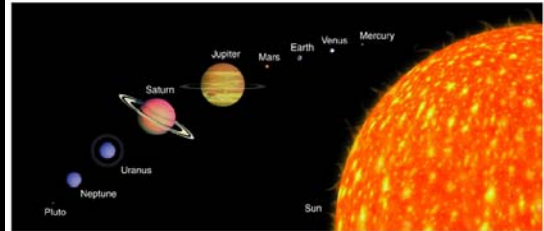## How large are the objects in the solar system?

- Let's view them *to scale*
  - Different scale than text: sizes and distances both on same scale
  - Sun: 1.39 x 10^6 km in diameter, represented by a volleyball = 8.5 inches in diameter
  - Scale is about 1 inch for every 160 000 km (~ 100 000 miles)
- Using your intuition, GUESS how big the Earth is on this scale!
 - Softball, tennis ball, golf ball, marble, peppercorn/BB?
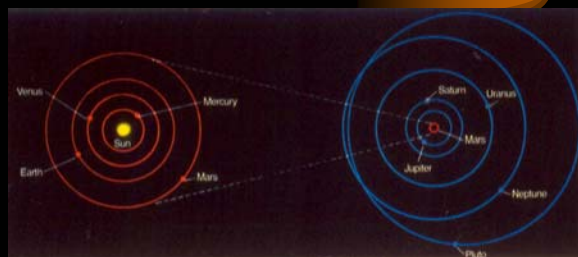
peppercorn

Relative Sizes of Planets

How far away are the objects in the solar system?

- If we keep using the SAME scale, GUESS how big a model of the whole solar system will be –
  - Will it fit on a table? Inside the room? Inside the building?

- Mercury is almost *10 yards* from the Sun in this model!
  - This is 30 feet!
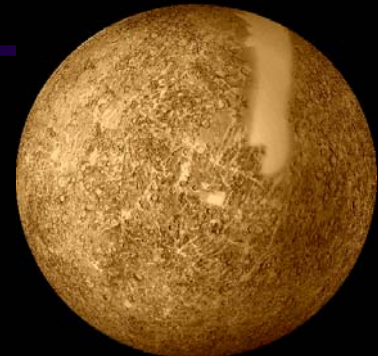 - Let's go into the hall to see how big the model has to be!
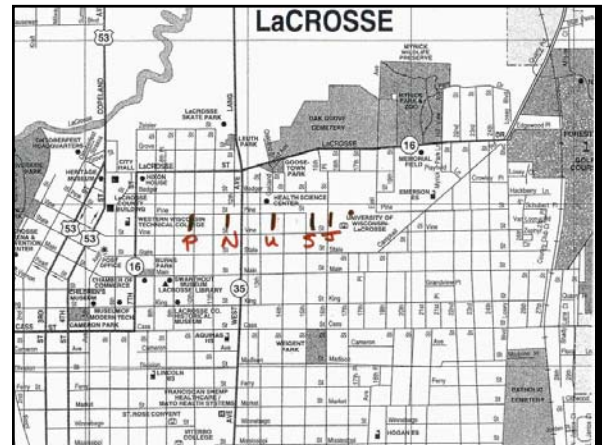
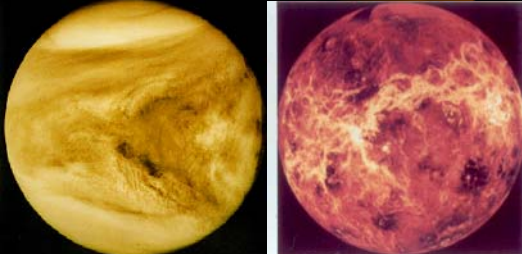
Scale of the Solar System

Scale Model of the Solar System

- The Sun (volleyball)
- Mercury (Pinhead at 10 yds)

Scale Model of the Solar System

- Venus (peppercorn at 18 yds)

clouds   Beneath the clouds

Scale Model of the Solar System

- Earth (peppercorn at 25 yds)
- Moon (pinhead 2.4 inches away).

Scale Model of the Solar System

- Mars (Pinhead at 39 yards)

Scale Model of the Solar System

- Asteroids (A few thousand specks of dust between 50 and 75 yards away from the volleyball)

Scale Model of the Solar System

- Jupiter (A ball bearing at 132 yards)

Scale Model of the Solar System

- Saturn (hazelnut at 242 yards)

Scale Model of the Solar System

Uranus and Neptune (coffee beans at 487 and 762 yards)

Scale Model of the Solar System

• Pluto & Charon (small pinheads at 1000 yds)

Relative Sizes of Planets

Nearest Star

• The nearest star (other than the Sun) is 4.28 light years away (265 608 AU)!

• GUESS how far this would be in our scale model?
  – The next volleyball-sized object is ~ 6 900 000 yards or 3900 miles away. This is the approximate distance between La Crosse, WI and Cardiff, Wales.