

# Armageddon Time?



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# INTRODUCTION

In this activity you are going to:

Learn about asteroids and meteorites

Use ideas of kinetic energy to calculate the size of an impactor

Decide whether the movie “Armageddon” got it right!

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# MANY DIFFERENT NAMES

## Asteroid

A large rocky body found between Mars and Jupiter



Atmosphere

## Meteoroid

A smaller fragment of an asteroid outside of the Earth's atmosphere



## Meteor

A meteoroid that is burning up in the atmosphere



## Meteorite

The fragments that make it to the surface of the Earth



# THREE MAIN TYPES

STONY

NOTE! All asteroid belt meteorites  
contain some iron

IRON

STONY - IRON





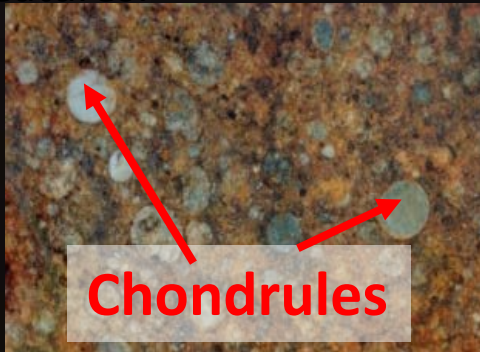
# TYPES OF METEORITE

## Meteorites

### Stony

Some Stony Meteorites have small spherical shapes called chondrules. They all have some iron in.

Meteorite type:  
Meteorite subtype:  
Made of:  
Features:

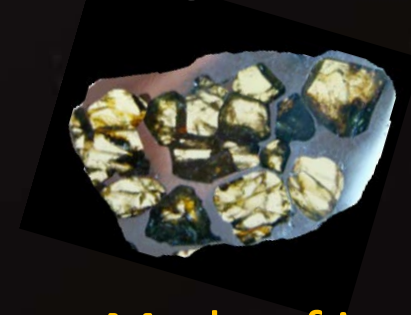


### Iron



Iron meteorites are very dense (heavy for their size)

### Stony - iron

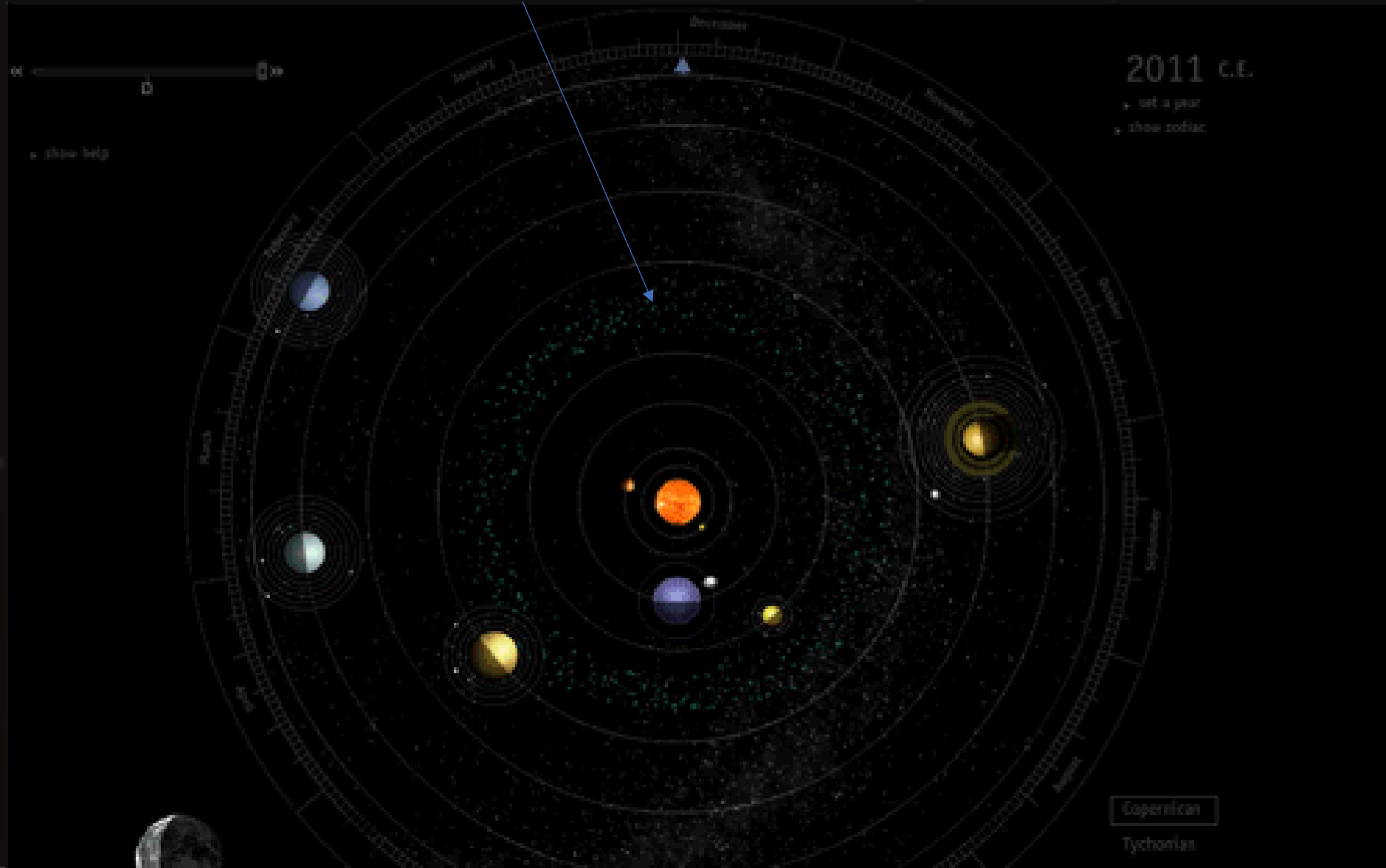


Made of iron surrounding olivine (glass like) crystals



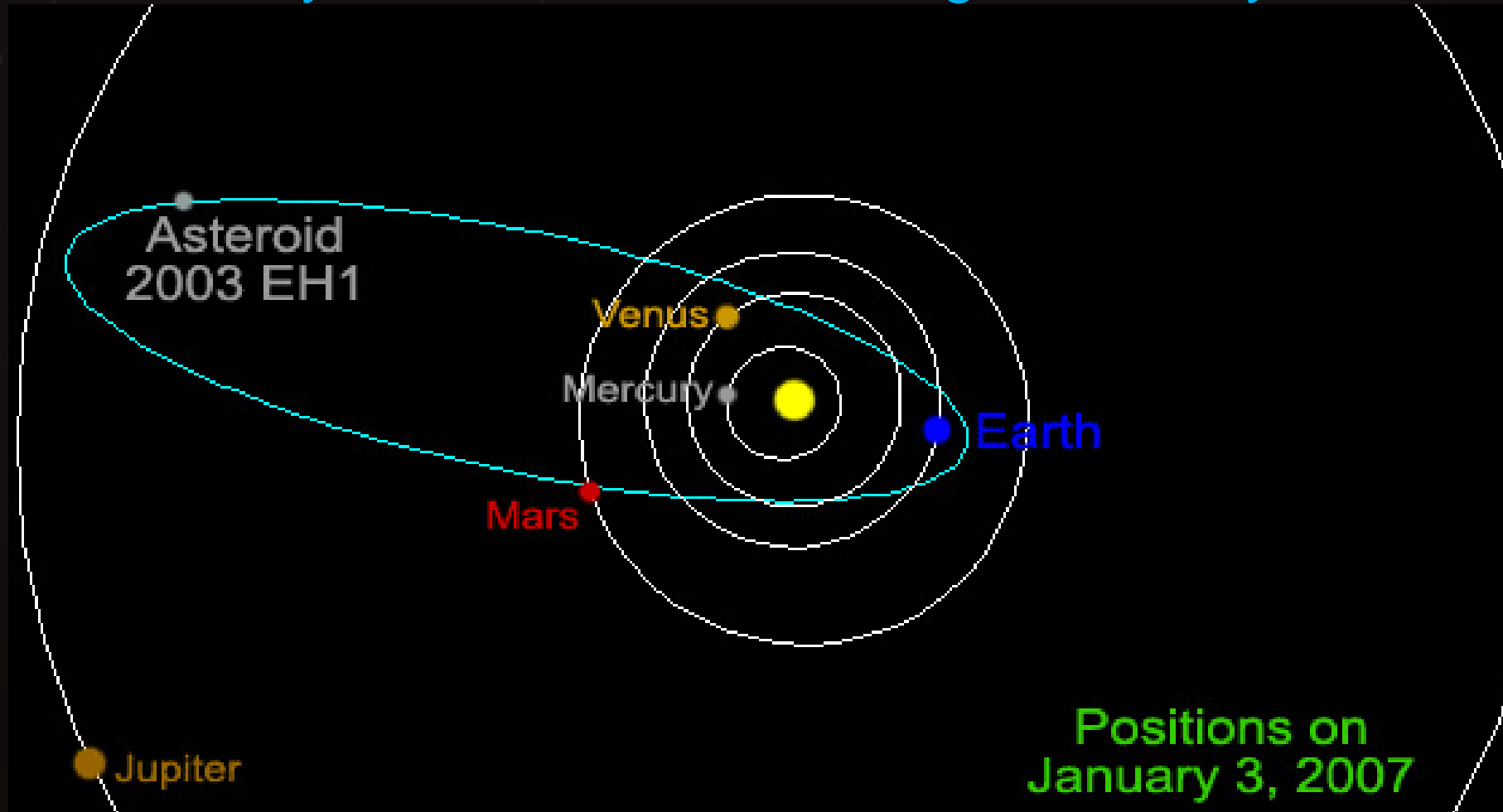
# WHERE DO THEY COME FROM?

Most meteorites start as asteroids in the Asteroid Belt



# SOMETIMES THEY GET KNOCKED

And sometimes they orbit the Sun and the Earth gets in the way!



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# A CLOSE SHAVE!



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# BARRINGER CRATER



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# IF THEY DO HIT THE EARTH...



City inserted for scale!



# HOW BIG WAS THE IMPACTOR?

Diameter = only about 32m!



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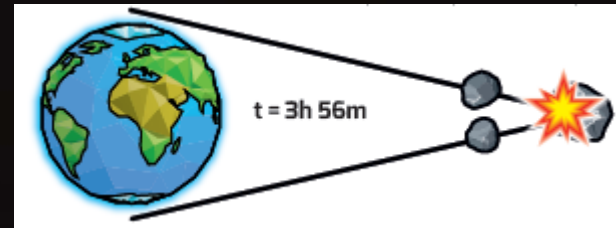
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# MOVIE PHYSICS...



Credit: Touchstone Pictures

In the movie Armageddon, an asteroid the size of Texas is headed straight for the Earth. The plan is for a team of oil drillers to drill 270m into the asteroid, plant a bomb, and detonate it, harmlessly splitting the asteroid into two even fragments that separate from each other and miss the Earth...



**Trailer:**

<https://www.youtube.com/watch?v=-RRy71tnEe4>

**Is this realistic?**

