Good Morning

- Please get your sand sample from the chem hood.
- Mass it and calculate the mass of sand.
- Finish all of the calculations and questions.
- You have the first 10 minutes.

Finished???

- Take out the homework from Wednesday.
- Check your answers with the ones that I have posted. We can go over any that you would like.

Requested Homework

Today

- Mixtures and materials. Elements and compounds.
- Intro to Significant Figures.
- Continue dimensional analysis and scientific notation.

Tonight

- From 3.1. Questions 11-14.
- From 3.2. Questions 21-25.

Mixtures 2.2

- A physical blend of two or more components.
- 2 classifications:
 - Homogeneous
 - Heterogeneous

Homogeneous

- Composition is uniform throughout.
- Examples:
 - Oil
 - Vinegar
 - Other Solutions

What's a Solution

- When something (a chemical) is dissolved into a liquid.
- That liquid is usually water.
- The chemical that dissolves breaks apart on the molecular level.
- The chemical still retains it's chemical properties in solution.

Heterogeneous

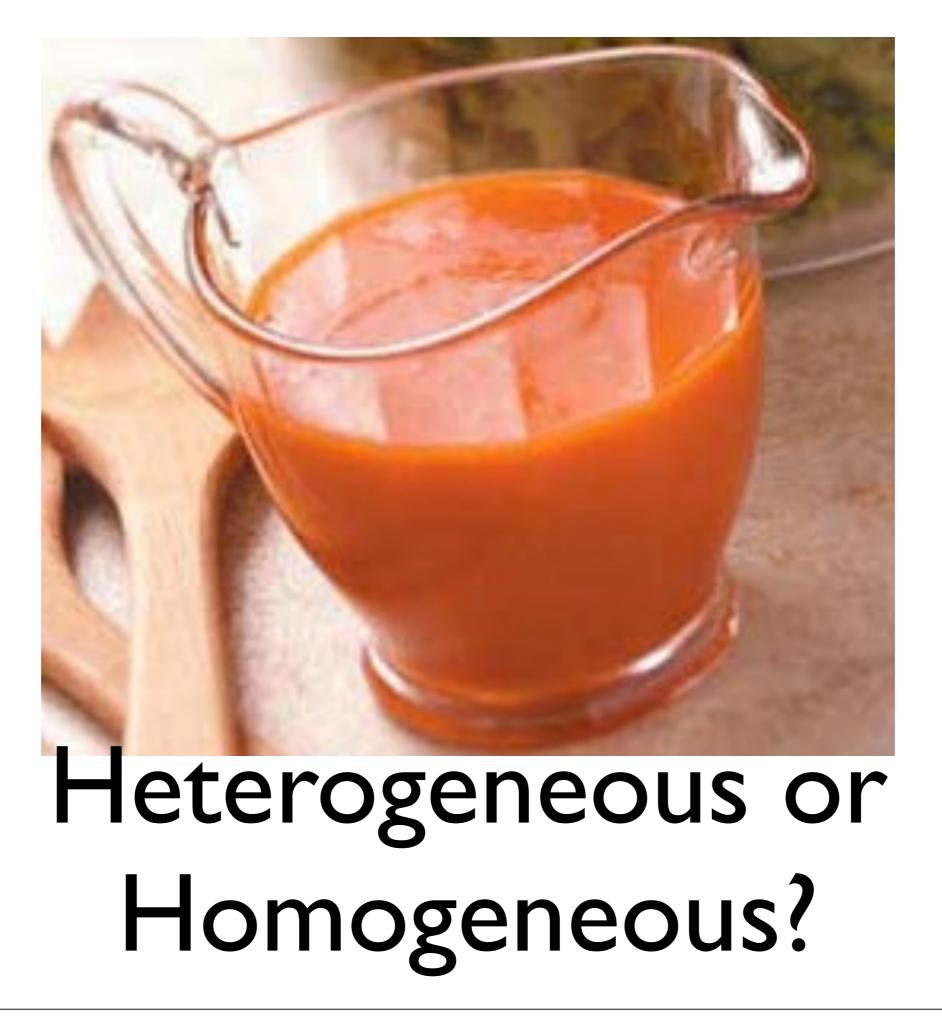
- Different concentrations throughout the mixture.
- If there are "chunks" or **any** color difference, it is a heterogeneous mixture.



Heterogeneous or Homogeneous?



Heterogeneous or Homogeneous?





Heterogeneous or Homogeneous?

From your lab

• Identify one heterogeneous mixture.

• Identify one homogeneous mixture.

Elements

- Element: the simplest form of matter.
- Only one kind of atom.
- Examples: anything in the periodic table.

Compounds

- Contains two or more elements.
- Still a pure substance.
- These are combined (bonded) in the same proportion all the time.
- During chemical reactions (changes), elements and compounds rearrange.

Forming Compounds

- Nature is lazy. It wants to be at the lowest energy level possible.
- In most cases, it's easier for atoms to combine with other atoms and share electrons (we will study this later in the course).

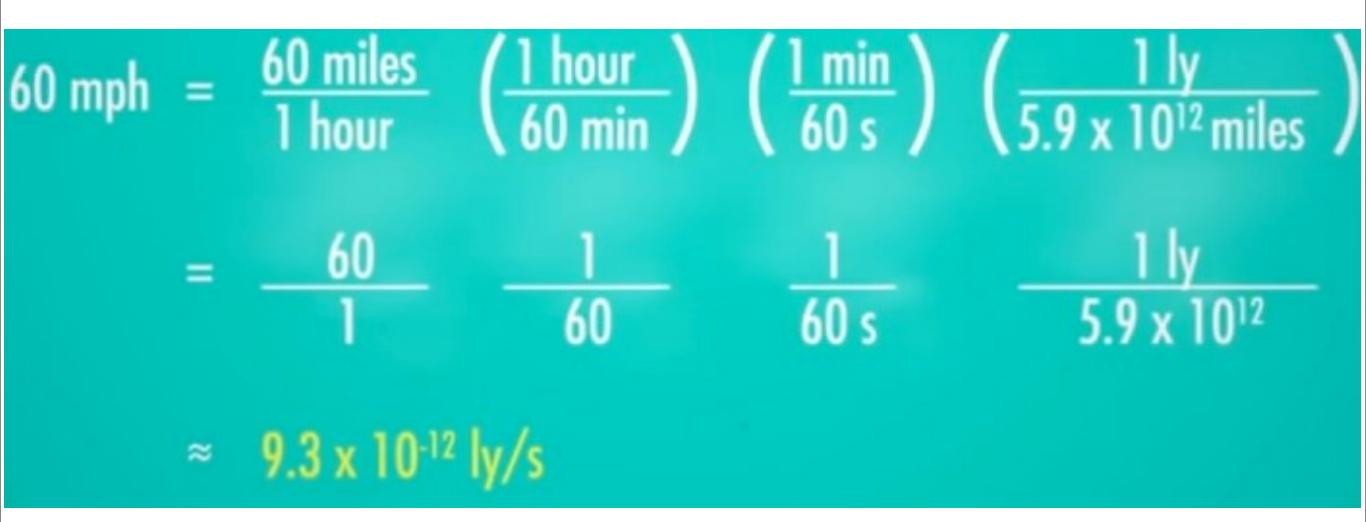
Breaking Down Compounds

- In general, energy has to be put into the compound to "pull off" an atom or group of atoms.
- Heating sugar produces carbon and water.
- Running electricity through water produces hydrogen and oxygen gas.



Unit Conversion & Significant Figures: Crash Course Chemistry #2

Measurement Precision



Is that the right answer?

Significant Figures

- The precision that a number was measured.
- The numerical values that you actually know.
- Warning: Your calculator does not know sig figs. It assumes that whole numbers are exact measurements.

How Much Precision?

- 0.00730
- 24.010
- 87,000
- 142370
- I.000000

Rules

- Do the computation as you see it.
 Preserve the least number of sig figs.
- 2.5+3+7.04=12.54
- There are no decimal places after the 3, so the answer is 13.

Other Examples

- |3.2×97=|28.40
- There are only 2 dig figs in 97, so the answer is 130.
- 57.3923/35.0=1.63978.
- There are 3 sig figs in 35.0, so the answer is 1.64.

32.0 x 61 x 100

- Calculator answer:
- Least number of sig figs:
- Rounded answer:

5.793 x 24 / 5

- Calculator answer:
- Least number of sig figs:
- Rounded answer: