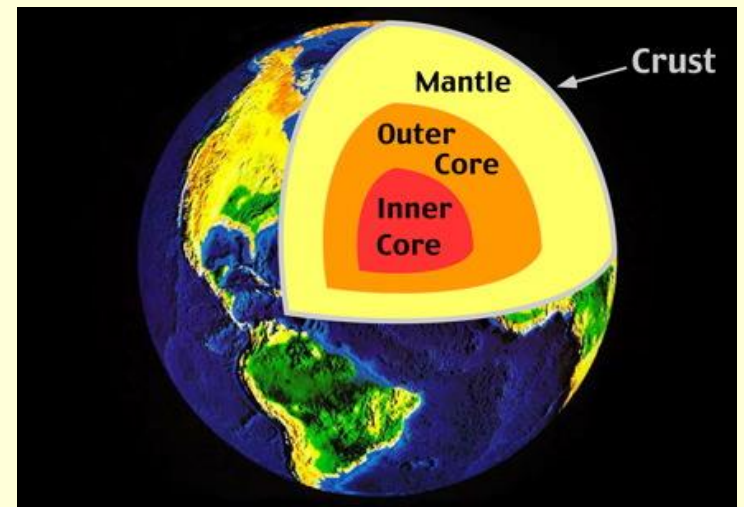
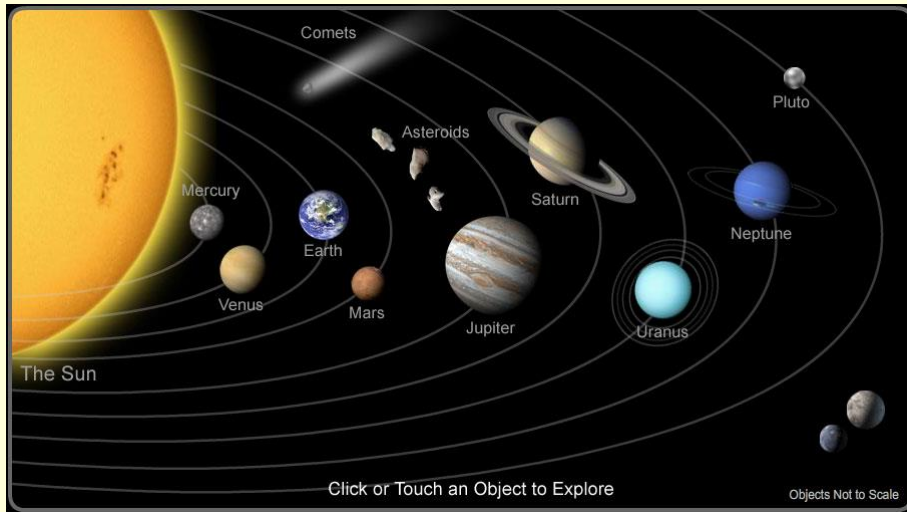
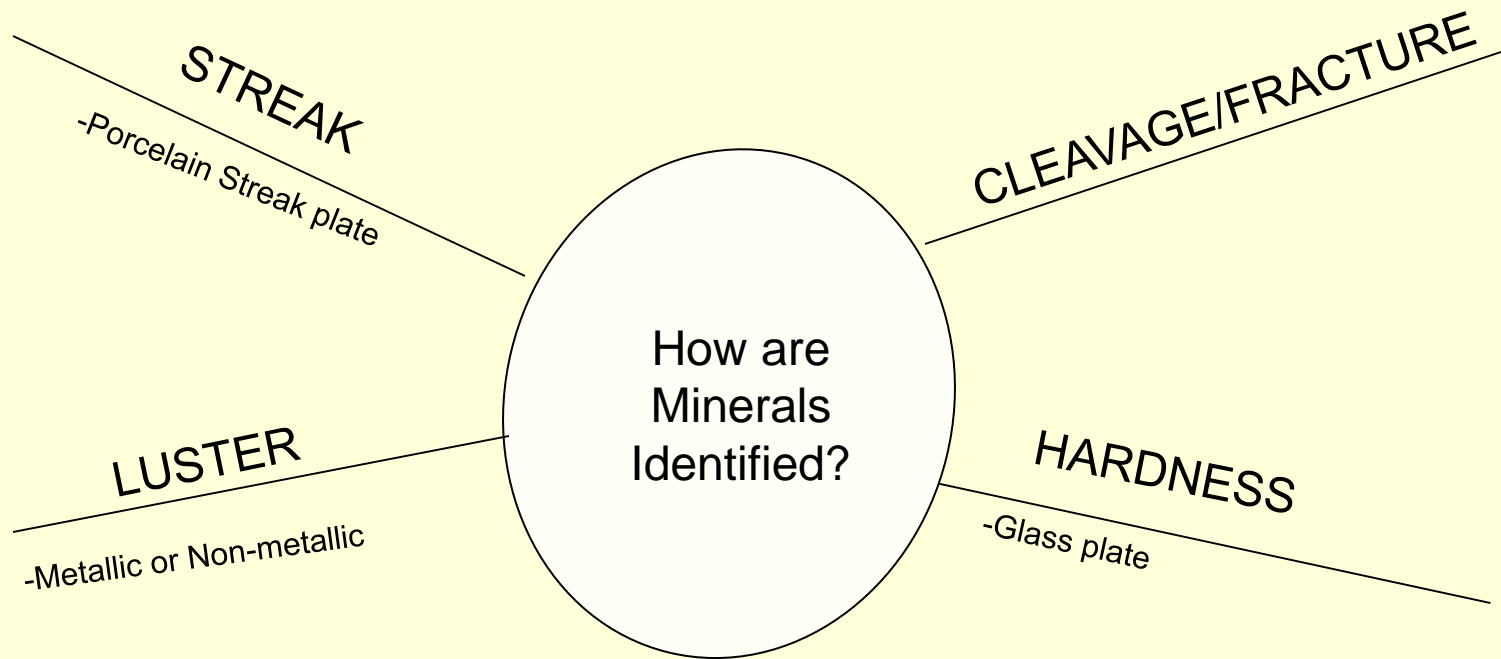


# Earth Science Lab Practical Review



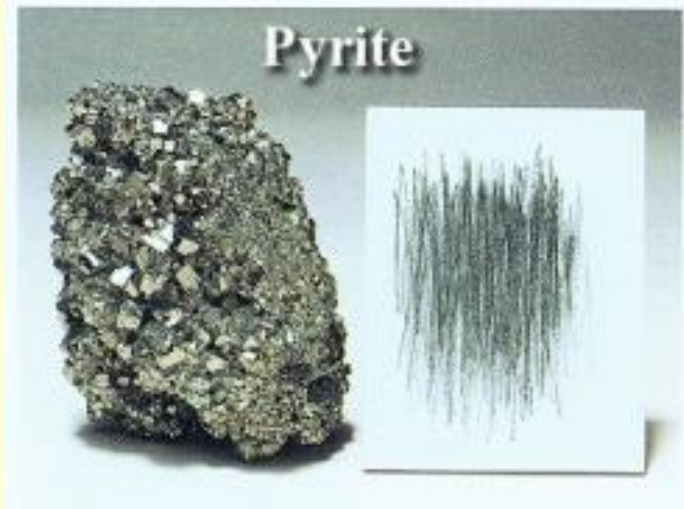
# Station 1: Rocks and Minerals



# STREAK

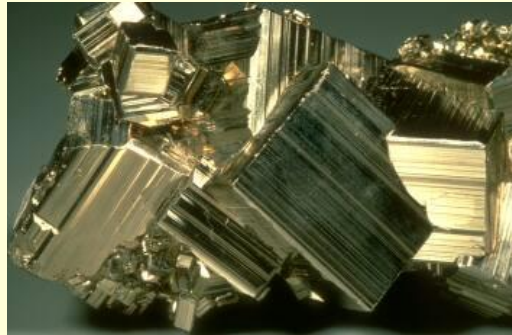


- The color of a mineral when finely powdered
- Scratch the mineral on a porcelain plate



# LUSTER

- Metallic – reflects light like metal (silver/gold)



- Nonmetallic – any mineral which DOES NOT exhibit metallic characteristics



# LUSTER- Now you try...



**NON-METALLIC**

# LUSTER- Now you try...



**NON-METALLIC**



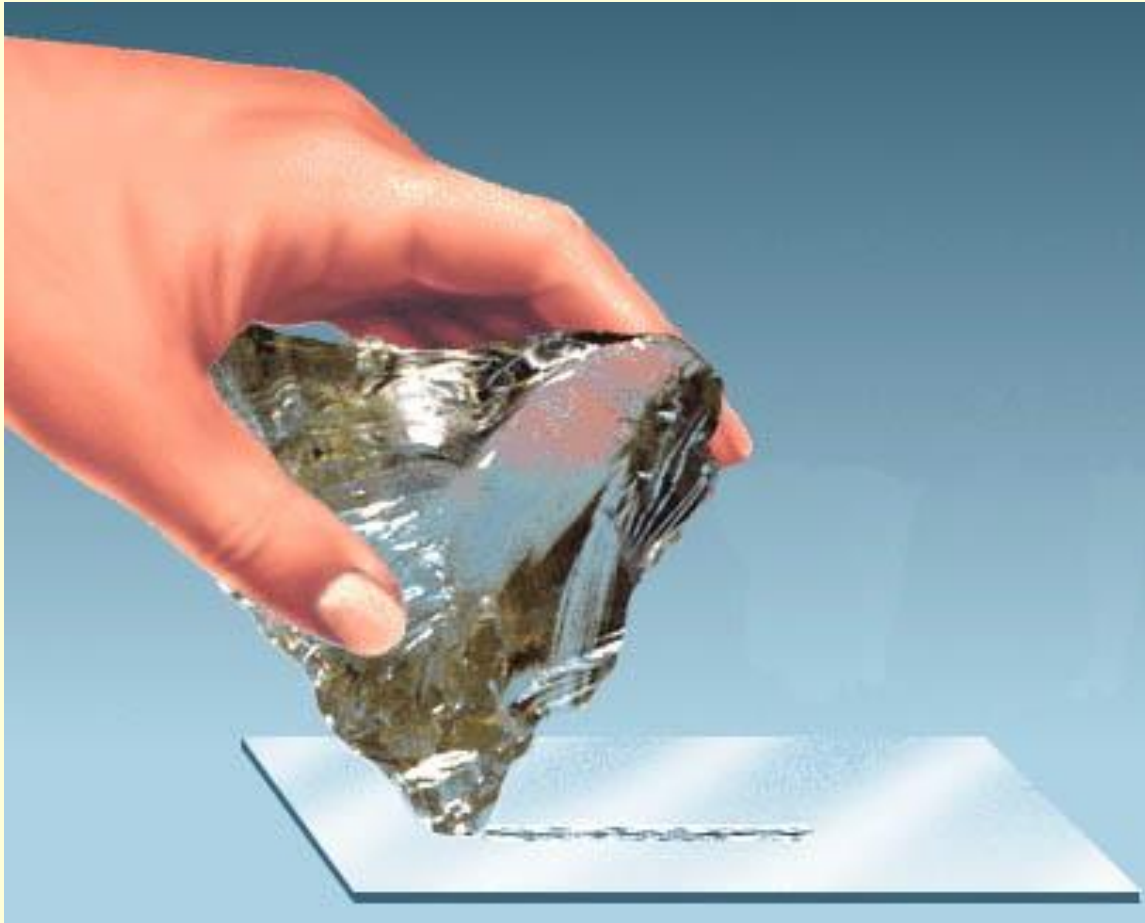
# LUSTER- Now you try...



METALLIC

# Hardness

- Resistance of a mineral to being scratched





# Hardness



The Question:

“Does the mineral scratch the glass?”

- If the mineral **SCRATCHES** the glass
  - The mineral is as hard or harder than the glass
  
- If the mineral **DOES NOT SCRATCH** the glass
  - The mineral is not as hard as glass

# CLEAVAGE/FRACTURE

- Cleavage- when a mineral breaks along a flat, smooth surface



- Fracture- when a mineral breaks along an irregular surface

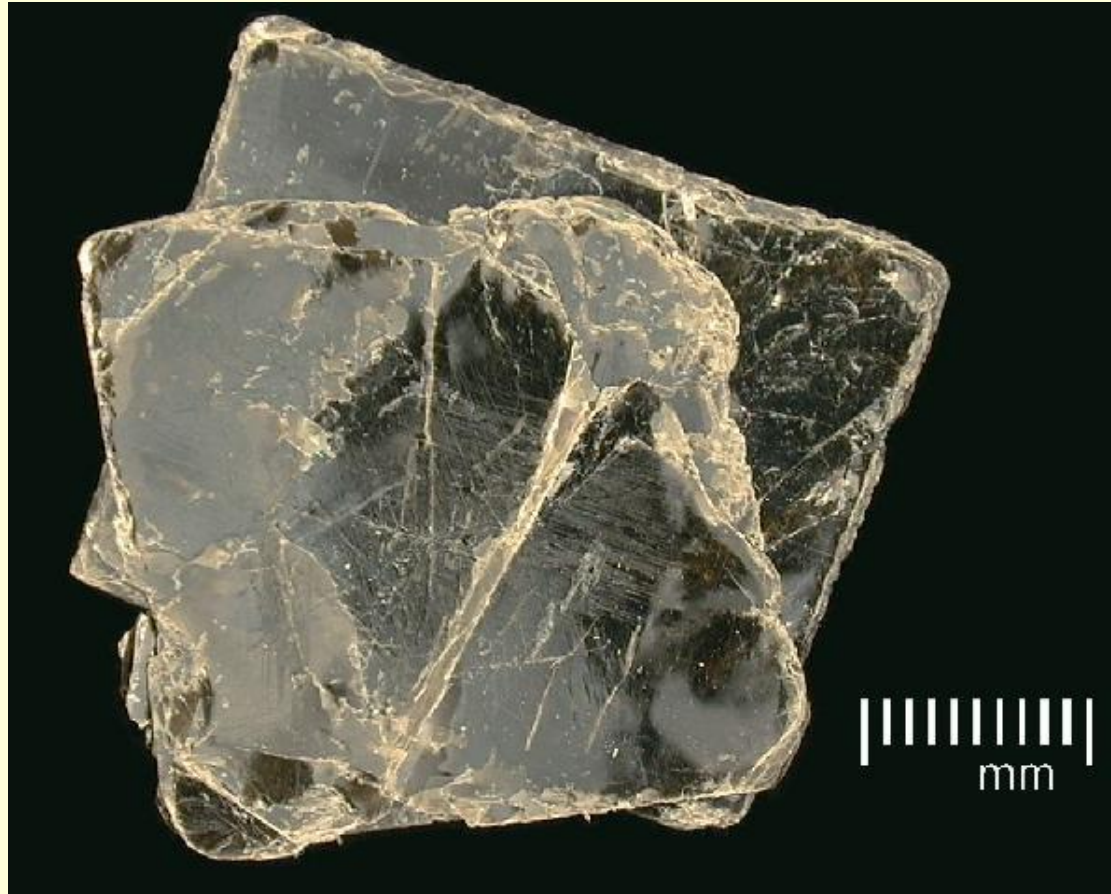


# CLEAVAGE OR FRACTURE



CLEAVAGE

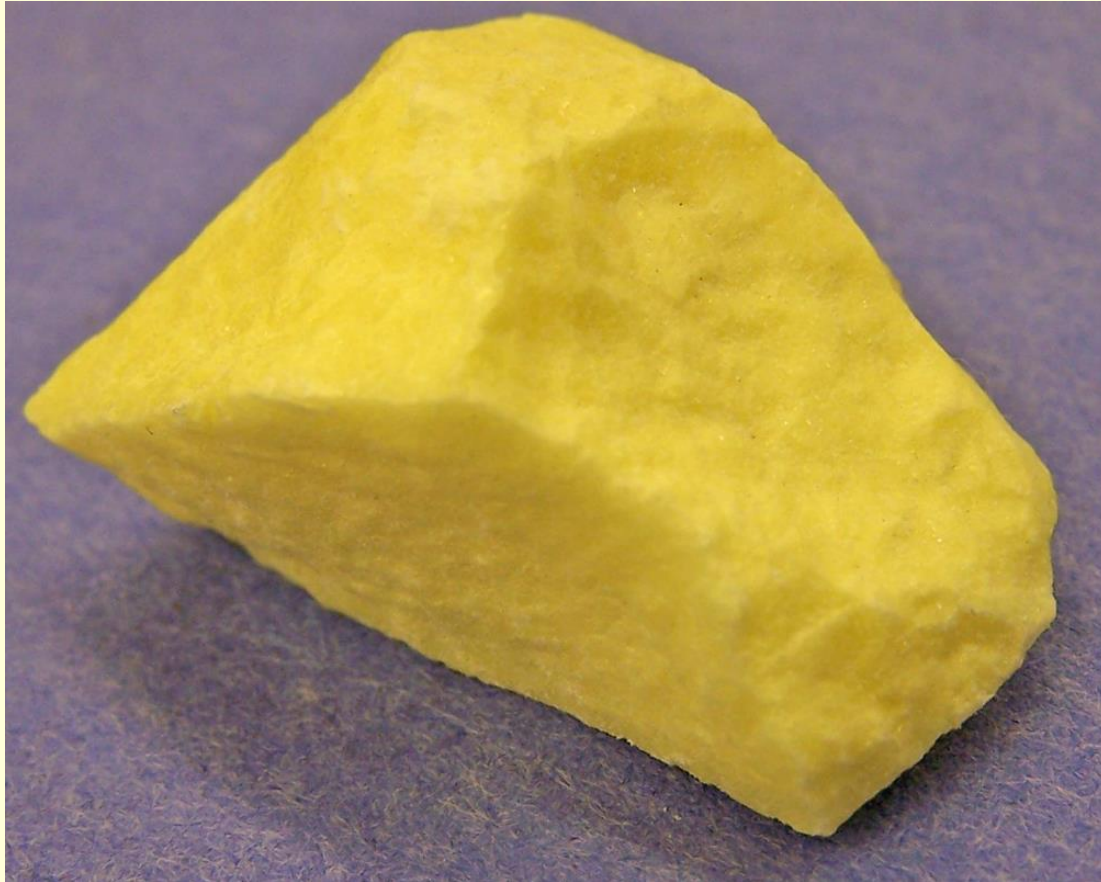
# CLEAVAGE OR FRACTURE



CLEAVAGE



# CLEAVAGE OR FRACTURE



FRACTURE



# ROCKS



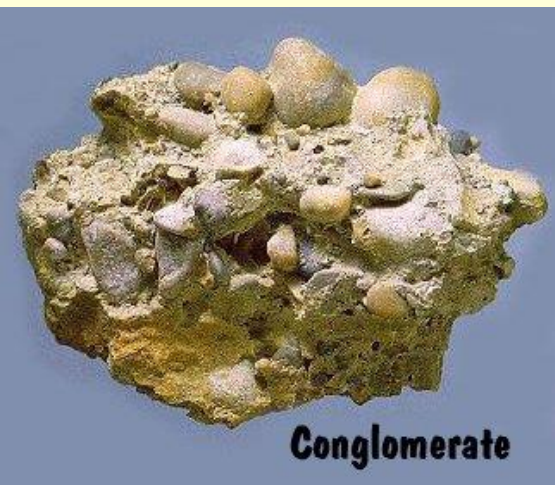
## SEDIMENTARY ROCKS

Will show:

**-fossils**

**-layers**

**-sediments (clastic)**





# ROCKS

## METAMORPHIC ROCKS

Will show:  
**-Foliation**



Schist



Gneiss



# ROCKS

## IGNEOUS ROCKS

Will show:

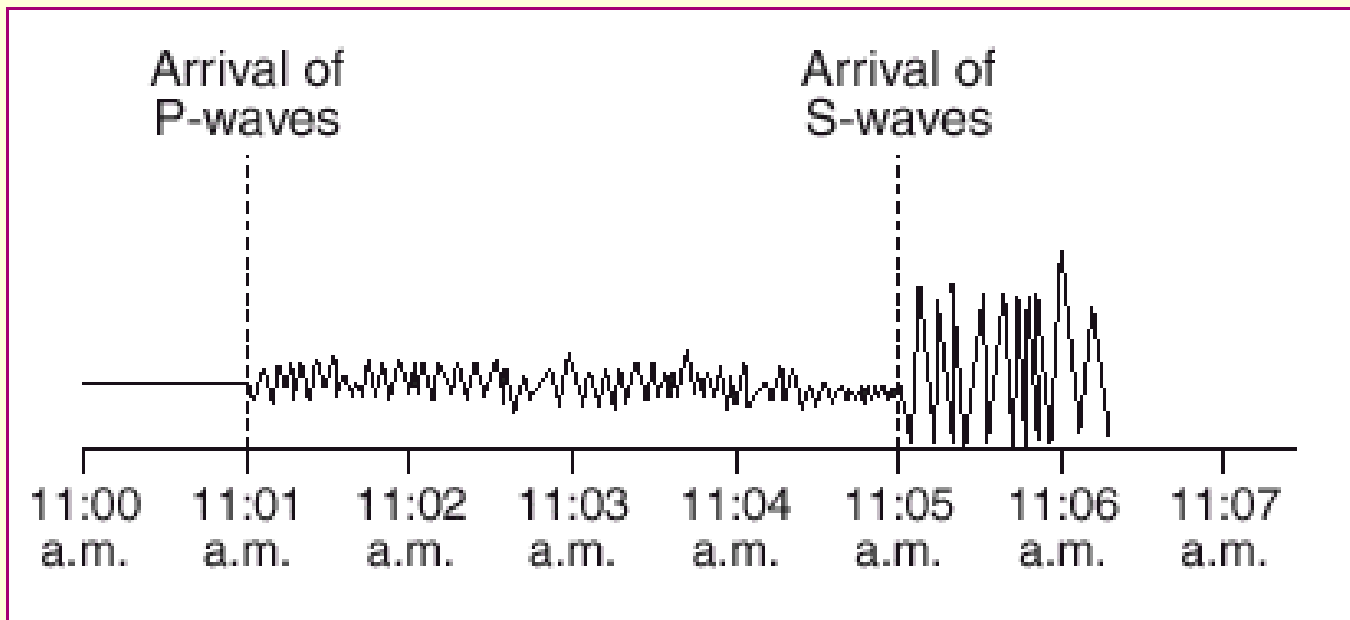
- Glassy texture
- Vesicular (gas pockets)
- Intergrown crystals



# Finding the Epicenter of an Earthquake

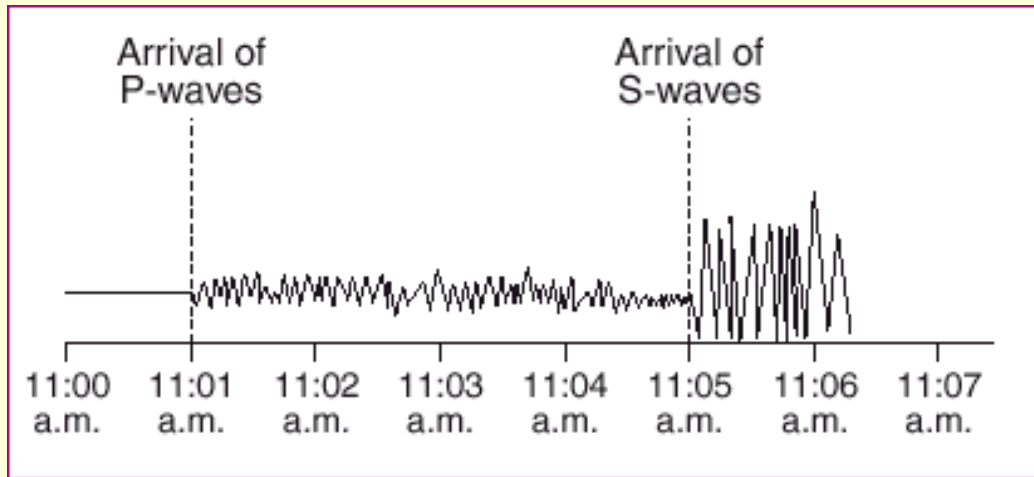
How do you find the epicenter of an earthquake?

1. Determine the arrival of the p-wave and the s-wave.



# Finding the Epicenter of an Earthquake

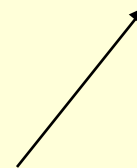
2. Find the DIFFERENCE between the arrival of the p-wave and the arrival of the s-wave.



11:05 a.m.

-11:01 a.m.

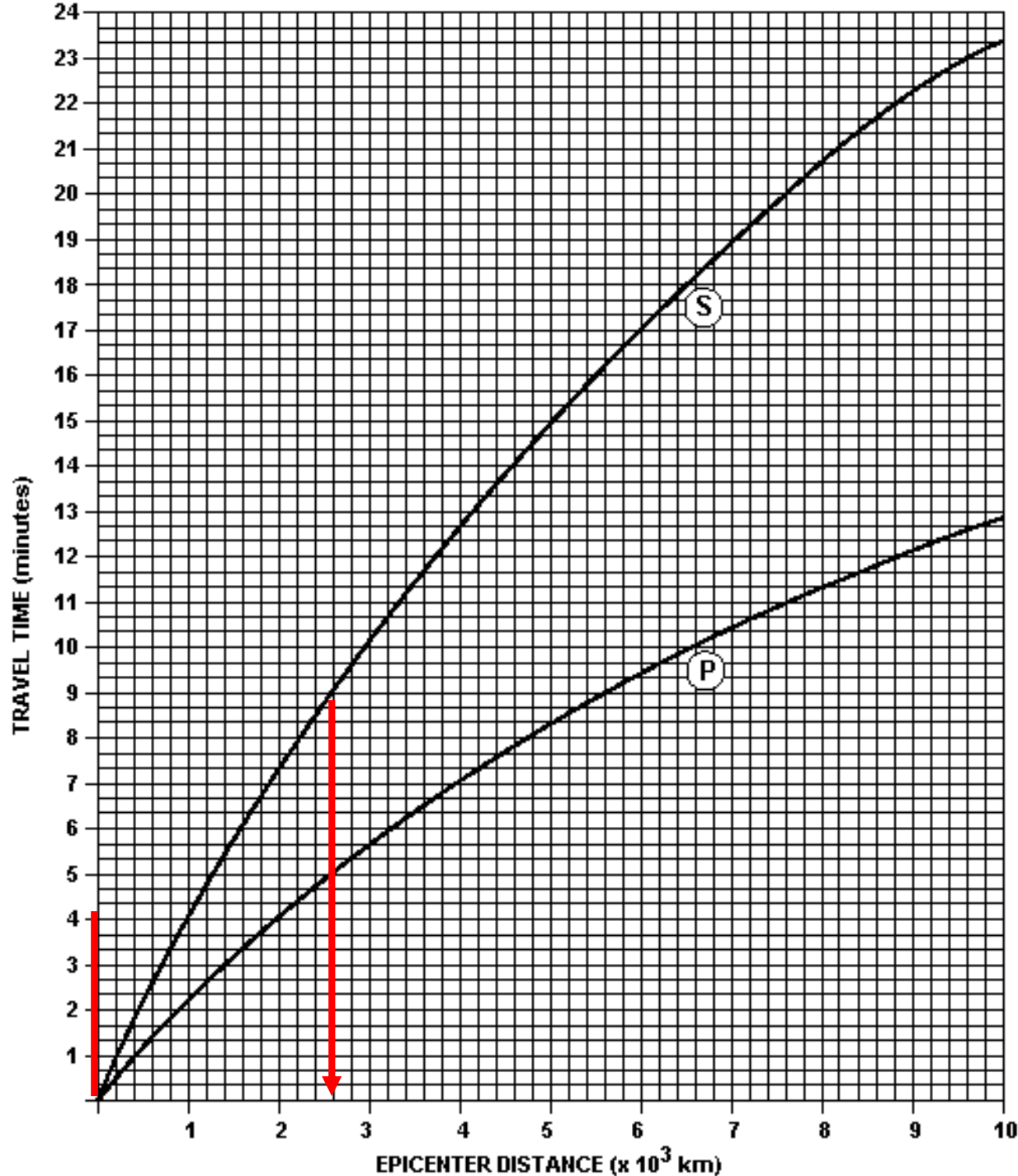
4 minutes



WHAT DO YOU DO WITH THIS NUMBER?!?!?

## Finding the Epicenter of an Earthquake

- Difference between the arrival times was **4 minutes**
- **MEASURE AND MATCH!!**
- The distance to the epicenter is...  
**2600 km**



# Finding the Epicenter of an Earthquake

- What does the circle surrounding Boise, Idaho represent?





# Finding the Epicenter of an Earthquake

How many cities do you need in order to find the epicenter of an earthquake

3!!!

-Why?

-Because you need the circles to intersect and that can only happen with 3 cities.

# Finding the Epicenter of an Earthquake

Can you tell where the epicenter of the earthquake is from this information ?



# Finding the Epicenter of an Earthquake

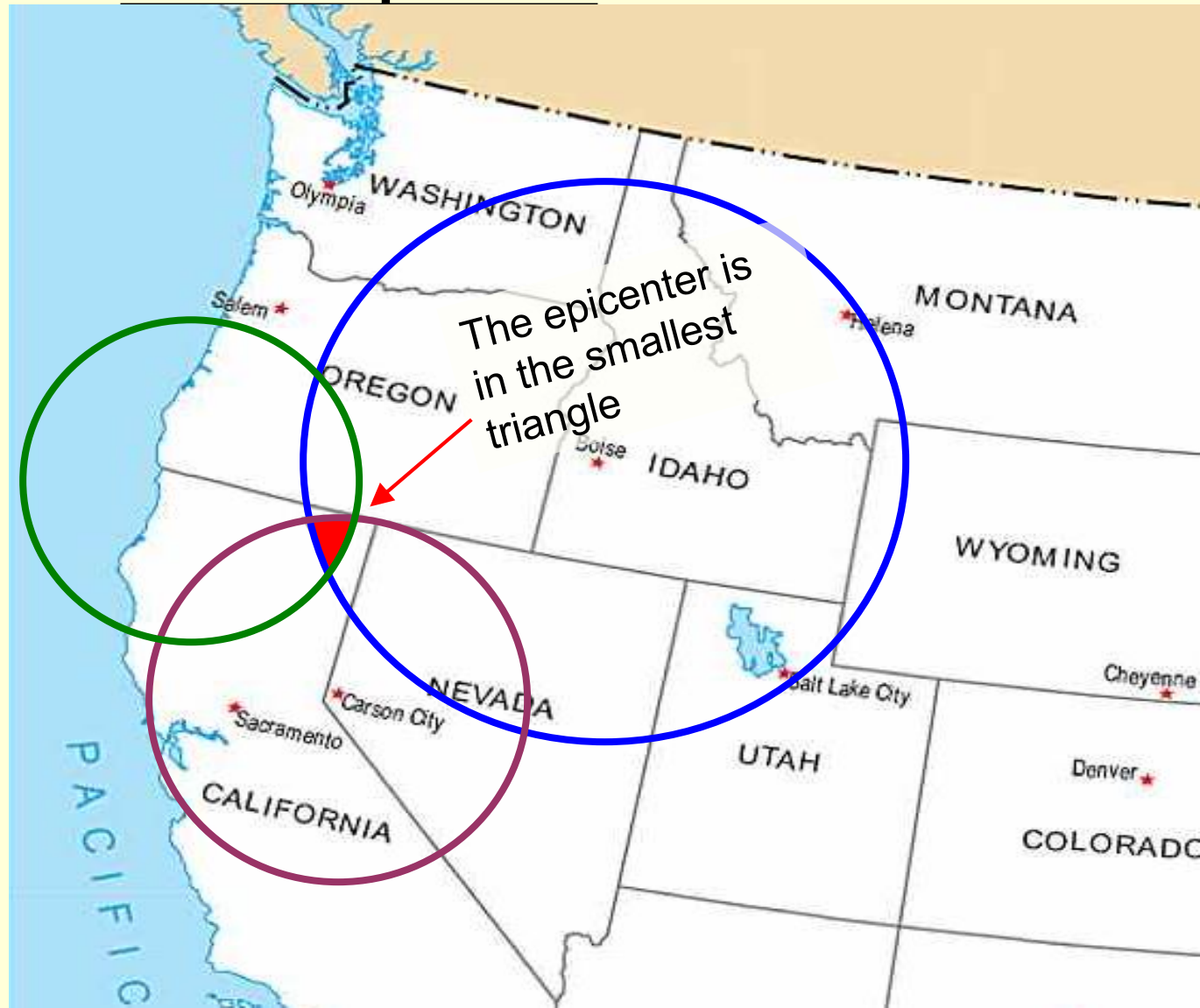
Where is the epicenter of this earthquake?



# Finding the Epicenter of an Earthquake

OH NO!!!

What do you do if this happens?



# Finding the Epicenter of an Earthquake

Don't worry if part of your circle goes off the map



# Eccentricity

What is the formula for eccentricity?

$$E = \frac{\text{Distance between foci}}{\text{Length of the major axis}}$$



# Eccentricity

- This is how you draw an ellipse:

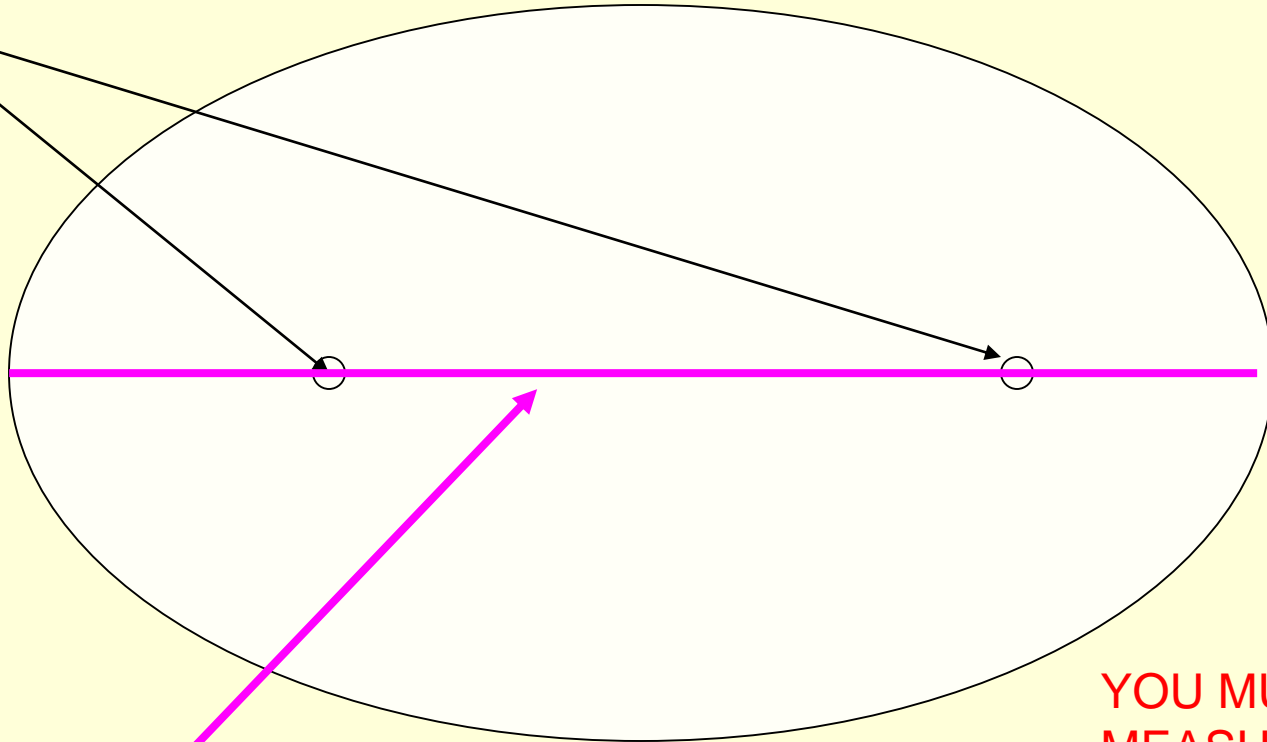
**HOW TO  
CREATE AN  
ELLIPSE**

$$\text{eccentricity} = \frac{\text{distance between foci}}{\text{length of major axis}}$$

# Eccentricity

An ellipse

FOCI



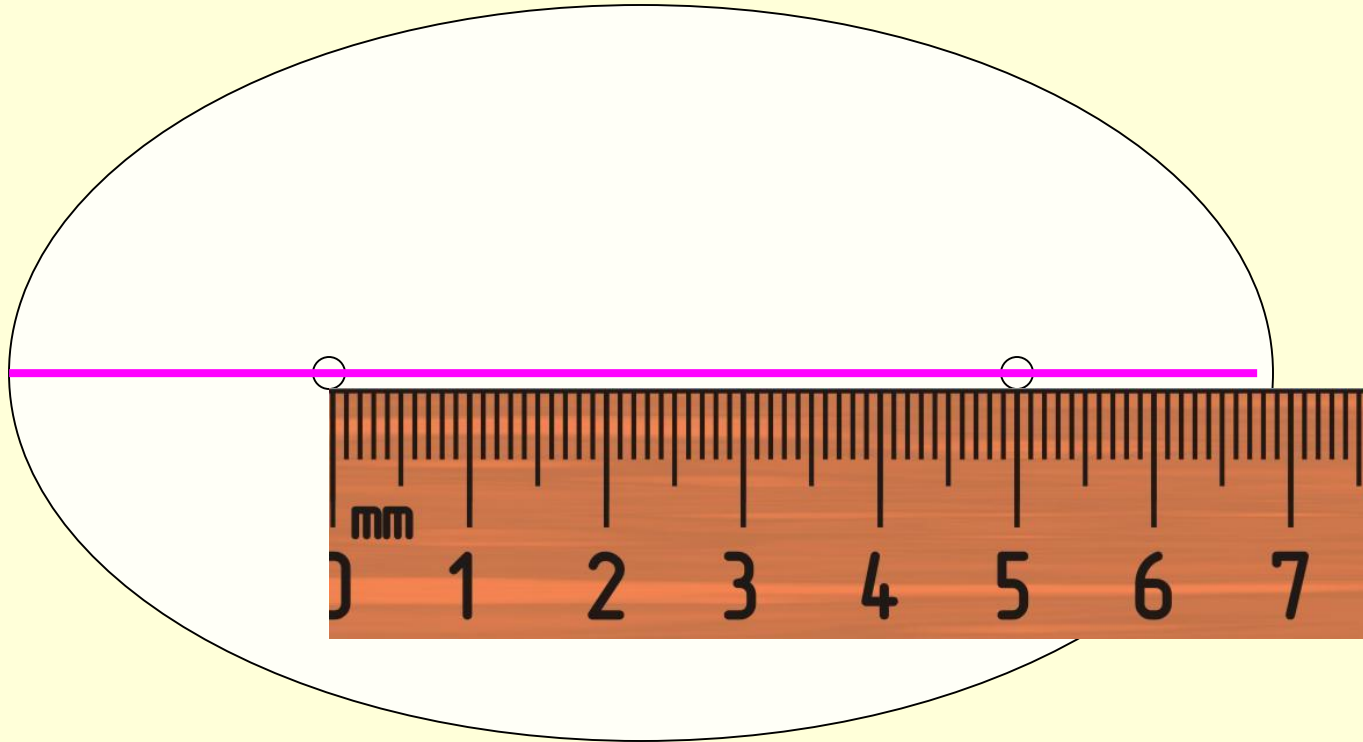
MAJOR AXIS

YOU MUST  
MEASURE TO THE  
NEAREST .1 OF A  
CENTIMETER!!

# Eccentricity

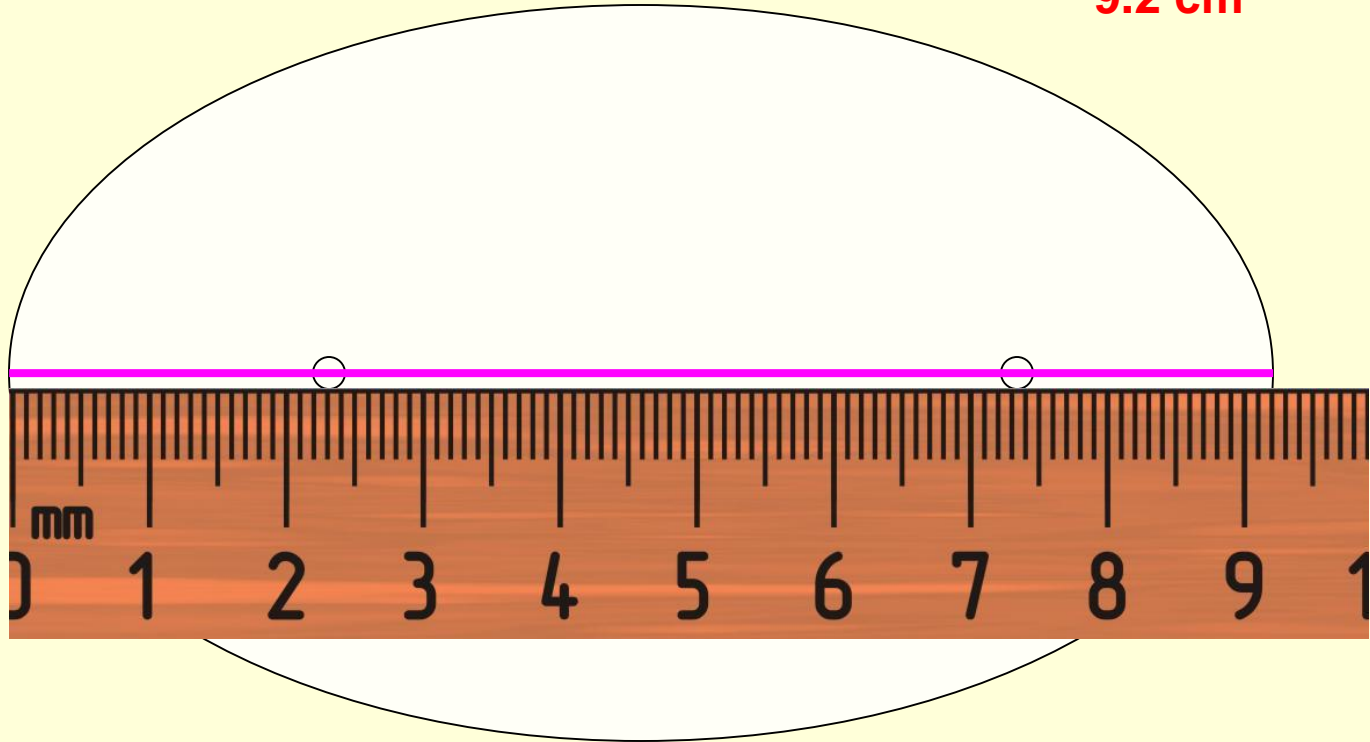
$$\text{eccentricity} = \frac{\text{distance between foci}}{\text{length of major axis}} = \text{-----}$$

5.0 cm



# Eccentricity

$$\text{eccentricity} = \frac{\text{distance between foci}}{\text{length of major axis}} = \frac{5.0 \text{ cm}}{9.2 \text{ cm}} = .543$$



# Eccentricity

1. If this were the Earth's orbit, where would the Sun be located?
2. Where would the Earth's orbital velocity be the fastest?

