

**3B. Putting Numbers into Perspective****Topics:**

1. Use the methods of chapter 2 (changing units) to use division to put very large or very small numbers into perspective.
2. Use scientific notation to make the computations less tedious and the results easy to read.
3. Understand the meaning of “order of magnitude” estimates.
4. Understand the usefulness of “order of magnitude” estimates.

**Discussion:** How do we convert numbers between regular notation and scientific notation?

**Activity 1:** In groups, do the Quick Quiz 1, 2, and 3 at the end of this section.

**Discussion:**

1. Why is scientific notation useful?

**Activity 2:** In groups, choose one of Quick Quiz 4, 6, 8, or 10 to work out and explain to the class. (Each group choose a different problem so they'll all be explained.) Work on one of the odd-numbered problems first to “warm up.”

**Activity 3:** How much money is spent on ice cream in the US in a year? Estimate this. Make approximations and do a lot of rounding.

**Discussion:**

1. What is “order of magnitude” estimation? p. 147.
2. How does the author answer the question about the annual spending on ice cream?

**Activity 4.** Look over the table on p. 149. If we could find a commercially viable way of obtaining energy from fusion of hydrogen in water, how much water would it take to meet the US energy needs for a year? How much water would it take to meet the US needs for a minute?

**Activity 5.** Exercise 53. Earth. Answer the two questions for Earth. Choose appropriate units so that you can easily describe to your ten-year old son how to help you make the models.

We will cover 3E over several days, along with other sections. Today, only p. 183-184.

**HW and Quiz 7:**

3B: 9, 15, 17, 19, 23, 25, 27, 31, 35, 37, 41, 45, 47, 53 (only Mercury and Neptune), 55, 59, 63

3E: 11, 13

3C: 2-6, 15, 17, 19, 23, 29, 31, 37, 41, 47, 53, 55, 57, 65, 75 (You might find a spreadsheet helpful on 75. The second answer in the back is incorrect in some books.)

Quiz: 3B: 32 and either 79 or 80

3E: 12

3C: 14, 32, 48, 58