States of Matter Alternate Lesson.

Kinetic Molecular Theory

#1:<https://ippex.pppl.gov/prev_ippex/interactive/>

go to the webpage and review "states of matter" slideshow

#2: <https://www.pbslearningmedia.org/resource/phy03.sci.phys.matter.ptable/periodic-table-of-the-elements/#.X2zA24t7lqM>

check out this online interactive periodic table, and follow the activity prompts.

#3: Activity - collect a bag of materials from Mrs.House tomorrow (or when your return) and complete the "cresting a periodic table" lab activity.

**Procedures:**

* **Transition to lab:** In this lab you will develop your own classification system for a collection of ordinary objects. You will analyze trends in your system and compare your system with the periodic table of the elements.
* a) Groups will receive a bag of objects. Each bag is missing one item.
* b) Instruct the students to examine the items carefully, and identify the missing object. Describe the object in as many ways as you can imagine. Emphasize that they include the reasons why you think the missing object has these characteristics.
* c)   Lay the paper squares out on your desk or table so that you have a grid of five rows of four squares each.
* d)  Arrange your objects on the grid in a logical order.(you must decide what order is logical!) you should end up with one blank square for the missing object.
* e)Describe the basis for your arrangement.
* f) Measure the mass (g) and the diameter (mm) of each object, and record your results in the appropriate square. Each square (except the empty one) should have one object and two written measurements on it.
* h) Examine your pattern again. Does the order in which your objects are arranged still make sense? Explain.
* i) Rearrange the squares and their objects if necessary to improve your arrangement. Describe the basis for the new arrangement.
* j) Working across the rows, number the squares 1 to 20. When you get to the end of a row, continue numbering in the first square of the next row.
* k) Copy your grid onto a piece of paper. In each square, be sure to list the type of object and label all measurements with appropriate units
* L) Make a graph of mass (y-axis) versus object number (x-axis). Label each axis, and put a title on the graph.
* m) Discuss the graph with your classmates. Try to identify any important features of the graph. For example, does the graph form a line or a curve? Is there anything unusual about the graph? What do these features tell you? Write your answers down
* n) Now make a graph of diameter (y-axis) versus object number (x- axis).
* 0) Repeat step 11.

Draw conclusions and write them on your lab/activity paper:  
How is your arrangement of objects similar to the periodic table provided?    
How is your arrangement different from that periodic table?  
Look back at your prediction about the missing object.    
Do you think it is still accurate?    
Try to improve your description by estimating the mass and diameter of the missing object. Record your estimates.

**Summary**

* A period in the periodic table is a horizontal row of the elements. A group is a vertical column of elements. Elements are arranged by increasing atomic number.

#4: Read the history of the periodic table essay.