

Review Topics:

Energy:

1. What two things can Energy do? (remember the two T's)
2. What is E_g ?
 - a. How much energy does a 7kg cat perched on a 2m tall book shelf have?
3. What is work?
 - a. How much work did the cat have to do in order to jump up onto the book shelf?
4. What is Kinetic Energy (E_k)?
5. What is the relationship between Kinetic Energy and velocity?
6. What does it mean that "Energy is Conserved"?
7. Be able to do the following:
 - a. Use the two energy equations
 - b. knowing E_k calculate E_g . And knowing E_g Calculate E_k
 - c. Calculate work done in two different ways
 - d. Fill in Energy Pie Charts

Waves:

1. Know the following terms: Oscillation, Wave, Period, Frequency, wave propagation
2. Be able to draw the following on a wave: Equilibrium, Amplitude, wavelength, crest, Trough
3. What is the relationship between Period and frequency?
4. What is the relationship between wavelength and frequency?
5. What is the relationship between velocity and frequency?
6. How can you change the velocity of a wave?
7. Sound: what type of wave is sound?
 - a. How does your ear work?
 - b. How does Echolocation work?
 - c. How does an ultra sound work?
8. What are the two types of super superposition?
9. How do standing waves form? (think about reflection)
10. How do waves help us understand our earth?
11. What is Doppler Effect?
12. What does a spectrometer do?
13. Is light a wave or a particle?
 - a. How do we know?
14. Be able to do the following:
 - a. Use the wave equation $\lambda = v/f$
 - b. Be able to calculate T from f and f from T
 - c. Use the concept of echolocation to find the distance to an object.
 - d. Label nodes and anti-nodes

Calculations

1. Significant figures
2. Conversions
3. Averages and uncertainties

States of Matter

1. What is temperature?
2. Describe the relative motion of atoms in a substance when it is hot, cold and in between?
3. What are the differences between solids, liquids and gasses?
4. How do we measure temperature?
5. Be able to convert between temperature scales
6. What are the different phase changes?
7. What happens to the temperature of a substance when it undergoes a phase change?

Density:

1. What is the equation for Density?
2. Be able to use the equation for density.

Atoms

1. What are the parts of an atom and their charges?
2. Atoms of the same element have the same number of _____.
3. When an atom is neutral (balanced charge), what is true about the number of protons and electrons?
4. How many electrons fit in the first energy level?
5. How many electrons fit in the second energy level?
6. How can you use the periodic table to remember the number of electrons in each energy level?
7. The mass number of an atom is the number of _____ added to the number of _____.
8. How can two atoms of a single element have different masses? (what are they called?)
9. How can two atoms of a single element have different charges?
10. What are the two types of ions? How do they form? Where will you tent to find each on the periodic table?
11. Vocabulary: atom, proton, electron, neutron, physical / chemical characteristic, mixture, Isotope, Ion, anion, cation
12. Be able to:
 - a. Read a periodic table
 - b. Draw an atom given and atom and its mass number
 - c. Fill in an atom chart

Periodic Table Trends

1. How is the periodic table currently organized?
2. What are the different groups / families?

Bonding

1. Why do atoms bond?
2. What determines how atoms will bond?

Electricity

1. Recognize the terms circuit, current, resistance and that battery is measure by voltage.
2. If you increase/decrease the resistance what happens to current?
3. If you increase/decrease the voltage what happens to current?