Group Problem-Solving Challenge 1 (calculators ok!)

Unit Analysis (using Unit Multipliers)

Sample Problem & THE SIX STEPS:

Fido the dog is seven years old today. How many hours has he been alive?

Step 1. Identify Problem Type: *Unit Analysis*
Step 2. Identify Question: *How many hours has fido has been alive?*
Step 3. Identify Info. Needed: *Fido is 7 years old.*
Step 4. List all Tools or Tricks You'll Need:

- *Unit multipliers* (also known as: *conversion factors)*:

$$\frac{1year}{365days} \qquad \frac{1day}{24hrs} \qquad \frac{1hr}{60\,\text{min}} \qquad \frac{1\,\text{min}}{60\,\text{sec}}$$

- *Unit analysis*: ignore the numbers to begin. Set up the units so the **ones you don't need cancel out** and all that's left is **the unit you need in your answer**!

Step 5. Make a Drawing or Diagram? *None*

Step 6. Solve the Problem/Show and Defend Your Steps (Pass/Try Again) — everyone in the group must be able to explain or.... try again!

SHOW YOUR WORK to PASS!

Step One: Set up Units to cancel:

$$7\,years \times \frac{days}{years} \times \frac{hours}{days} = hours!$$

Step Two: Insert Numbers:

$$7\,years \times \frac{365days}{1years} \times \frac{24hours}{1days} = 7 \times 365 \times 24\,hours!$$

Step Three: Do the Math!:

$$7 \times 365 \times 24\,hours = 61{,}320hours$$

Group Word Problem Challenge 1

(up to 5 pts toward math grade— 15 pts = one Project)

The Clock is Ticking!

To earn credit for each challenge:

- ❑ Follow (write out) Steps 1-6.
- ❑ Get the answer right (Show your work!)
- ❑ Take a Pass/Try Again Group Oral Exam (everyone must be able to *explain each step* you took to solve the problem or... Try Again

Unit Analysis

Challenge 1a. (1 pts)

Ten men and women are working hard every day (including weekends), but the new Accelerated Math/Language Lab still won't be ready for another 14,400 minutes. How many days is that?

Bonus (1 pt): If today is Friday, September 27, 2002, on what day will the new lab be ready (we hope!)? Show your steps!

Challenge 1b. (1 pts)

A girl named Janelle (no one we know!) **is 14 years old. If that is more than 8 million seconds, she gets to retire as class ombudswoman. Can you help her figure out her future?** *(Don't yell out the answer—please!)*

Bonus (1 pt): Submit three complaints, in writing, to any class Ombudswoman, to earn 3 bonus pts toward your math grade--just kidding...

Addition (Throwing Sand in Your Opponent's Eyes)

Challenge 2. (1 pt)

On Wednesday mornings—if he gets out of bed—Ociel (no one we know!) **walks seven blocks from home to school. When he gets a five minute break from class he runs, at 19 mph, two blocks to Taco Bell to buy (with his own money—so generous!) tacos for the whole class. He brings them back but forgets the salsa and sends Christopher** (no one we know!) **back to get some. How old is Ociel?**

(Just kidding! What we really want to know is:)

By 12:00 PM on a Wednesday, how many blocks has Ociel traveled?

Translation

Challenge 3. (1 pt)

Time on your hands? Try translating this English sentence into Math:

Sixty-eight plus four is less than ninety-three divided by three.