OUTLINING

Why and How to Create a Useful Outline

What is an outline?

- A graphic organizer for information
  - Shows the order of various pieces of information
  - Shows the relative importance of each
  - Shows the relationship between the various parts

Why create an outline?

- To make writing or studying easier
- To organize large amounts of information
- To study and learn information from a textbook

- One of the most important skills you could ever learn is outlining.
- In science you will outline chapter sections in the Physical Science text to build background knowledge.
- How will your outline be assessed?
  - Outlines will be collected and graded, or..
  - You will self-assess using a rubric, or…
  - You will be quizzed on the information and allowed to use your outline
  - Your outline must be your own work: no partners.

How do I create an outline?

- **Analyze** the information to determine what is important
  - Do not simply copy the information
  - Not all information is important: You be the judge!
  - Ask yourself: “Is this piece of information important for me to remember?”

How do I create and outline? (cont'd)

- **Organize** the information
  - Determine the order of importance of the information (usually the way it is presented in the textbook)
  - Use phrases (use the least number of words, but keep the meaning)
  - Avoid using complete sentences

How do I create and outline? (cont'd)

- Preferred format
  - Roman Numerals: I, II, III, IV, (most general)
  - Upper Case Letters: A, B, C,
  - Arabic Numerals: 1, 2, 3,
  - Lowercase Letters: a, b, c,
  - Lowercase Roman Numerals: i, ii, iii, iv, v (most specific)
- Go from most general to most specific

Format Example

I. First Main Topic – (Section Headings in Text)

(skip a line here)

A. Use capital A, B, C for sub topics (Blue Headings in Text)

1. Important info on this part of the topic
2. More info
    a. more detail
    b. more detail
        i. *Example*
        ii. *Example*
        iii. *Example*

(skip a line here)

II. Second Main Topic

Here's an example of an outline

I. Montgomery Upper Middle School Students and Staff
   A. 7th Grade
      1. Science
      2. Social Studies
      3. Math
      4. LA
      5. Cycle
      6. Language

   B. 8th Grade
      1. Science
         a. Blakemore
         b. Chesbro
         c. Kleinfield
         d. Sowa
            i. YOU ☺
      2. Social Studies
      3. Math
      4. LA
      5. Cycle
      6. Language

Outline Requirements (copy these onto right side of notebook now)

- Chapter # and Title - Write and underline
- **Section 1 Title** - Roman numeral I
- **Blue Headings** - Upper Case letters
- **Details** under Blue Headings (including **green** titled sections) - **Numbers** (1,2,3)
- Vocabulary terms - **Underline**
- Examples use **"Ex."**
  - Ex. Rubber band
  - Ex. Balloon

Let’s look at Ch. 1.3

Chapter 1: The World of Physical Science

III. Using Models in Physical Science

A. What is a Model?

1. Model = a representaion of an object or system
2. Used to explain things in science that we can't see or touch
3. Never exactly like the real thing
4. Ex: model rocket, atom model, building model, cell model

B. Models Help You Visualize Information

1. Objects as Models

a. Must have similar characteristic to the real thing

b. Ex. Slinky=sound wave

2. Ideas as Models

a. Used when you have an idea but don't have an object for a model

b. Ex. Imagine a drop of ice tea with sugar dissolved into it.

3. Models in Weather Forecasting

a. Satellite pictures

b. Color-coded maps

c. Radar images

Now, you try.

- Read the next part of the section.
- Work with a partner to complete the next part of the outline.
- What will you write for “C”?
- What details will you include under C?
- How will they be labeled in your outline?

C. Models Are Just the Right Size

1. Moon model used because moon is too big to work with
2. Model of salt can be used because salt is too small to work with

D. Models Build Scientific Knowledge

1. Models can be tools for investigations
2. Testing Hypotheses with a model

a. Use model to collect data

3. Illustrating Theories with a model

a. Ex. Atomic theory to show atoms in a metal

E. Models Can Save Time and Money

1. Ex. Car engineers use computer-simulated crashes to determine safety features without damaging a single car

Your Turn…..

- Read Chapter 1 Section 4
- Determine what information is important
- Follow format rules for outlining
- Do it!

- Is it similar to the outline shown on the next slide?

Chapter 1: The World of Physical Science

IV. Measurement and Safety in Physical Science

A. The International System of Units (SI)

1. global measurement system developed in France in the late 1700s
2. used by most scientists in almost all countries
3. helps scientist share info
4. units based on "10" for easy conversion
5. Length

a. Meters (m) = basic SI unit of length

b. 1 km = 1000 m (used for large lengths)

c. 1000 mm = 1 m (used for small lengths)

6. Volume = the amount of space that something occupies

a. Volume is expressed in liters (L), which are based on the meter.

b. 1 cubic meter = 1000 liters, 1 cm^3 = 1 mL

c. Liquid volume is measured using a graduated cylinder

d. Regular solid volume is calculated by $l \times w \times h$ and is expressed in cm^3

e. Volume of an irregular shaped object is measured using water displacement, where 1 mL = 1 cm^3

7. Mass = the amount of matter that something is made of

a. SI Unit for mass is the kilogram (kg)

b. For small objects use the gram (g)

c. 1000 g = 1 kg

8. Temperature = a measure of how hot or cold something is

a. Scientists use degrees Celsius (°C)

b. SI unit is the kelvin (K)

c. Ex. Water boils at 100 °C, normal body temp is 37 °C, water freezes at 0 °C

B. Derived Quantities = combinations of other measurements

1. Area = how much surface an object has

a. Area = length x width

b. expressed in square units, such as m^2 or cm^2

2. Density = mass per unit volume, the amount of matter in a given space

a. D = m/V

b. Density units are g/cm^3