Lapbooking through...

the Periodic Table

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Lapbooking through the Periodic Table

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Introduction

*Lapbooking through the Periodic Table* is a unique and versatile program that leads you through a survey of periodic table using a lapbook to document the journey. It is designed to be a gentle approach to homeschool science education based on the Unit Study method suggested in *Success in Science: A Manual for Excellence in Science Education* by Bradley & Paige Hudson. This study can be used as a stand-alone science program for 2nd to 4th grade or in conjunction with another chemistry program for an older student.

**What is a lapbook?**

Lapbooks are educational scrapbooks that fit into the lap of the student. Typically they are a collection of related mini-books on a certain subject that have been glued into a file folder for easy viewing, but they can also include pictures or projects that the students have completed. In the same way that notebooking does not require regurgitation of facts; lapbooking causes the students to interact with the materials instead of just responding to comprehension questions.

Lapbooks are extremely versatile because they can be used in conjunction with any subject the students are learning about. They are excellent tools to use with elementary students as a way of reinforcing what they are learning because this age group tends to prefer a more creative format of notebooking.

The heartbeat of the lapbook is the mini-books that are placed inside. Each of these booklets contains information on topics related to the main subject of the lapbook. They can be in a variety of shapes and sizes, but the cover should have a picture related to the subject as well as a title. The interior of each booklet should contain several sentences detailing what the students have learned about the topic in their own words. The mini-books will each pertain to different sub-topics of the main topic. In other words, for this lapbook your main topic is periodic table and your related mini-books are on types of periodic table, atoms, and so on.

Lapbooks serve as beautiful scrapbooks that the students can continue to learn from for years to come, which makes them a beneficial addition to the students’ science education.

**What is included in this program?**

*Lapbooking through the Periodic Table* includes all of the basic components of elementary science education as explained in our book.

1. **Science-Oriented Books** – The elementary student is an empty bucket waiting to be filled with information and science-oriented books are a wonderful way to do that. These books can include appropriate children’s science encyclopedias, living books for science, and/or children’s non-fiction science books. In this program, the reading assignments and additional books scheduled in the lesson fulfill this component. The reading assignments are broken for you into three levels: younger students (1st to 3rd grade), older students (3rd to 5th grade).

2. **Notebooking** – The purpose of the notebooking component for elementary science education is to verify that the students have placed at least one piece of information into their knowledge bucket. You can use notebooking sheets, lapbooks, and/or vocabulary words to fulfill this requirement. This unit includes all the templates and pictures you will need to
complete a lapbook on plants as well as vocabulary words to coordinate with each lesson.

3. **Scientific Demonstrations or Observations** – Scientific demonstrations and observations are meant to spark the students’ enthusiasm for learning science, to work on their observation skills, and to demonstration the principles of science for them. This component of elementary science education can contain scientific demonstrations, hands-on projects, and/or nature studies. The coordinating activities found in this guide fulfill this section of elementary science instruction.

If you would like to read more about the concepts introduced in the above points, check out *Success in Science: A Manual for Excellence in Science Education* and the following articles from our website.

- **What Are Living Books?** – This article clearly shares the difference between living books and encyclopedias, especially in the context of science.
  

- **The Basics of Notebooking** – This article details the basic components of notebooking along with how a few suggestions on what notebooking can look like.
  

- **Scientific Demonstrations vs. Experiments** – This article explains the difference between scientific demonstrations and experiments along with when and how to employ these methods.
  

**How can I use this program?**

Each lesson in this program was designed to be completed over several days or up to one week. The lesson contains reading assignments from the selected books. You can choose to break these selections up over the several days or do them all at once. If you are using this program with younger students, read the selected pages to them. If you are using this program with older students, you can choose to have them read the assigned pages on their own or you can read the selected pages to them.

After you complete the reading assignment, have the students tell you what they have learned from the selection. This can simply be what they found to be the most interesting or something new that they have learned from the reading. You can choose to write the sentences for them or have them copy them into the mini-book. If you are using this program with older students, I recommend that you have them do all their own writing. Once the students have finished writing, have them color the related picture on the mini-book. Once the mini-book is complete, glue it into their lapbook using the overview sheet on pg. 8 as a guide.

At another time during the week, review the vocabulary with the students. You can have them memorize each of the definitions or just go over each of the words with the lesson before adding the card to the vocabulary pocket. I have also included a set of blank vocabulary cards to use with an older student in the Appendix on pp. 41-43. If you use the blank vocabulary cards, have the students look up the vocabulary words in the science encyclopedia of your choice or dictate the provided definition to them. Then, have them write the definition on the back of each card. I recommend that you print the blank vocabulary cards out on card stock for durability.
Finally, you can finish the week by reading to the students one of the related books from the additional book list. After you finishing reading, do an additional activity with the students. If you would like to record what they have learned, there are two template pages provided for you to use in the appendix of this book on pp. 38-39.

I have also included a possible schedule for each lesson to give you an idea of how to plan out each one. These schedules spread the assigned work for out over four days. If you choose to complete the program in this manner, this lapbook will take you six weeks to complete.

**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 the Periodic Table* at support@elementalscience.com. I will be more than happy to answer them as soon as I am able. I hope that you will enjoy creating memories using *Lapbooking through the Periodic Table!*
Lapbook Overview

You will need 2 sheets of card-stock or one file folder. Begin by taping the two sheets together on the longest edge, to look like this:

Overall Directions

For each mini-book have the students color the pictures. Then, write the narration sentences for the students or have them copy the information into the inside of the mini-book. Finally, glue the mini-books and poems onto the lapbook. You can use the cover template provided or allow the students to decorate the cover as they choose.
Books and Materials List

Books Scheduled:

The following books are what I used while planning the reading assignments for this curriculum…

**Younger Students**

- *Basher Science: The Complete Periodic Table, 2017 Edition*

**Older Students**

- *The Periodic Table by Sean Callery, 2017 Edition*

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

Additional Materials Needed:

The following materials will be needed to complete the lapbook:

- 4 sheets of 8 ½ by 11 cardstock OR 2 file folder
- Colored pencils or crayons
- Markers for decorating the cover
- Glue stick
- Scissors
- Stapler

Overview of Study:

- **Lesson 1:** The Elements
- **Lesson 2:** The Periodic Table
- **Lesson 3:** Alkali Metals
- **Lesson 4:** Alkaline Earth Metals
- **Lesson 5:** Poor Metals
- **Lesson 6:** Metalloids
- **Lesson 7:** Nonmetals
- **Lesson 8:** Halogens
- **Lesson 9:** Noble Gases
- **Lesson 10:** Transition Metals
- **Lesson 11:** Lanthanides
- **Lesson 12:** Actinides

*Note – The Superheavy elements (#104-118) are not covered as a separate mini-book in this lapbook. You can mention to your students that not much is known about these elements as they are very unstable and can only be briefly created in the lab.*
Lapbooking through the Periodic Table

Lessons
Lesson 1: The Elements

Science-Oriented Books

Reading Assignments

Younger Students
- Basher Science Periodic Table pg. 18 Elements

Older Students
- Scholastic’s The Periodic Table pp. 8-9 What is an element?

Additional Books from the Library
- The Elements (True Books) by Matt Mullins
- Elements and Compounds (Building Blocks of Matter) by Louise Spilsbury and Richard Spilsbury

Notebooking

Vocabulary

Have the students cut out and glue the vocabulary pocket on pg. T-18 into their lapbook. Then, have them cut out and add the following card to their vocabulary pocket.

原子 Mass — The average mass number of the atoms in a sample of an element. (Completed card on pg. T-18, Blank card on pg. 41)

原子 Number — The number of protons in the nucleus of an atom. (Completed card on pg. T-19, Blank card on pg. 41)

化学 Symbol — A shorthand way of representing a specific element in formula and equations. (Completed card on pg. T-19, Blank card on pg. 41)

元素 — A substance made up of one type of atom, which cannot be broken down by chemical reaction to form a simpler substance. (Completed card on pg. T-20, Blank card on pg. 41)

Mini-book Assembly Instructions

1. Periodic Table Lapbook Cover Sheet — Have the students cut out and color the picture on the cover. Have the students write their name on the blank and glue the sheet on the cover of the lapbook. (pg. T-2 black and white version, pg. T-3 color version)

2. Elements Diagram — Have the students work on the Elements Diagram. Have the students cut out the sheet and label the atomic number, symbol, and atomic mass on the element. Finally, have them glue the sheet into their lapbook. (pg. T-4)

Scientific Demonstrations or Observations

Coordinating Activity

原子 and Isotopes Game — Have the students play the Atoms and Isotopes game. You can
get directions for this game and download free templates from the following post:


### Possible Schedule

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Read the selected pages on Elements</td>
<td>☐ Choose one or more of the additional books to read</td>
<td>☐ Play the Atoms and Isotopes Game</td>
<td>☐ Go over the vocabulary words and add the cards to the vocabulary pocket</td>
</tr>
<tr>
<td>☐ Add any information learned to the Elements Diagram and glue the mini-book to the lapbook</td>
<td>☐ Add the lapbook cover page</td>
<td>☐ Choose one or more of the additional books to read</td>
<td>☐ Choose one or more of the additional books to read</td>
</tr>
</tbody>
</table>

**Notes**

![Actinium Element Card](image)
Lapbooking through the Periodic Table
Templates
# The Periodic Table

The periodic table is a chart that organizes the elements based on their atomic number, electron configurations, and chemical properties. It is a fundamental tool in chemistry and physics, providing a visual representation of the elements and their relationships. Each element is represented by a box that includes the element's symbol, atomic number, atomic weight, and other properties.

### Elements in the Periodic Table

#### Main Groups
- **Alkaline Earth Metals**
- **Alkaline Metals**
- **Transition Metals**
- **Actinides**
- **Lanthanides**

#### Periods

- **Period 1** includes elements 1-2
- **Period 2** includes elements 3-12
- **Period 3** includes elements 13-20
- **Period 4** includes elements 21-30
- **Period 5** includes elements 31-36
- **Period 6** includes elements 37-38
- **Period 7** includes elements 87-89

### Notable Elements
- **Hydrogen (H)**
- **Helium (He)**
- **Lithium (Li)**
- **Beryllium (Be)**
- **Carbon (C)**
- **Nitrogen (N)**
- **Oxygen (O)**
- **Fluorine (F)**
- **Argon (Ar)**

### Periodic Table Layout

<table>
<thead>
<tr>
<th>Period</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H, He</td>
</tr>
<tr>
<td>2</td>
<td>Li, Be</td>
</tr>
<tr>
<td>3</td>
<td>B, C, N, O, F, Ne</td>
</tr>
<tr>
<td>4</td>
<td>Na, Mg, Al, Si, P, S, Cl, Ar</td>
</tr>
<tr>
<td>5</td>
<td>K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn</td>
</tr>
<tr>
<td>6</td>
<td>Ga, Ge, As, Se, Br, Kr</td>
</tr>
<tr>
<td>7</td>
<td>Rb, Sr, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, I, Xe</td>
</tr>
<tr>
<td>8</td>
<td>Cs, Ba, Lu, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Po, At, Rn</td>
</tr>
<tr>
<td>9</td>
<td>Fr, Ra, Lr, Rf, Db, Sg, Bh, Hs, Mt, Ds, Rg, Cn, Nh, Fl, Mc, Lv, Ts, Og</td>
</tr>
</tbody>
</table>

*For convenience, this table includes elements up to period 8, which includes the elements up to Oganesson (Og). Actual period 7 includes elements up to lawrencium (Lr). Period 8 includes elements up to livermorium (Lv).*
# The Periodic Table

By: ________________________________

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Lapbooking through the Periodic Table ~ Templates T-3
Element Diagram Sheet

[Diagram of Phosphorus (P) with atomic number 15, atomic weight 30.97]
Vocabulary Templates

Periodic Table Vocabulary

Atomic Mass

15
P
Phosphorus
30.97

The average mass number of the atoms in a sample of an element.