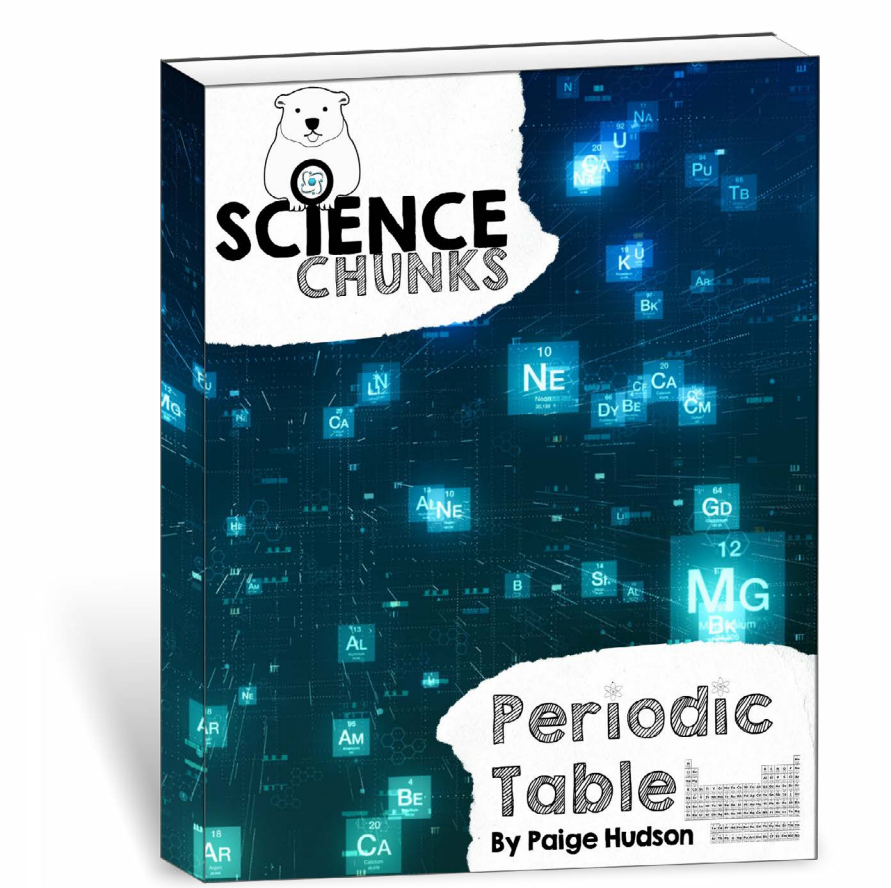


Science Chunks: Periodic Table Sample Packet

Teach your students the basics of the periodic table in bite-sized chunks. The following sample packet includes most of the first lesson of the *Science Chunks: Periodic Table* digital unit study. You will see:

- ✓ The Introduction (*beginning on p. 4*)
- ✓ The Lesson (*beginning on p. 8*)
- ✓ The Lapbooking Templates (*beginning on p. 11*)
- ✓ The Notebooking Templates (*beginning on p. 14*)

If you have questions about what you see, please let us know by emailing support@elementalscience.com. To get started, head to:

https://elementalscience.com/products/science-chunks-periodic-table-unit

A Peek Inside a Science Chunks Unit

1. Lesson Topic

Focus on one main idea throughout the week. You will learn about these ideas by reading from visually appealing encyclopedias, recording what the students learned, and doing coordinating hands-on science activities.

2. Information Assignments

Find two reading options—one for younger students, one for older students, plus optional library books.

3. Notebooking Assignments

Record what your students have learned with either a lapbook or a notebook. The directions for these options are included for your convenience in this section along with the vocabulary the lesson will cover.

4. Hands-on Science Assignments

Get the directions for coordinating hands-on science activities that relate to the week's topic.

5. Lesson To-Do Lists

See what is essential for you to do each week and what is optional. You can check these off as you work through the lesson so that you will know when you are ready to move on to the next one.

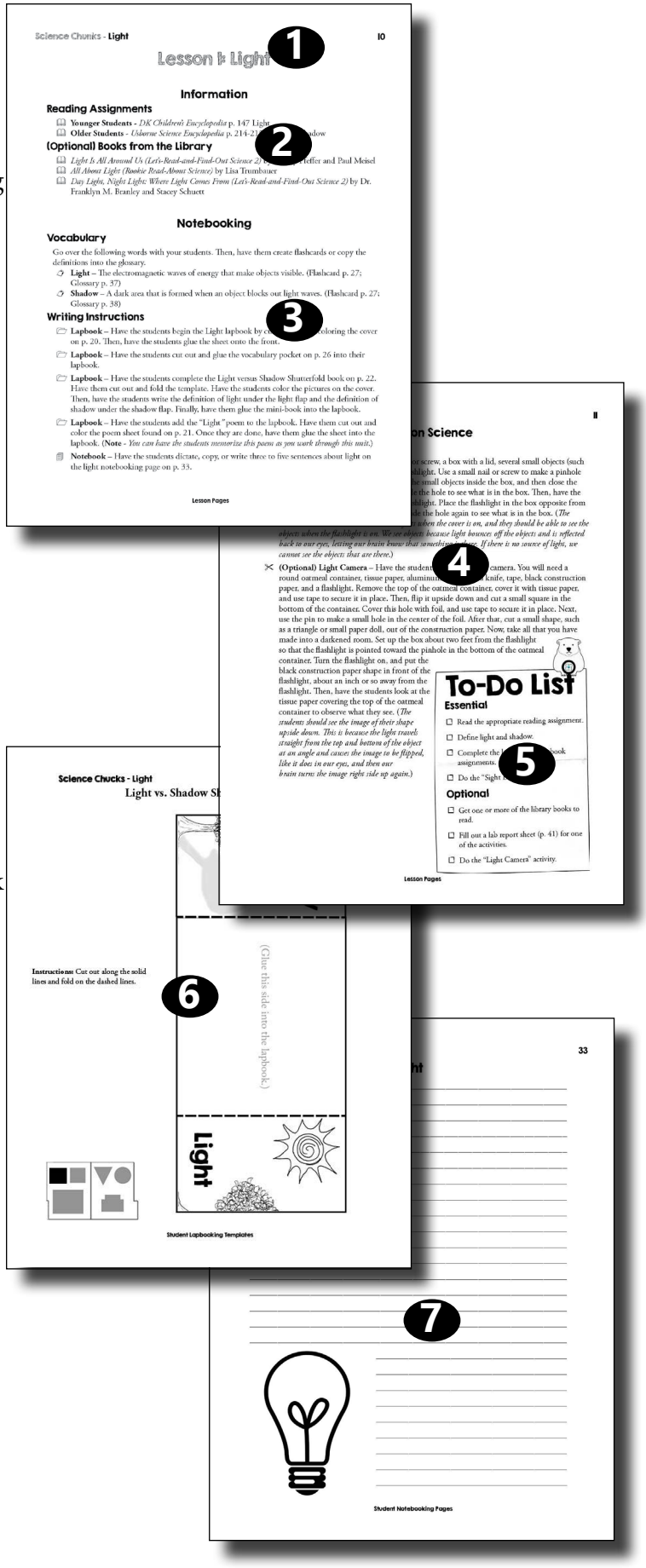
6. Lapbook Templates

Get all the information you need to create a lapbook on the subject.

7. Notebook Templates

Have all the sheets you need to create a notebook on the subject, including a glossary for the vocabulary terms.

In the appendix you will find a blank activity sheet, a blank lab report sheet, and a review sheet (or quiz).



Unit Introduction

Science Chunks - Periodic Table is a unique and versatile unit study that leads you through a survey of the periodic table. It is designed to be a gentle approach to homeschool science based on the Unit Study method suggested in *Success in Science: A Manual for Excellence in Science Education* by Bradley and Paige Hudson. This study can be used as a stand-alone unit for elementary science.

What Is Included in This Unit

Science Chunks - Periodic Table includes the three keys to teaching science. With each lesson you will be doing the following:

- ✓ Listening to (or reading) **scientific information** from visually appealing encyclopedias
- ✓ Dictating (or writing down) what the students have learned and seen using **lapbooking or notebooking**
- ✓ Watching (and doing) **hands-on science** through a variety of science activities

Here is how this works for a lesson.

Section 1 - Information

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 age-appropriate children's science encyclopedias, living books for science, and/or children's nonfiction 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 two levels: younger students (1st to 3rd grade) and older students (4th to 6th grade).

Our idea is that you will read these selections with your students, pausing to ask questions or discussing the information once you are done reading.

Section 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.

In this program, we have included two writing options, a lapbook and a notebook, for you to use with your students. In the lapbook section, you will find all of the templates and pictures you will need to complete a lapbook on the periodic table. In the notebook section, you will find all the pages you need to create a simple notebook on the periodic table, including notebooking sheets and a glossary.

Section 3 - Hands-on Science

Scientific demonstrations and observations are meant to spark 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.

In this program, the coordinating activities at the end of each lesson fulfill this section of elementary science instruction. If you would like to record what you have done, you can use one of the templates in the appendix pp. 80-81.

What You Need in Addition to This Guide

Books Scheduled

The following books are what we used to plan the reading assignments for this unit:

- 🕮 **Younger Students -** *Basher Science: The Complete Periodic Table*
- 🕮 **Older Students -** *DK Eyewitness: The Elements*

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.

You will need also simple craft supplies and other science materials—see a complete list of essential items on p. 9.

How This Unit Works

We have included a to-do list with each lesson to give you an idea of what is essential and what is optional. There are several ways you can schedule this unit. Here is a quick look at a few of the options.

Possible Schedules for Your Week

- **One Day –** You can set aside about an hour to an hour and a half each week to complete all the essential tasks in one day.
- **Two Days –** You can set aside about 30 to 40 minutes twice a week to complete all the essential tasks, plus a few more, in two days. On the first day, you can complete the reading assignments and either the lapbook or notebook assignments. On the second day, you can complete the coordinating activity and the vocabulary assignments as well as read any library books.
- **Three Days –** You can set aside about 30 minutes three times a week to complete all the essential tasks, plus a few more, in three days. On the first day, you can complete the reading assignments and either the lapbook or notebook assignments. On the second day, you can complete the coordinating activity and write a lab report using one of the templates. On the third day, you can do the vocabulary assignments as well as read any library books.

- **Four Days –** You can set aside about 20 to 30 minutes four times a week to complete all the essential tasks, plus a few more, in four days. On the first day, you can complete the reading assignments and either the lapbook or notebook assignments. On the second day, you can complete the coordinating activity and write a lab report. On the third day, you can do the vocabulary assignments as well as read any library books. On the fourth day, you can do the optional coordinating activity as well as read any library books.

If you choose to complete one lesson per week, this unit will take you six weeks to complete.

Final Thoughts

Read Further

If you would like to read more about the philosophy behind the Science Chunks series, check out *Success in Science: A Manual for Excellence in Science Education* and the following articles from our website.

- **The Three Keys to Teaching Science –** This article shares the three keys to teaching science, including a free session that walks you through what each key can look like.
  - https://elementalscience.com/blogs/news/3-keys
- **The Basics of Notebooking –** This article details the basic components of notebooking along with how a few suggestions on what notebooking can look like.
  - https://elementalscience.com/blogs/news/what-is-notebooking
- **Lapbooking versus Notebooking –** This article takes a look at the differences between lapbooking and notebooking.
  - https://elementalscience.com/blogs/news/lapbook-or-notebook
- **Scientific Demonstrations versus Experiments –** This article explains the difference between scientific demonstrations and experiments along with when and how to employ these methods.
  - https://elementalscience.com/blogs/news/89905795-scientific-demonstrations-or-experiments

Last Words

As the author and publisher of this curriculum, I encourage you to contact me with any questions or problems that you might have concerning *Science Chunks - Periodic Table* by emailing us at support@elementalscience.com. I, or a member of our team, will be more than happy to answer them as soon as we can. I hope that you will enjoy creating memories using *Science Chunks - Periodic Table*!

~ Paige Hudson

Materials List

Lapbook Materials

You will need the following materials to complete the lapbook:

- 4 Sheets of 8 ½" by 11" card stock OR 2 file folders
- Colored pencils or crayons
- Markers for decorating the cover
- Glue stick
- Scissors
- Stapler

Notebook Materials

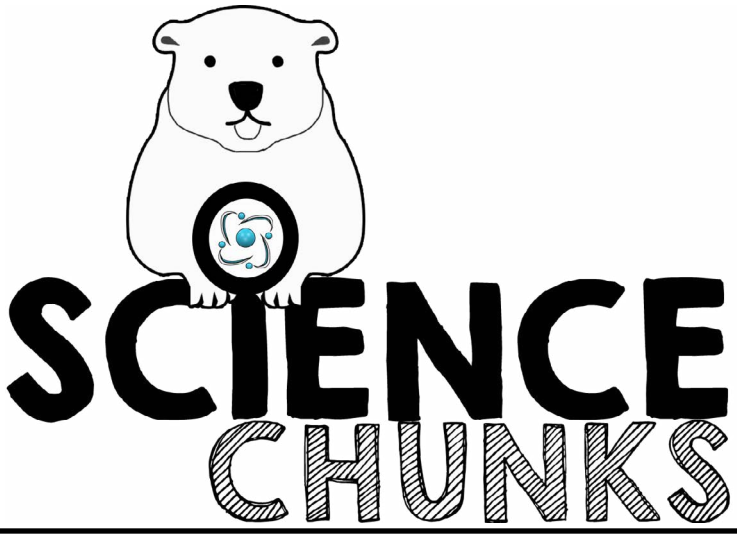
You will need the following materials to assemble the notebook:

- Hole punch and 3 brad fasteners or string OR
- Staples

Coordinating Activity Materials

You will need the following materials to complete the essential coordinating activities:

- **Lesson 1:** LEGOs® in a variety of colors and sizes
- **Lesson 2:** Baking soda, vinegar, cup
- **Lesson 3:** Epsom salts, ammonia, water, a clear cup
- **Lesson 4:** Steel wool, vinegar, jar with lid
- **Lesson 5:** Plastic baggie, cup, gel glue, water, Borax
- **Lesson 6:** Cup, rock (limestone, if possible), vinegar
- **Lesson 7:** Can of dark cola soda, glass, several dirty pennies.
- **Lesson 8:** Candle, match, glass jar
- **Lesson 9:** 2 Eggs, 2 cups, fluoride toothpaste, plastic wrap, white vinegar
- **Lesson 10:** Helium-filled balloon, scissors
- **Lesson 11:** 3 Cups, 3 pencils, 3 different clear liquids (i.e., water, alcohol, and corn syrup)
- **Lesson 12:** Bite-sized candy or food (such as raisins or cereal puffs), timer



Lessons

Lesson 1: The Elements and The Periodic Table

Information

Reading Assignments

- 🕮 **Younger Students –** *Basher Science Periodic Table* p. 6 Periodic Table
- 🕮 **Older Students –** *DK Eyewitness The Elements* pp. 8-9 The Periodic Table, pp. 10-11 Element Groups and Sets

  Note—On the right-hand side the periodic table, things begin to divert a bit. Some resources will group the elements according to the element at the top of the column, that is, Boron Group, Oxygen Group, and so on. Other resources will group the elements according to similar properties, that is, Metalloids, Nonmetals, and so on. Although both methods are technically correct, in this unit, we have chosen to go with the first method of grouping the elements based on similar characteristics. Here is an article about why these differences occur:

  - 🖱 https://elementalscience.com/blogs/news/the-periodic-table

(Optional) Books from the Library

- 🕮 *The Elements (True Books)* by Matt Mullins
- 🕮 *Elements and Compounds (Building Blocks of Matter)* by Louise Spilsbury and Richard Spilsbury
- 🕮 *The Periodic Table (True Books: Elements)* by Salvatore Tocci

Notebooking

Vocabulary

Go over the following words with your students. Then, have them create a flashcards or copy the definitions into the glossary.

- **Element –** A substance made up of one type of atom, which cannot be broken down by chemical reaction to form a simpler substance. (Flashcard p. 53; Glossary p. 75)
- **Periodic Table** – A systematic arrangement of the elements in order of increasing atomic number. (Flashcard p. 54; Glossary p. 79)

Writing Instructions

- 🗁 **Lapbook –** Have the students begin the Periodic Table lapbook by cutting out and coloring the cover on p. 37. Then, have the students glue the sheet onto the front.
- 🗁 **Lapbook –** Have the students complete the Elements Diagram Sheet on p. 38. Have the students cut it out and color it. Then, have them label the atomic number, symbol, and

atomic mass on the element. Finally, have them glue the sheet into the lapbook.

- **Lapbook –** Have the students work on the Periodic Table Book on p. 39. Have the students cut out, fold the template, and color the picture on the cover. Have the students write their narration about the periodic table inside the mini-book. Then glue the mini-book into the lapbook.
- **Notebook –** Have the students dictate, copy, or write one to four sentences on what they have learned about the elements and the periodic table on p. 63.

Hands-on Science

Coordinating Activities

- Table Sorting – Have the students deepen their understanding of the periodic table by doing a table sorting activity. You will need LEGOs in a variety of colors and sizes (You can also used stuffed animals, buttons, beads, or any other object with different sizes and colors if you don't have any LEGOs), paper, and pen. Place the LEGOs in an unorganized pile in front of the students and help them draw a 4 by 6 grid on the piece of paper. (If you are using larger objects to sort, such as stuffed animals, you can create this grid on the floor with masking tape.) Explain to the students that you are going to make a periodic table of LEGOs. In your table, the LEGOs are going to get bigger as you go down the grid and darker as you go across. (See the included grid for visual explanation.) Have the students sort the LEGOs by size and color onto the grid. As they sort, share with them how the periodic table in chemistry is an organized assortment of elements set up in a grid, similar to how they are sorting their LEGOs.
- **(Optional) Periodic Table Game** – Have the students play a game of Periodic Table Battleship! You can see directions and print out game sheets at the following website:
  - http://teachbesideme.com/periodic-table-battleship/

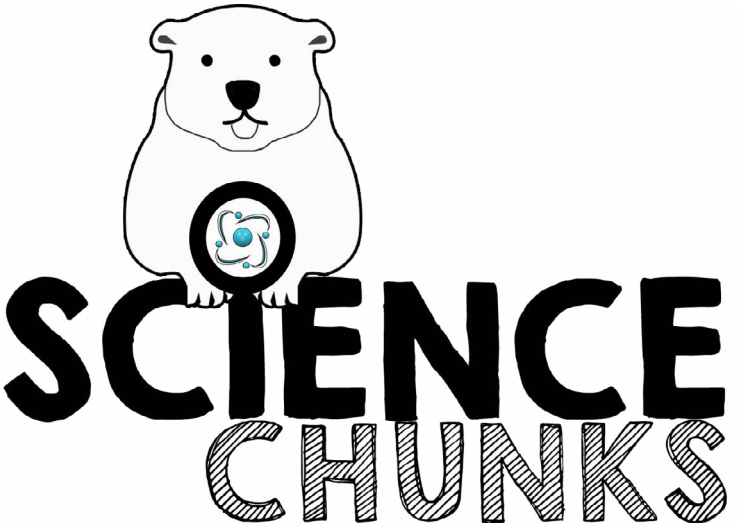
To-Do List

Essential

- ☐ Read the appropriate reading assignment.
- ☐ Define element and periodic table.
- ☐ Complete the lapbook or notebook assignments.
- ☐ Do the "Table Sorting" activity.

Optional

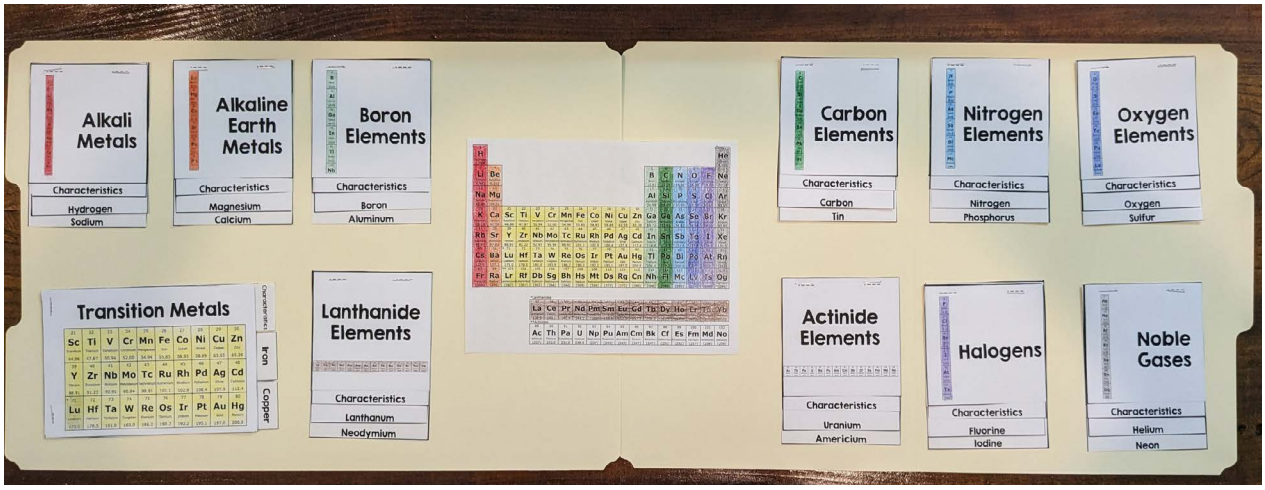
- ☐ Get one or more of the library books to read.
- ☐ Fill out a lab report sheet (p. 81) for one of the activities.
- ☐ Do the "Periodic Table Game" activity



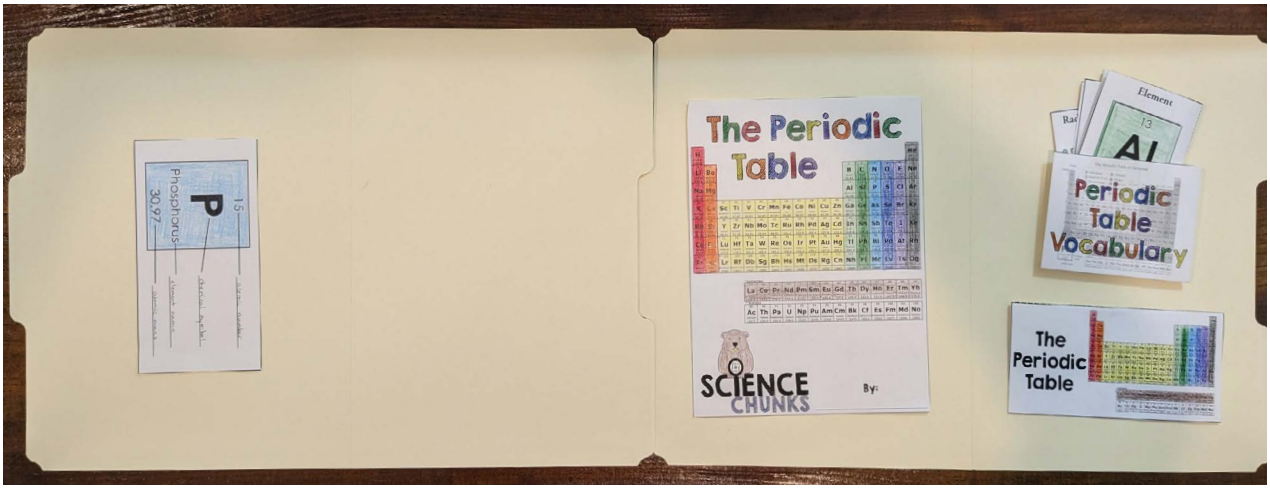
Student Lapbook Templates

Periodic Table Lapbook

You will need four sheets of card stock or two file folders. If you are using card stock, begin by taping the sheets together on the longest edge. If you are using the file folders, cut one of the folders in half, and then tape one half of the left side of the remaining folder and one half on the right side of the remaining folder. The completed lapbook will look like this on the inside:



and the completed lapbook will look like this on the outside:



Periodic Table Book

Instructions: Cut out along the solid lines and fold on the dashed lines.

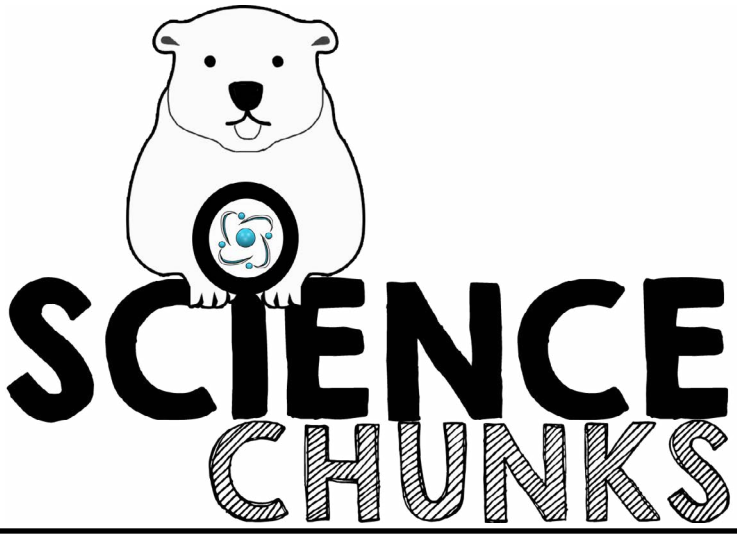
Glue this side into your lapbook.

The Periodic Table

1																	2
H Hydrogen 1.008																	He Helium 4.003
3	4											5	6	7	8	9	10
Li Lithium 6.941	Be Beryllium 9.012											B Boron 10.81	C Carbon 12.01	N Nitrogen 14.01	O Oxygen 16.00	F Fluorine 19.00	Ne Neon 20.18
11	12											13	14	15	16	17	18
Na Sodium 22.99	Mg Magnesium 24.31											Al Aluminum 26.98	Si Silicon 28.09	P Phosphorus 30.97	S Sulfur 32.07	Cl Chlorine 35.45	Ar Argon 39.95
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K Potassium 39.10	Ca Calcium 40.08	Sc Scandium 44.96	Ti Titanium 47.87	V Vanadium 50.94	Cr Chromium 52.00	Mn Manganese 54.94	Fe Iron 55.85	Co Cobalt 58.93	Ni Nickel 58.69	Cu Copper 63.55	Zn Zinc 65.39	Ga Gallium 69.72	Ge Germanium 72.61	As Arsenic 74.92	Se Selenium 78.96	Br Bromine 79.90	Kr Krypton 83.80
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb Rubidium 85.47	Sr Strontium 87.62	Y Yttrium 88.91	Zr Zirconium 91.22	Nb Niobium 92.91	Mo Molybdenum 95.94	Tc Technetium 98.91	Ru Ruthenium 101.1	Rh Rhodium 102.9	Pd Palladium 106.4	Ag Silver 107.9	Cd Cadmium 112.4	In Indium 114.8	Sn Tin 118.7	Sb Antimony 121.8	Te Tellurium 127.6	I Iodine 126.9	Xe Xenon 131.3
55	56	* 71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Cs Cesium 132.9	Ba Barium 137.3	Lu Lutetium 175.0	Hf Hafnium 178.5	Ta Tantalum 181.0	W Tungsten 183.9	Re Rhenium 186.2	Os Osmium 190.2	Ir Iridium 192.2	Pt Platinum 195.1	Au Gold 197.0	Hg Mercury 200.6	Tl Thallium 204.4	Pb Lead 207.2	Bi Bismuth 209.0	Po Polonium [209]	At Astatine [210]	Rn Radon [222]
87	88	** 103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
Fr Francium [223]	Ra Radium [226]	Lr Lawrencium [262]	Rf Rutherfordium [261]	Db Dubnium [262]	Sg Seaborgium [266]	Bh Bohrium [264]	Hs Hassium [269]	Mt Meitnerium [268]	Ds Darmstadtium [272]	Rg Roentgenium [272]	Cn Copernicium [285]	Nh Nihonium [286]	Fl Flerovium [289]	Mc Moscovium [289]	Lv Livermorium [293]	Ts Tennessine [294]	Og Oganesson [294]

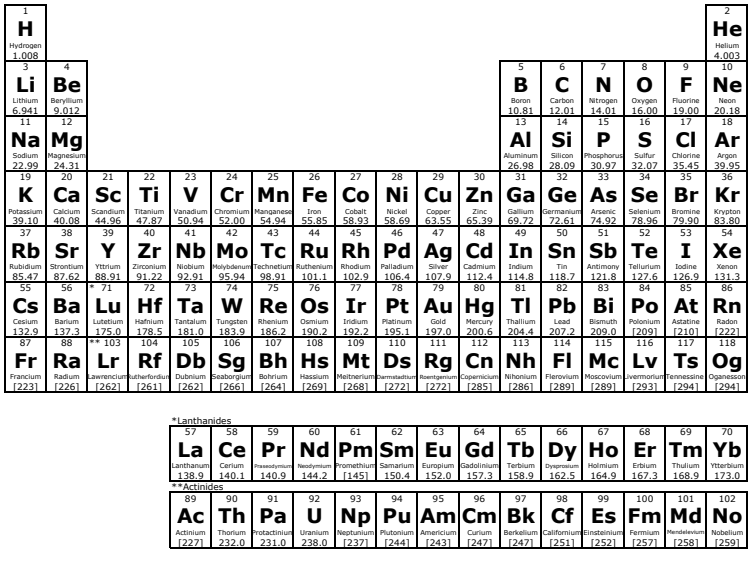
*Lanthanides														
57	58	59	60	61	62	63	64	65	66	67	68	69	70
La Lanthanum 138.9	Ce Cerium 140.1	Pr Praseodymium 140.9	Nd Neodymium 144.2	Pm Promethium [145]	Sm Samarium 150.4	Eu Europium 152.0	Gd Gadolinium 157.3	Tb Terbium 158.9	Dy Dysprosium 162.5	Ho Holmium 164.9	Er Erbium 167.3	Tm Thulium 168.9	Yb Ytterbium 173.0

**Actinides													
89	90	91	92	93	94	95	96	97	98	99	100	101	102
Ac Actinium [227]	Th Thorium 232.0	Pa Protactinium 231.0	U Uranium 238.0	Np Neptunium [237]	Pu Plutonium [244]	Am Americium [243]	Cm Curium [247]	Bk Berkelium [247]	Cf Californium [251]	Es Einsteinium [252]	Fm Fermium [257]	Md Mendelevium [258]	No Nobelium [259]



Student Notebook Pages

The Periodic Table



1 H Hydrogen 1.008																	2 He Helium 4.003
3 Li Lithium 6.941	4 Be Beryllium 9.012											5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 19.00	10 Ne Neon 20.18
11 Na Sodium 22.99	12 Mg Magnesium 24.31											13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulfur 32.07	17 Cl Chlorine 35.45	18 Ar Argon 39.95
19 K Potassium 39.10	20 Ca Calcium 40.08	21 Sc Scandium 44.96	22 Ti Titanium 47.87	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.94	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.69	29 Cu Copper 63.55	30 Zn Zinc 65.39	31 Ga Gallium 69.72	32 Ge Germanium 72.61	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.90	36 Kr Krypton 83.80
37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.91	40 Zr Zirconium 91.22	41 Nb Niobium 92.91	42 Mo Molybdenum 95.94	43 Tc Technetium 98.91	44 Ru Ruthenium 101.1	45 Rh Rhodium 102.9	46 Pd Palladium 106.4	47 Ag Silver 107.9	48 Cd Cadmium 112.4	49 In Indium 114.8	50 Sn Tin 118.7	51 Sb Antimony 121.8	52 Te Tellurium 127.6	53 I Iodine 126.9	54 Xe Xenon 131.3
55 Cs Cesium 132.9	56 Ba Barium 137.3	* 71 Lu Lutetium 175.0	72 Hf Hafnium 178.5	73 Ta Tantalum 181.0	74 W Tungsten 183.9	75 Re Rhenium 186.2	76 Os Osmium 190.2	77 Ir Iridium 192.2	78 Pt Platinum 195.1	79 Au Gold 197.0	80 Hg Mercury 200.6	81 Tl Thallium 204.4	82 Pb Lead 207.2	83 Bi Bismuth 209.0	84 Po Polonium [209]	85 At Astatine [210]	86 Rn Radon [222]
87 Fr Francium [223]	88 Ra Radium [226]	** 103 Lr Lawrencium [262]	104 Rf Rutherfordium [261]	105 Db Dubnium [262]	106 Sg Seaborgium [266]	107 Bh Bohrium [264]	108 Hs Hassium [269]	109 Mt Meitnerium [268]	110 Ds Darmstadtium [272]	111 Rg Roentgenium [272]	112 Cn Copernicium [285]	113 Nh Nihonium [286]	114 Fl Flerovium [289]	115 Mc Moscovium [289]	116 Lv Livermorium [293]	117 Ts Tennessine [294]	118 Og Oganesson [294]

*Lanthanides

57 La Lanthanum 138.9	58 Ce Cerium 140.1	59 Pr Praseodymium 140.9	60 Nd Neodymium 144.2	61 Pm Promethium [145]	62 Sm Samarium 150.4	63 Eu Europium 152.0	64 Gd Gadolinium 157.3	65 Tb Terbium 158.9	66 Dy Dysprosium 162.5	67 Ho Holmium 164.9	68 Er Erbium 167.3	69 Tm Thulium 168.9	70 Yb Ytterbium 173.0

**Actinides

89 Ac Actinium [227]	90 Th Thorium 232.0	91 Pa Protactinium 231.0	92 U Uranium 238.0	93 Np Neptunium [237]	94 Pu Plutonium [244]	95 Am Americium [243]	96 Cm Curium [247]	97 Bk Berkelium [247]	98 Cf Californium [251]	99 Es Einsteinium [252]	100 Fm Fermium [257]	101 Md Mendelevium [258]	102 No Nobelium [259]

Periodic Table Vocabulary

Alloy —


Pure Metal


Alloy

Element —

13
Al
Aluminum
26.98

Essential Element —

6
C
Carbon
12.01

Inert —

2
He
Helium
4.003