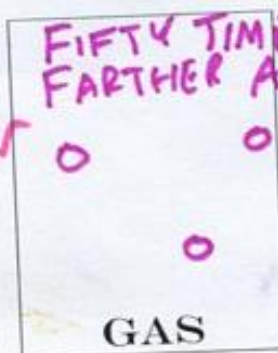
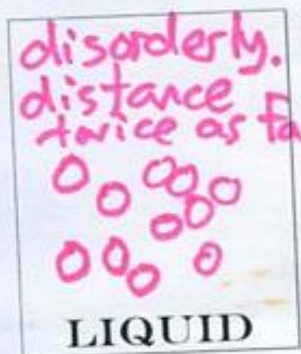
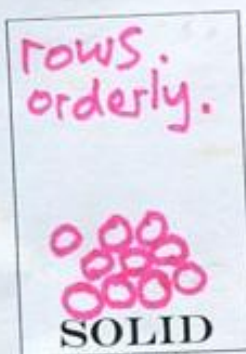


## Purpose:

Find a way to change units by multiplying things by one. (This is sometimes called 'dimensional analysis'.)

## WARMUP:

(Copy three boxes, 2" tall)



1) A useful rule from Algebra:

~~Any~~ Anything over itself  
is a form of ONE.

We are always allowed  
to multiply anything by  
ONE.

#1 THERE ARE MANY WAYS  
TO WRITE ONE

$$1, \left(\frac{5 \times 2}{5 \times 2}\right), \left(\frac{18 \text{ grommets}}{1 \text{ shoe}}\right),$$

$$\left(\frac{1 \text{ shoe}}{18 \text{ grommets}}\right), \left(\frac{1}{18}\right), \left(\frac{\text{shoe}}{\text{grommet}}\right),$$

$$\left(\frac{1 \text{ picture}}{1000 \text{ words}}\right), \left(\frac{12 \text{ inches}}{1 \text{ foot}}\right), \left(\frac{1 \text{ cow}}{4 \text{ stomachs}}\right),$$

$$\left(\frac{1 \text{ pants}}{5 \text{ loops}}\right)$$

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#2 We can use "one" to  
answer unusual ~~one~~ questions

Example

If 8 curling teams changed  
into softball teams how many  
teams would they be?

$$8 \text{ CURLING TEAMS} \times \left( \frac{3 \text{ people}}{1 \text{ CURLING TEAM}} \right) \times \left( \frac{1 \text{ Softball team}}{9 \text{ people}} \right) = 2.6 \text{ softball teams}$$

$$8 \text{ CURLING TEAMS} \times \left( \frac{1 \text{ CURLING TEAM}}{3 \text{ PEOPLE}} \right) \times \left( \frac{1 \text{ SOFTBALL TEAM}}{9 \text{ PEOPLE}} \right) = 9.2 \frac{\text{CURLING}^2 \cdot \text{Softball}}{\text{people}^2}$$

Important point: Which result is correct?  
 BOTH are correct. But only the first result has a unit that looks useful.

The reason both are 'correct' is that we followed the rules of math. Math says we can multiply anything by ONE. Math is the boss of science.

**Make up tests: Come at lunch and after school to take missing tests. No appointment necessary.**

**The tests are graded. You can look at them at the end of the period.**

**Come for help every day at lunch.  
 Come for help Tuesdays and Thursdays after school**

**Homework tonight is the Alligator sheet.**