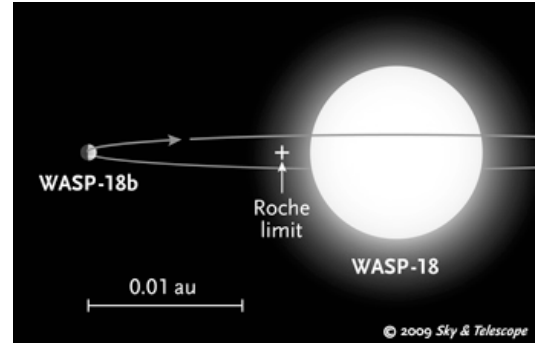


## announcements

- Sign-up for MA. HW#1 is due on the 7th, and HW #2 is due on the 9th.
- Check [www.physics.ucf.edu/~yfernandez/ast2002](http://www.physics.ucf.edu/~yfernandez/ast2002) often. Supplemental info has been added.
- No, I don't have the clicker rebate coupons yet.
- First chance for Observatory extra credit is tonight -- although the forecast is not so positive. Check observatory website for updates. Would start at 8:30pm. Form is on my website.

## news

### • Hot Planets:



## Chapter 1: Our Place in the Universe

- Most important parts of this chapter:
  - Section 1.1:
    - pp. 2 - 4: 'What is our place in the Universe?'
    - p. 5: basic objects and units
    - pp. 8 - 10: 'Stars manufacture elements...'; the past, "entire universe"
  - Section 1.2:
    - pp. 10 - 15: sizes and times, scale models
  - Section 1.3:
    - p. 20 - fig. 1.16.

### • Summary:

- Remember Sun-Grapefruit model
- Remember Milky Way-football field model
- Solar System distances are of order AU
- Solar System object sizes are much much less than AU
- Star-star distances are of order ly
- Milky Way distances are thousands of ly; MW is 100,000 ly.
- MW to Andromeda Galaxy is millions of ly.

### • Example question: Suppose you wanted to fit the Universe inside this room. How big would the Milky Way have to be?

- A. Grapefruit
- B. Ping pong ball
- C. Pea
- D. Bacterium

- How to think about this? Use what you know.
- Example question: Suppose you wanted to fit the Universe inside this room. How big would the Milky Way have to be?
  - A. Grapefruit
  - B. Ping pong ball
  - C. Pea
  - D. Bacterium
- How big is MW? Like 100,000 ly.
- If MW is a grapefruit, what's Andromeda Galaxy?
- How far away is Andromeda Galaxy (in ly and in the model)?
- How big is Observable Universe? 14 billion ly?

### • Summary:

- Remember Sun-Grapefruit model
- Remember Milky Way-football field model
- Solar System distances are of order AU
- Solar System object sizes are much much less than AU
- Star-star distances are of order ly
- Milky Way distances are thousands of ly; MW is 100,000 ly.
- MW to Andromeda Galaxy is millions of ly.

### • Example question: Suppose you wanted to fit the Milky Way inside this room. How big would the Sun have to be?

- A. Grapefruit
- B. Ping pong ball
- C. Grain of sand
- D. Atom

- Now: Open your workbook to page 123 and do pages 123 and 124 (not 125) of “Milky Way Scales”.
  - Get into groups.
  - Take only 10 minutes for the 7 problems.
- You don’t need a ruler. Just estimate. There are 2.5 centimeters in 1 inch. And 10 mm = 1 cm.

- What did you get for #1?
  - Is the Sun near the center of the MW?

- What did you get for #2?
  - A. ABCDE
  - B. AABBC
  - C. AAABB
  - D. AAAAA

- What did you get for #2?

The point here is that pretty much all the stars you see in the sky at night are in a little tiny area of our Milky Way.

Space may seem big when you’re looking up at the sky, but the stars you see don’t occupy that much space.

### FOR FRIDAY

- Finish today’s workbook pages if you haven’t already.
- Read Section 1 of Chapter 2.
- Bring clickers and workbooks.