

Lapbooking through Chemistry

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Lapbooking through Chemistry

Lapbooking through Chemistry is a unique and versatile program that leads you through a survey of the periodic table and the principles of chemistry using lapbooks to document the journey. It is designed to be a gentle approach to the classical education cycle for science. *Lapbooking through Chemistry* can be used as a stand-alone science program for 2nd-6th grade or in conjunction with one of the other Chemistry programs offered by Elemental Science.

What is included in this program:

Lapbooking through Chemistry includes a reading plan broken up into weekly lessons. There are 13 lessons on the periodic table, 20 lessons on the principles of chemistry and 3 lessons on scientists. The reading assignments are broken into two level, younger students (2nd-4th grade) and older students (4th-6th grade). This program also includes plans for 3 lapbooks to coordinate with what has been read. Finally all the templates you need are included in this guide, as well as pictures of the completed lapbook for you to use as a guide.

How to use this program:

Each lesson is designed to be completed over one week. The lessons contain a reading assignment from the selected books, related vocabulary and a mini-book to complete for the lapbook. You can choose to break up the assignments over the week or do all of them at one time. If you are using this program with an older student you can choose to have them read the assigned pages on their own or to read the pages with them. After you complete the reading assignment, have your student give you a several sentence narration about what was read for their lapbook. This can simply be what they found most interesting or something new they learned from the reading. You can choose to have them copy their sentences into the mini-book or you can dictate their sentences back to them. If you using this program with an older student have them do all their own writing. Have your student color the related picture on the mini-book. Once the mini-book is complete, glue it into their lapbook using the lapbook overview sheet as a guide.

If you are using *Lapbooking for Chemistry* alongside *Chemistry for the Grammar Stage*, you have two options for using this program. First you can use the lapbooks in place of the student notebook for the narrations. As your student gives their narrations each day, write them down in the lapbook instead of on the narration pages in the student notebook. Your second option is to use the lapbooks for review on Day 5 of your week. For this option, simply have your student read over their narrations from the week and choose their favorite parts to write in their lapbook after they color the picture on the mini-book. I have included two charts in the appendix (pages 65-67) to help you line up the lapbook lessons with the coordinating weeks in *Chemistry for the Grammar Stage*.

Vocabulary Cards:

Throughout the lessons there are vocabulary words to go with what is studied, plus each lapbook has a pocket for the vocabulary cards. You can have your student memorize these or just review them with each lesson. I have included in the appendix, completed vocabulary cards to use with your younger student (pages 68-79) and blank vocabulary cards to use with your older

students (pages 80-85). If you use the blank vocabulary cards, have your student look up the vocabulary words in the science encyclopedia of your choice and then write in on the back of each card or you can use the definitions from the completed vocabulary cards. Either way, I recommend that you print the cards out on card stock for durability.

Final Thoughts:

As the author and publisher of this curriculum I encourage you to contact me with any questions or problems that you might have concerning *Lapbooking through Chemistry* at info@elementalscience.com. I will be more than happy to answer them as soon as I am able. You may also get additional help at the Elemental Science yahoo group. I hope that you will enjoy creating memories using *Lapbooking through Chemistry*!

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Books & Materials List

Books Scheduled:

The following are the books that I used while planning the reading assignments for this curriculum.

Younger Students

- *Fizz, Bubble, Flash*
- *Usborne Internet-linked Encyclopedia of Science*
- *Marie Curie's Search for Radium* by Beverly Birch
- *Pasteur's Fight Against Microbes* by Beverly Birch

Older Students

- *Usborne Illustrated Dictionary of Chemistry*
- *Kingfisher Science Encyclopedia*
- *DK Biography on Marie Curie* by Vicki Cobb
- *Germ Hunter: A Story About Louis Pasteur* (Creative Minds Biography)

However you could certainly use the encyclopedia's you already have on hand or books from the library. Simply look up the topic assigned for the day. Then read about it and complete the section in your lapbook.

I chose not to include a list of other resources because every library is different and books frequently go out of print. If you want to supplement this curriculum with other books by all means, do! I highly recommend the *Let's Read and Find Out Series* for this age group. Also, your local librarian is an excellent resource and can point you in the direction of some excellent books about the subjects studied.

Additional Materials Needed:

The following materials will be needed to complete the lapbook projects.

- ✓ 10 sheets of 8 ½ by 11 cardstock or 5 file folders
- ✓ Colored pencils or crayons
- ✓ Markers for decorating the cover
- ✓ Glue stick
- ✓ Scissors
- ✓ Stapler

Overview of Topics Covered

Periodic Table Lapbook (pages 7-31) *13 lessons on the periodic table*

- ✓ Elements
- ✓ Periodic table
- ✓ Atoms
- ✓ Alkali metals
- ✓ Alkaline earth metals
- ✓ Main Group Metals
- ✓ Metalloids
- ✓ Nonmetals
- ✓ Halogens
- ✓ Noble Gases
- ✓ Transition Metals
- ✓ Lanthanides
- ✓ Actinides

Principles of Chemistry Lapbook (pages 32-53) *20 lessons on the principles of chemistry*

- ✓ States of Matter
- ✓ Gas
- ✓ Air
- ✓ Crystals
- ✓ Molecules
- ✓ Mixtures/Solutions
- ✓ Separating Mixtures
- ✓ Metals
- ✓ Iron & Steel
- ✓ Chemical Reactions
- ✓ Enzymes & Catalysts
- ✓ Oxidation & Reduction
- ✓ Electrolysis
- ✓ Acids & Bases
- ✓ Carbon (fossil fuels)
- ✓ Organic Chemicals
- ✓ Detergents & Soaps
- ✓ Polymers & Plastics
- ✓ Electricity/Circuits & Batteries
- ✓ Photosynthesis

Scientists in Chemistry Lapbook (pages 54-63) *3 lessons on scientists who shaped chemistry*

- ✓ Marie Curie
- ✓ Louis Pasteur
- ✓ Timeline of Scientists

Principles of Chemistry Lapbook Reading Assignments (Younger Students)

All reading assignments are from the *Usborne Internet-linked Science Encyclopedia*. Read the selected pages, then color the picture and add your student's narration sentence to the mini-book. After you finish reading, go over the vocabulary. Then, make the vocabulary cards for the words and add them to the vocabulary pocket.

Lesson 1: States of Matter

Pg. 16-17, Vocabulary: condensation, sublimation

Lesson 2: Gas

Pg. 22-23, Vocabulary: carbon dioxide, diffusion, gas

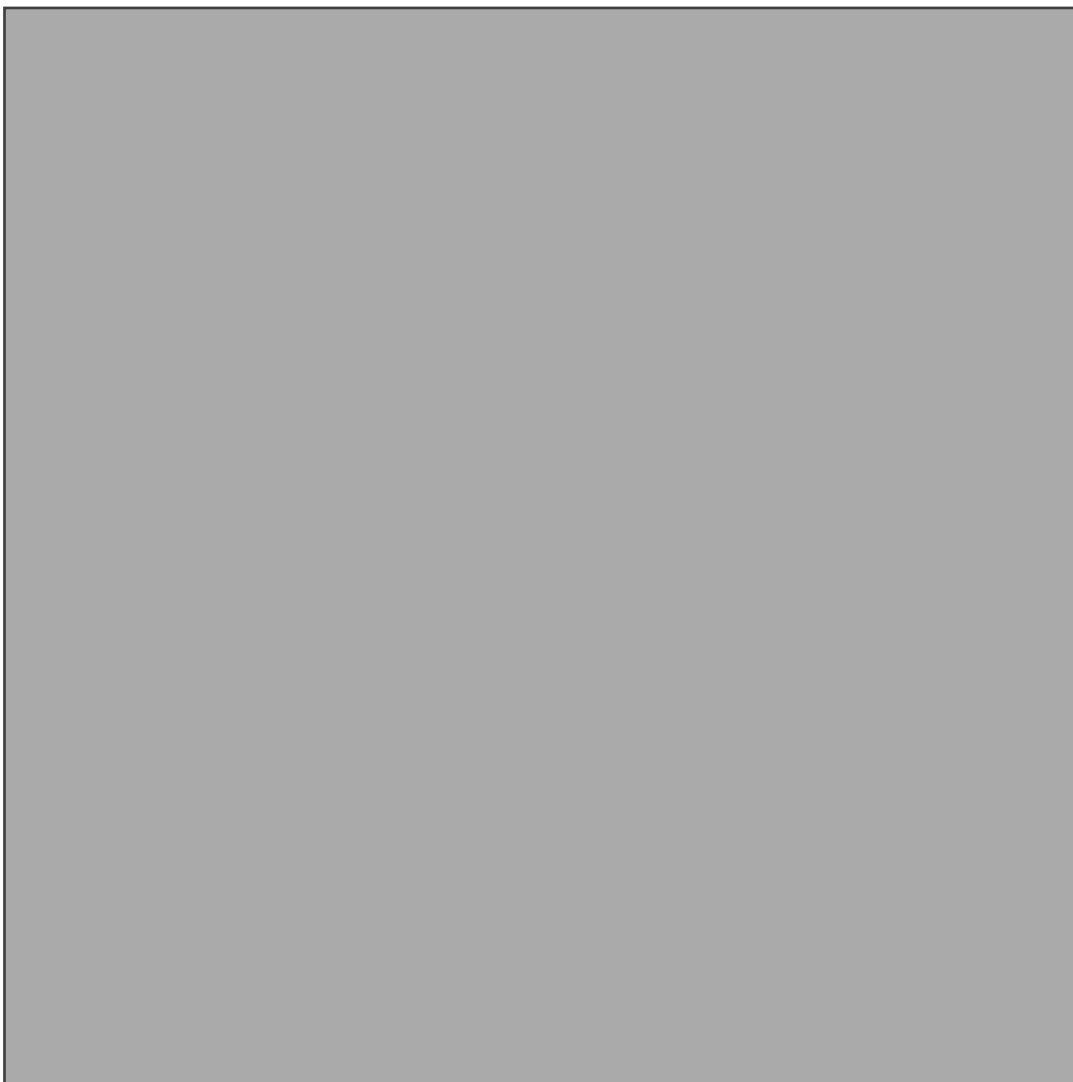
Lesson 3: Air

Pg. 62-63, Vocabulary: air

Lesson 4: Crystals

Pg. 90-91, Vocabulary: crystal

Lesson 5: Molecules



Principles of Chemistry Lapbook Reading Assignments (Older Students)

All reading assignments are from the *Kingfisher Science Encyclopedia*. Read the selected pages, then color the picture and add your student's narration sentence to the mini-book. After you finish reading, go over the vocabulary. Then, have your student look up the words, make the vocabulary cards for the words and add them to the vocabulary pocket.

Lesson 1: States of Matter

Pg. 156-157, Vocabulary: condensation, sublimation

Lesson 2: Gas (There is no page on gases in *Kingfisher*; instead you will read about pressure.)

Pg. 311, Vocabulary: carbon dioxide, diffusion, gas

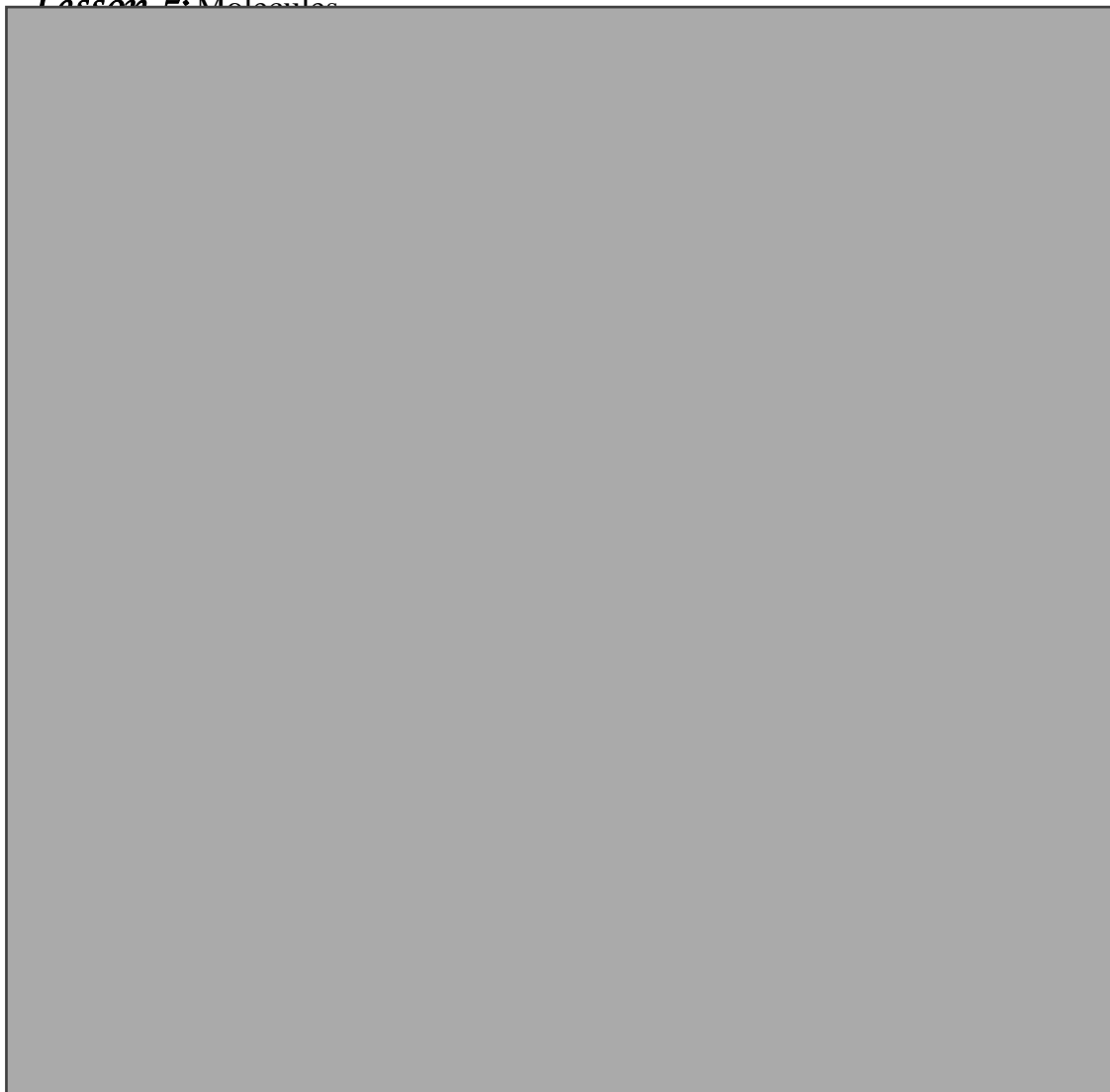
Lesson 3: Air

Pg. 172, Vocabulary: air

Lesson 4: Crystals

Pg. 168-169, Vocabulary: crystal

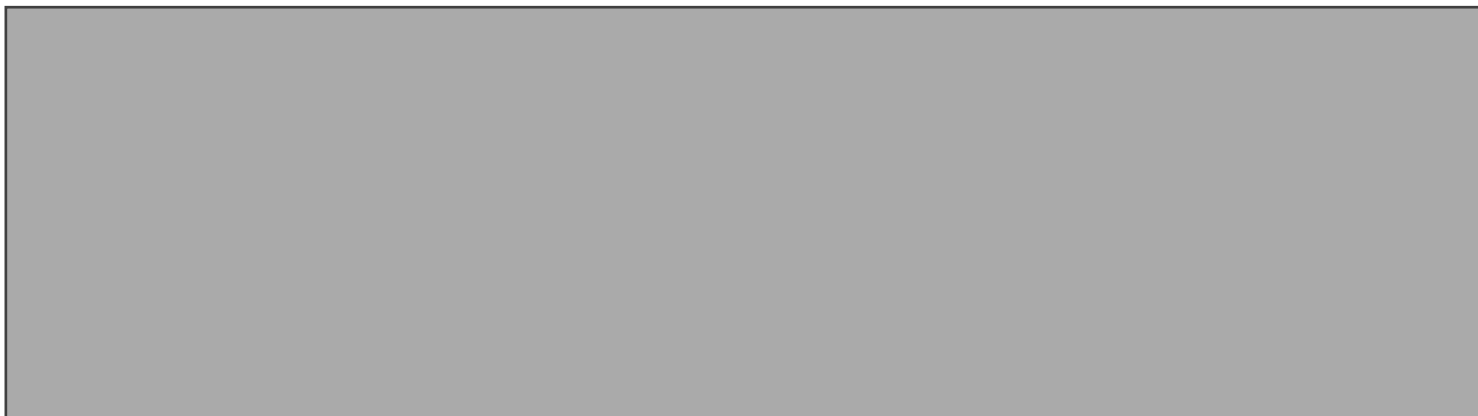
Lesson 5: Molecules



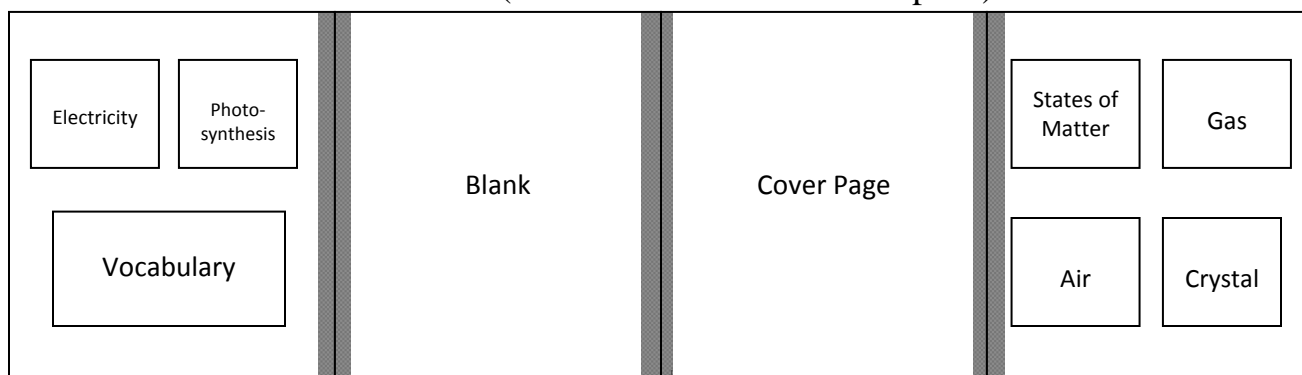
Principles of Chemistry Lapbook Plans

You will need 4 sheets of cardstock or two file folders. Begin by taping all 4 sheets together on the longest edge, to look like this...

Inside



Outside (shaded area is where the tape is)



This panel folds in

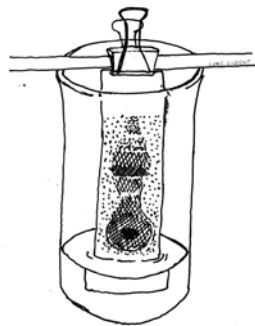
this panel folds in

Overall Directions:

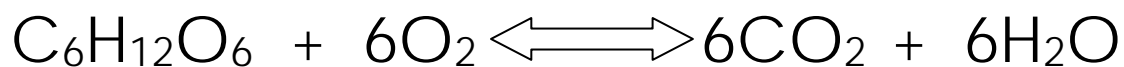
For each mini-book have the student color the pictures. Then write the narration sentences for your student or have them copy them on the inside of the mini-book. Finally glue the mini-books into the lapbook. You can use the cover template provided or allow your student to decorate the cover as they choose.

Templates for the Principles of Chemistry Lapbook-Cover Page

(Cut along the solid lines; color and decorate as desired.)



*The
Principles
of
Chemistry*



By: _____

*Templates for the Principles of Chemistry Lapbook-
Vocabulary Card Holder*

(Glue the edges and bottom down, and then fill with vocabulary cards.)

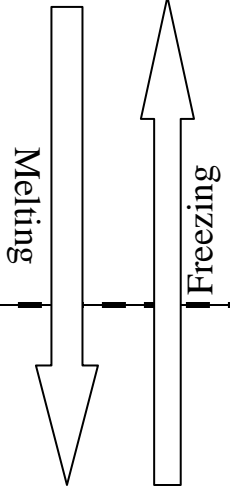

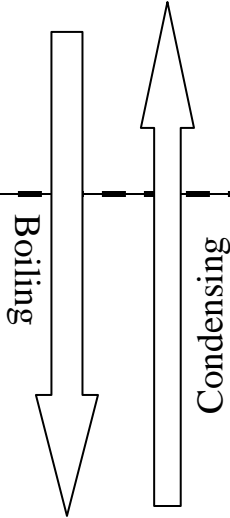

Principles of Chemistry
Vocabulary



Templates for the Principles of Chemistry Lapbook-Lessons 1

(Cut along the solid lines and····· lines; fold along the dashed lines.)

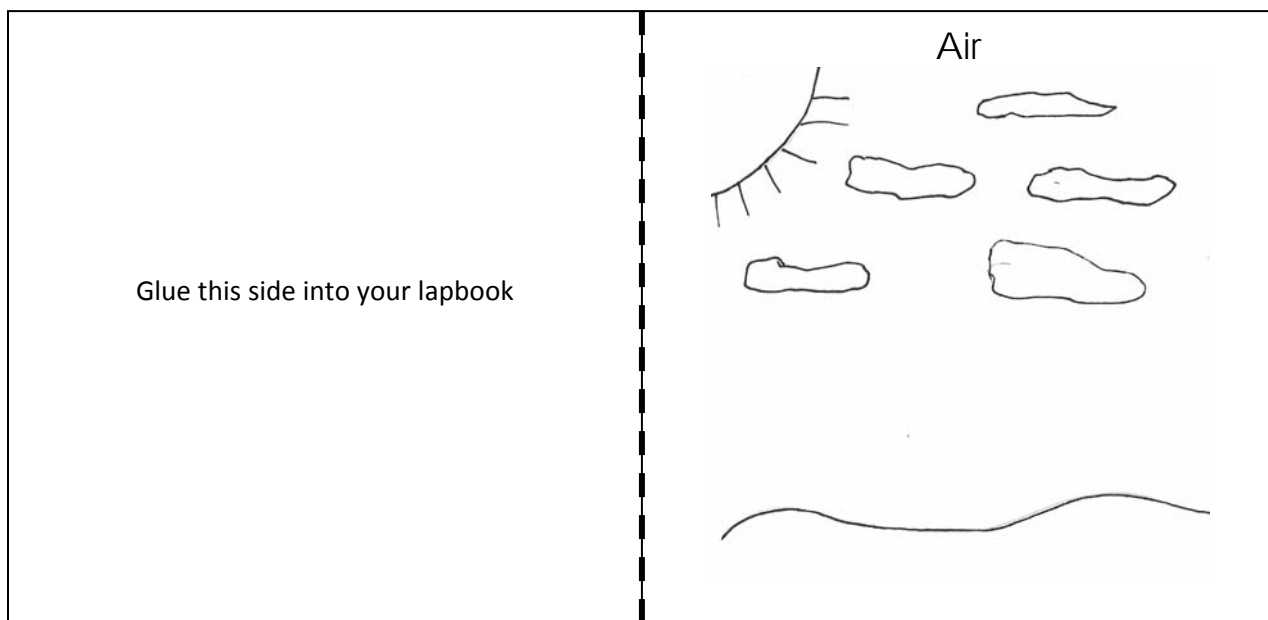
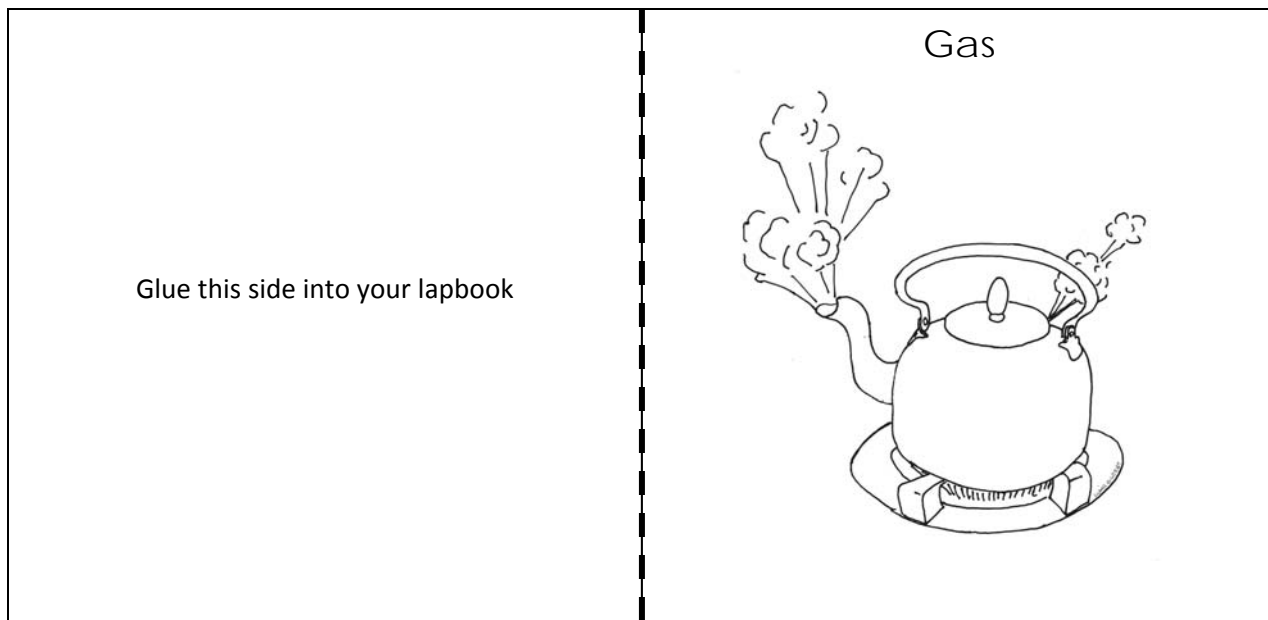
(Cover picture)

	
	<p>Sublimation is...</p> 
	<p>Have your student write or draw a solid, liquid and gas where they belong in the left hand boxes. Then have your student write their definition of sublimation on the right hand box. Glue the left center box into your lapbook, then fold in the boxes and glue the cover picture on the outside box.</p>

Templates for Principles of Chemistry Lapbook-Lesson 2 & 3

(Cut along the solid lines and fold the book along the dashed line. Then glue into lapbook.)

Write your student's narration on the inside of the book.



Lapbooking Through Chemistry: Vocabulary Cards for Younger Students

Cut out the cards along the outside solid line. Then, fold them in half along the dashed line and glue together.

B Boron 5 10.81			
Si Silicon 14 28.09			
Ge Germanium 32 72.61	As Arsenic 33 74.92		
Sb Antimony 51 121.8	Te Tellurium 52 127.6		
	Po Polonium 84 209		

Metalloid

an element which shares some of the properties of metals and nonmetals

Radioactive Decay

the process by which a nucleus ejects particles through radiation becoming the nucleus of a series of different elements until stability is reached

Unstable

elements that don't stay together as an element for very long

Condensation

the process of a gas cooling to form a liquid

Lapbooking Through Chemistry: Vocabulary Cards for Older Students

Cut out the cards along the outside solid line. Have your students look up the definitions in a science encyclopedia. Then have them write the definitions on the back of the card. You may want to print out on cardstock for durability.

Nucleus

Proton

Neutron

Isotopes

Cl <small>17</small> Chlorine <small>35</small>	Cl <small>17</small> Chlorine <small>37</small>
<small>18n</small>	<small>20n</small>

Metalloid

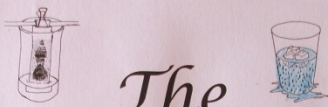
B Boron 5 10.81	Si Silicon 14 28.09	As Arsenic 33 74.92	Te Tellurium 52 127.6
	Ge Germanium 32 72.61	Sb Antimony 51 121.8	Po Polonium 84 209

Radioactive Decay

Unstable

Condensation

Samples of Principles of Chemistry Completed Lapbook



The Principles of Chemistry

$C_6H_{12}O_6 + 6O_2 \rightleftharpoons 6CO_2 + 6H_2O$

By: _____

States of Matter

Gas

Electricity/Circuits & Batteries

Photosynthesis

Sublimation

Neutralization

Principles of Chemistry Vocabulary

$C_6H_{12}O_6 + 6O_2 \rightleftharpoons 6CO_2 + 6H_2O$

Solid

Melting

Freezing

Liquid

Boiling

Condensing

Gas

Sublimation is...
when a solid substance goes directly to gas

Crystals

Photosynthesis

The process by which plants change light into energy using chlorophyll.

Sublimation

Neutralization

Principles of Chemistry Vocabulary

$C_6H_{12}O_6 + 6O_2 \rightleftharpoons 6CO_2 + 6H_2O$