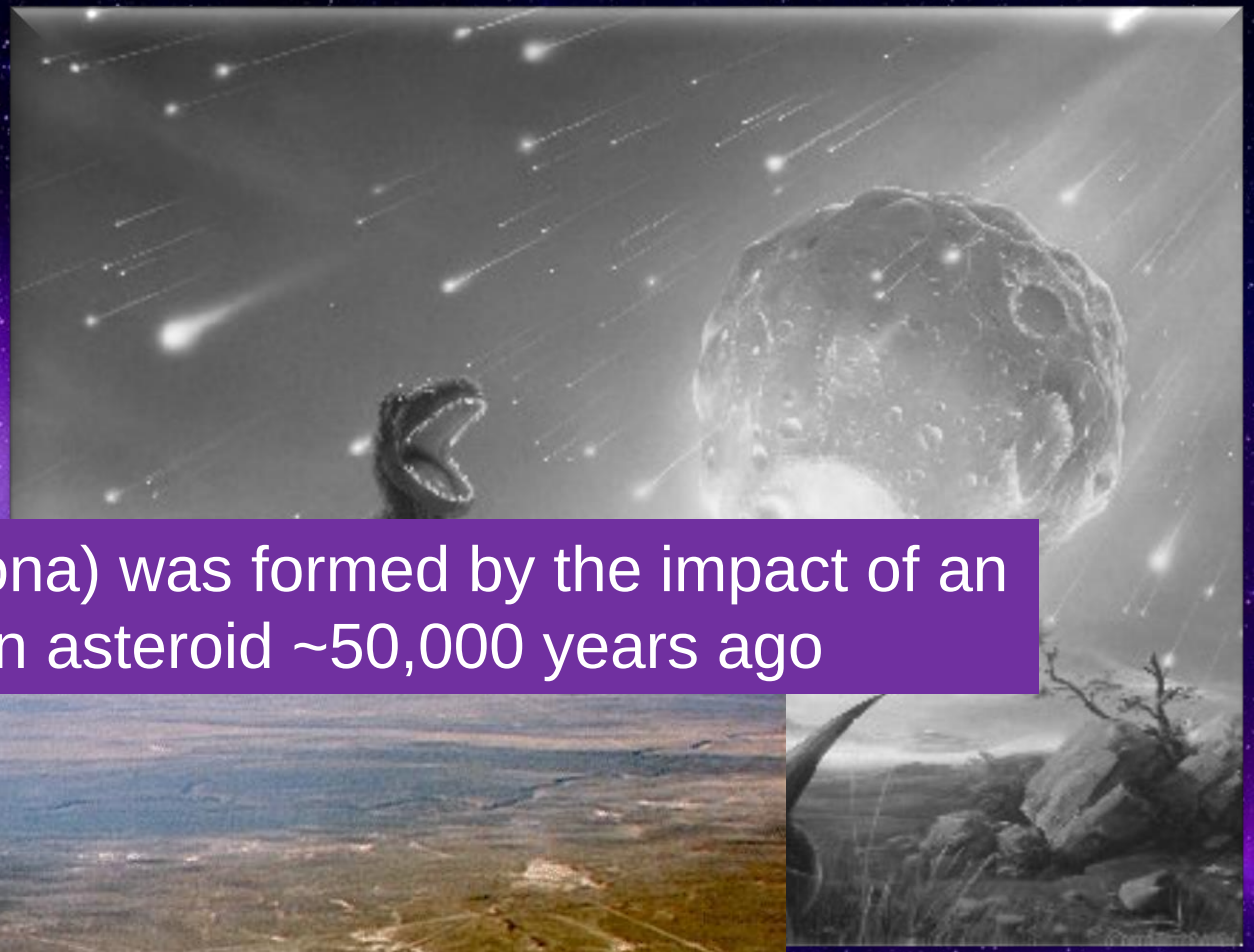


Impacts in Our Solar System

- Mercury, Moon, Mars
- Gale Crater and Curiosity Rover



Impacts on Earth



Meteor Crater (Arizona) was formed by the impact of an ~50 meter iron asteroid ~50,000 years ago

Peekskill Meteorite (12.4 kg) and 1980 Chevrolet Malibu

October 9, 1992 – Peekskill, NY

Michelle Knapp - 18 yr old, HS senior

When police arrived on the scene, they filed a report for criminal mischief by a very strong male.

The smell of gas from the punctured gas tank prompted the fire department to investigate, at which time they found the meteorite.

ASTEROIDS

...are nature's way of asking:

"How's that space program coming along?"

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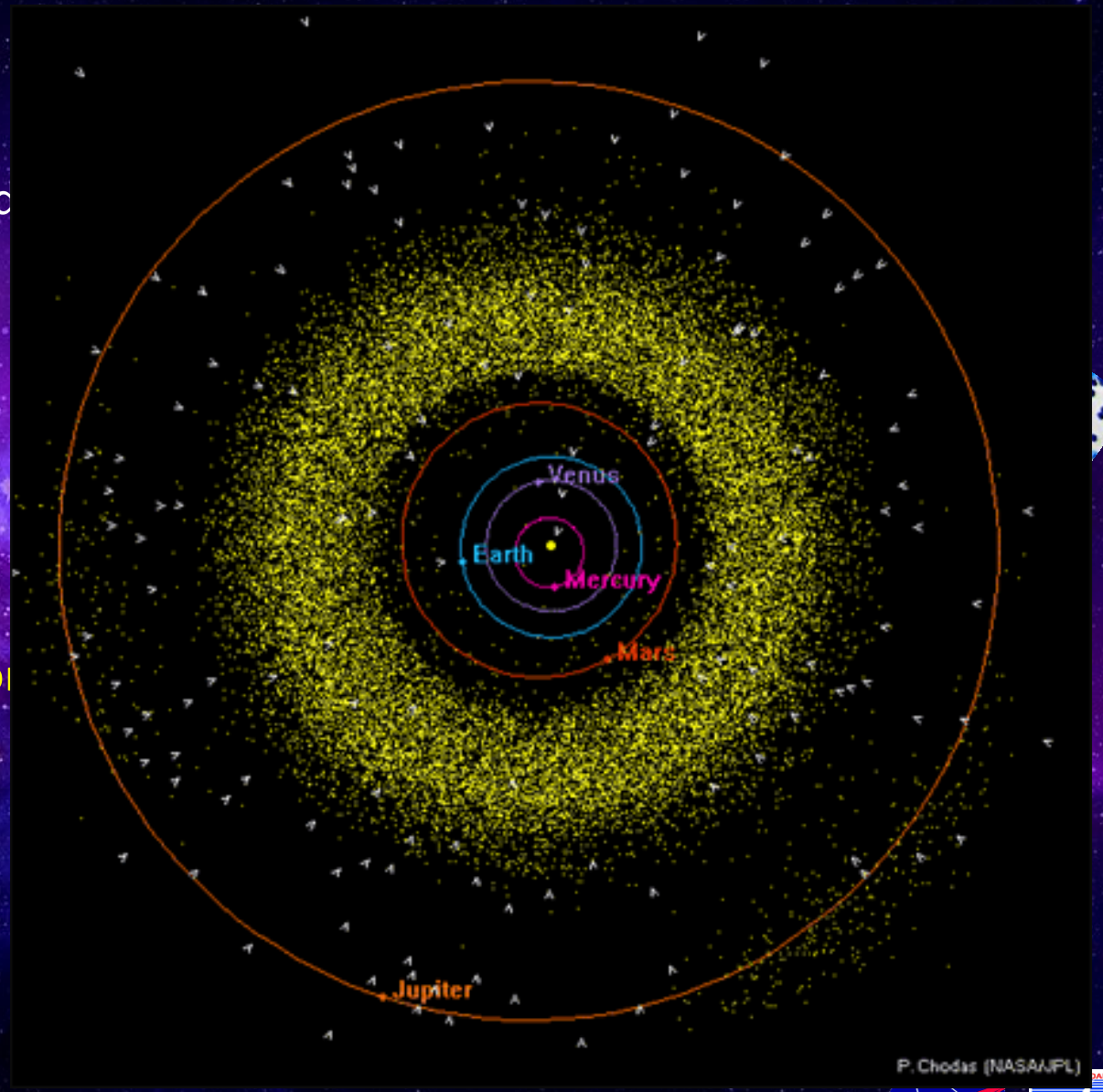
Super Sleuths

All meteorites that are found on Earth originally came from a Parent Body, or their starting location. The top four parent bodies are:

- 6 Hebe = 35%
- 4 Vesta = 5%
- 3103 Eger = 1%
- Mars

Have fun!

Ask the students:

How did you match the glitter samples (asteroic

- What's your problem?
- How did you collect evidence?
  - Tape, microscopes, and tweezers?
- Prepare slides
  - How did you gather your glitter evidence?
- Procedure and accuracy
  - How did you ensure pristine work conditio
- Draw Conclusions
  - Did you determine its parent body?
- Why would this information be useful?