Teach a parent: Today's concept is:
Explain what: Vaporization, Evaporation, Condensation & Sublimation are how they are different from each other

Please use this format for the Teach It Master It (TIMI) assignments.. This should be fun!! If dancing around the table helps to teach a concept, do it! The better **YOU the student** can teach the concept, the better YOU the student will understand the concept. AND you might just have some fun too! To teach the assignment/concept, you may use ANY or ALL of these techniques to help.
You may also use the book as a guide. PLEASE HAVE FUN!!

A. Simply explain the concept. No written work is necessary.
B. Explain the concept and use some notebook paper to show real-life examples you created while teaching.
C. Write out the thought process you will use to explain the concept. You may do this in steps or a one-chunk paragraph form.
D. Show real-life examples you used along the way to effectively explain the process.

Parent Response

1. _____ I'm not sure my child really understands, therefore, I don't either. Please work with him/her and let's try again.
2. _____ The concept was explained thoroughly with effective examples he/she created. "By golly, I think they've got it!"
3. _____ WOW! My child did an exceptional job! It was logically explained, therefore I caught on immediately and feel confident about teaching it to others. The self-created examples were a perfect fit. My child even asked me a question at the end to make sure I understood.

I believe my child could effectively teach this concept to others.

Parent Signature:_____ Date: _____
Mom or Dad Comments: Please explain how your student taught you this concept and what you learned in 3-5 sentences!

_____
_____
_____
_____
_____
_____
_____

Space for any additional notes from this section:

_____
_____
_____
_____
_____
_____
_____
_____
_____

My little book of:

States of Matter

Chp 3

Draw/paste examples of all 5 States of Matter. Be sure to Label

Name: _____
Period: _____ Parent Signature: _____

Four States of Matter: Section 1 definitions: (pg60)

Word: Pg found	Book definition	My sentence definition
States of matter		
Solid		
Liquid		
Gas		
pressure		
Boyle's law		
Charles's law		
plasma		

Teach a parent: Today's concept is: Explain the differences between: Exothermic & Endothermic?

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6. Draw & label Fig 19 from pg 73 in the box below:

7. For each pair of terms, <u>explain the differences</u>

a. exothermic/endothermic

_____
_____
_____

b. Boyle's Law / Charles's Law

_____
_____
_____

c. evaporation / boiling

_____
_____
_____

d. melting / freezing

_____
_____
_____

Section 1: Four States of Matter (pages 60-67)

1. Skim the first paragraph on page 60 and complete the following:
The states of matter are the _____ _____ in which a substance can exist.
For example, water commonly exists in 3 different states of matter: _____ (ice), _____ (water), and _____ (steam).

2. True or False (circle one): Matter consists of tiny particles called atoms and molecules that can only be seen with a powerful microscope. These atoms and molecules are always motionless.

3. True or False (circle one): The state of matter of a substance is determined by how fast the particles move and how strongly they are attracted to one another.

4. Use figure 2 on page 60 to fill in the chart below:

	Solid	Liquid	Gas
Draw a picture of what the particles look like in each of the 3 states.			
Describe how the particles move in each of the 3 states.			
Describe in terms of volume & shape for each of the 3 states			

5. What is the blue title on page 61?

_____

6. What are the two types of solids?

_____ and _____

7. How are the two types of solids different from one another?

_____

_____

8.What is the blue title on page 62?

_____

9. What are the properties of liquids?

_____ and _____

10. Explain each property of a liquid:

_____

_____

_____

11. What is the blue title on page 63?

_____

12. Look at figure 8. Describe how the motion of the particles in a balloon is different from the motion of the particles in the cylinder.

_____

_____

_____

_____

13. What type of natural plasmas do we have here on Earth?

_____

14. Describe & draw the difference of pressure in a basketball & a beach ball (See pg 64 to help!) _____

_____

_____

_____

_____

Section 2: Changes of State (pages 68-73)

1. True or False (circle one): A change of state is a conversion of a substance from one physical form to another. All changes of state are chemical changes. In a chemical change, the identity of a substance does not chance.
2. True or False (circle one): During a change of state, the energy of a substance does not change. The energy of a substance is related to the motion of the particles in the substance.
3. True or False (circle one): The temperature of a substance is a measure of the speed of the particles, and is therefore a measure of the energy of substance.
4. Copy figure 13 on page 68 below:

5. Copy chart at the bottom of page 72 below:

Summary of the Changes of State			
Change of state	**Direction**	**Endothermic or exothermic?**	**Example**

Changes of State: Section 2 definitions: (pg68)

Word: Pg found	Book definition
Change of state	
Endothermic	
Exothermic	
vaporization	
evaporation	
Boiling & Boiling point	
Melting & Melting Pt	
Freezing & freezing point	
condensation	
sublimation	

Teach a parent: Today's concept is: Explain what the 4 (5) Phases of Matter are, and how they different from each other?

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Space for any additional notes from this section:

Boyle's Law

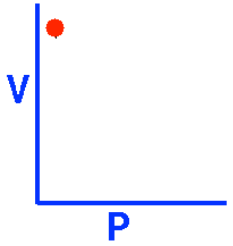
Air is a gas. Gases have various properties which we can observe with our senses, including the gas pressure (p), temperature, mass, and the volume (V) which contains the gas. Careful, scientific observation has determined that these variables are related to one another, and the values of these properties determine the state of the gas.

In the mid 1600's, Robert Boyle studied the relationship between the **pressure p** and the **volume V** of a confined gas held at a constant temperature. Boyle observed that the product of the pressure and volume are observed to be nearly constant. The product of pressure and volume is exactly a constant for an ideal gas.

Frozen: Mass & Temp.

p * V = constant

This relationship between _____ and _____ is called Boyle's Law in his honor.



Draw how this graph would look:

For extra help see:
http://www.grc.nasa.gov/WWW/K-12/airplane/boyle.html
http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/gaslaw/boyles_law_graph.html

Charles's Law

Air is a gas. Gases have various properties that we can observe with our senses, including the gas pressure, temperature (T), mass, and the volume (V) that contains the gas. Careful, scientific observation has determined that these variables are related to one another and that the values of these properties determine the state of the gas.

The relationship between temperature and volume, at a constant number of moles and pressure, is called Charles's Law in honor of the original work, It was observed that if the **PRESSURE** is held constant, the _____ is equal to a constant times the _____

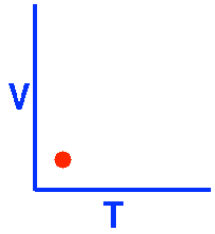
Draw how this graph would look:

Frozen: Mass & Press.

V = constant * T

For extra help see:
http://www.grc.nasa.gov/WWW/K-12/airplane/aglussac.html

http://preparatorychemistry.com/Bishop_Charles_frames.htm



Putting the Ice In Hockey

Have you ever slipped on ice or tried to pick up an ice cube, only to have it slip out of your fingers? Imagine what the sport of hockey and ice skating would be like if ice was not as slippery as it is. What do you think causes ice to be slippery? What happens to the ice arenas as the temperature changes?

While these are questions that scientists have explored for a long time, you may be surprised to learn that it has only been in recent years that they have discovered the unique properties o ice that make it slippery and have revised some of their old theories.

Explore the Science of Hockey at: http://www.exploratorium.edu/hockey/index.html on The Exploratorium website, to understand more about what makes ice slippery. As you explore th website, answer the questions below!

1. Describe the difference between "fast ice" and "slow ice".

2. Which kind of ice do hockey players seem to prefer ? Why?

3. Where are the hockey arenas located where the ice is better? Why?

4. How does the ices differ for hockey and figure skating?

5. In the past, what did scientists think caused ice to be slippery?

6. According to Professor Somorjai and his colleagues, why is the previous theory about why ice is slippery incorrect? _____

7. According to Professor Somorjai, what may account for the difference between "fast ice" and "slow ice".

8. What did Prof. Somorjai discover when he first examined the surface structure and composition of the atoms & molecule that make up ice? What did he discover upon further research to indicated what makes ice slippery?