Science Chunks: Atoms and Molecules Sample Packet

Teach your students the basics of atoms and molecules in bite-sized chunks. The following sample packet includes most of the first lesson of the *Science Chunks: Atoms and Molecules* 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-atoms-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.

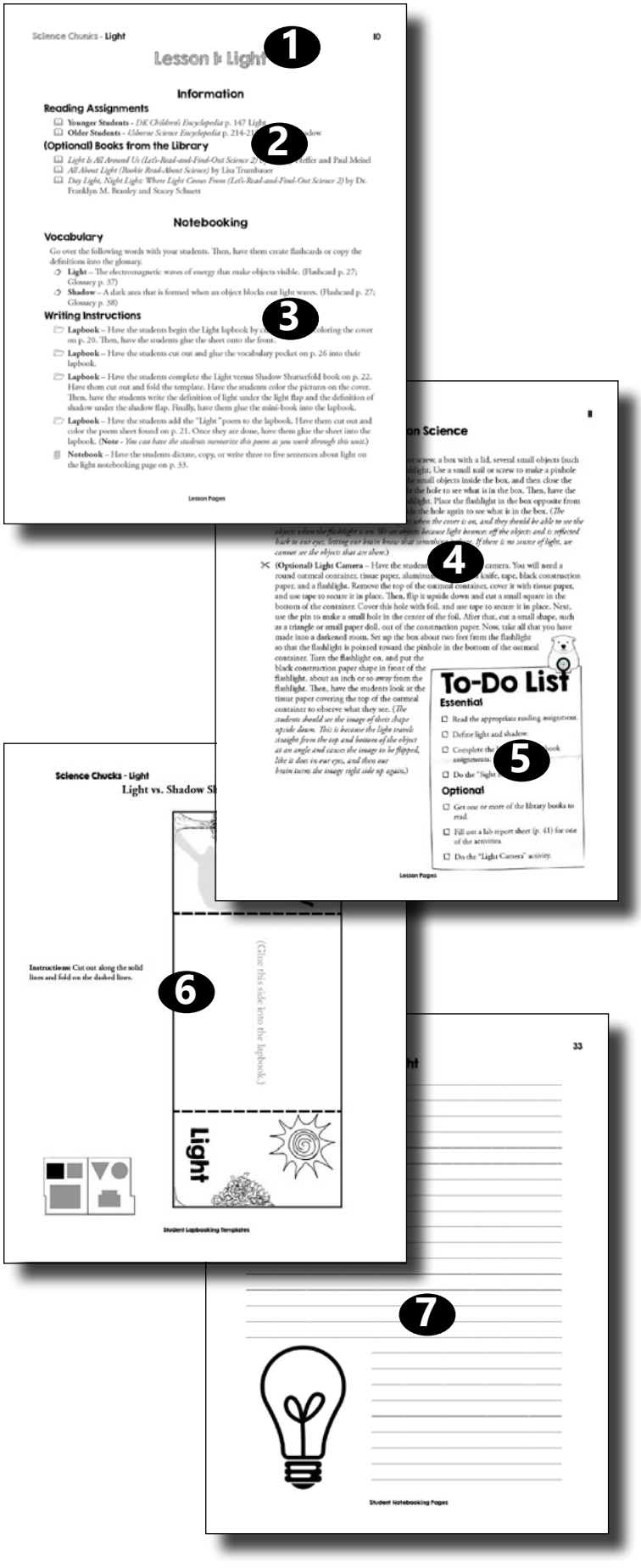
6. Lapbook Templates

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 - Atoms and Molecules is a unique and versatile unit study that leads you through a survey of atoms and molecules. 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 - Atoms and Molecules 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 atoms and molecules. In the notebook section, you will find all the pages

you need to create a simple notebook on atoms and molecules, 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. 41-42.

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 Chemistry*
- 🕮 **Older Students -** *Usborne Science Encyclopedia*

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. 8.

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 four weeks to complete.

Final Thoughts

Read Further

If you would like to read more about 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 - Atoms and Molecules* by emailing us at support@elementalscience.com. I, or a memeber of our team, will be more than happy to answer them as soon as I am able. I hope that you will enjoy creating memories using *Science Chunks - Atoms and Molecules*!

~ Paige Hudson

Materials List

Lapbook Materials

You will need the following materials to complete the lapbook:

- 2 sheets of 8 ½" by 11" card stock OR 1 file folder
- Colored pencils or crayons
- Markers for decorating the cover
- Glue stick
- Scissors
- Stapler

Notebook Materials

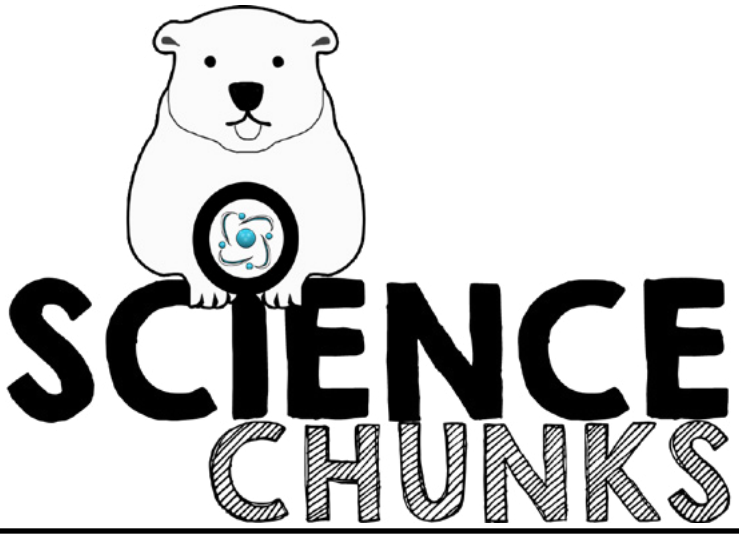
You will need the following materials to assemble the notebook:

- 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:** 4 Pipe cleaners and round beads in three different colors (*at least 3 of each color*)
- **Lesson 2:** *No supplies needed.*
- **Lesson 3:** Balloon
- **Lesson 4:** Cup and several cubes of ice



Lessons

Lesson 1: Atoms

Information

Reading Assignments

- **Younger Students -** *Basher Science Chemistry* p. 26 Atom, p. 28 Isotope
- **Older Students -** *Usborne Science Encyclopedia* p. 10-11 Atomic Structure, p. 13 Isotopes and Atomic Theory

(Optional) Books from the Library

- *What Are Atoms? (Rookie Read-About Science)* by Lisa Trumbauer
- *Atoms and Molecules (Building Blocks of Matter)* by Richard and Louise Spilsbury
- *Atoms (Simply Science)* by Melissa Stewart

Notebooking

Vocabulary

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

- **Electron –** A negatively charged particle in an atom. (Flashcard p. 27; Glossary p. 38)
- **Proton –** A positively charged particle in an atom. (Flashcard p. 28; Glossary p. 39)
- **Neutron –** A neutral particle in an atom.(Flashcard p. 28; Glossary p. 39)
- **Isotope –** An atom that has a different number of neutrons and so has a different mass number from the other atoms of an element. (Flashcard p. 29; Glossary p. 39)

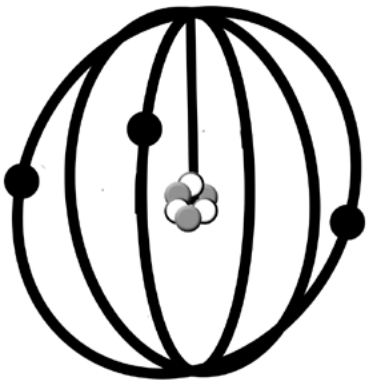
Writing Instructions

- **Lapbook –** Have the students begin the Atoms lapbook by cutting out and coloring the cover on p. 21.
- **Lapbook –** Have the students complete the Atoms wheel-book on p. 22. Have them cut along the solid lines, punch a hole in the center, and use a brad fastener to fasten the two circles together. Have the students write their electron narration to the left of the picture, their proton narration above the picture, and their neutron narration to the right of the picture. Finally, have them glue their mini-book into the lapbook.
- **Lapbook –** Have the students complete the Isotopes shutterfold book on p. 23. Have them cut out and fold the template. Have the students color the pictures on the cover. Have them write their narration about the isotopes inside the mini-book. Then, have them glue the mini-book into the lapbook.
- **Notebook –** Have the students dictate, copy, or write one to four sentences about atoms on subatomic particles, atoms, and isotopes page on p. 34.

Hands-on Science

Coordinating Activity

✂ **Model Atom –** Have the students make an atom model. You will need 4 pipe cleaners and round beads in three different colors (at least 3 of each color). Have the students select which beads will be electrons, protons, and neutrons. Next, have them string three protons beads and three neutrons beads on one of the pipe cleaners, alternating between the two. Once done, have the students wrap this portion of the pipe cleaner into a ball to form a nucleus, leaving a straight end to connect to the electron rings they will make in the next step. Then, have the students place one electron bead on a pipe cleaner and twist the pipe cleaner closed to form a ring. Repeat this process two more times, so that they have 3 electron rings. Finally, fit the rings inside each other and then hang the nucleus ball in the center, using the pipe cleaner tail left in step two to attach the nucleus and hold the rings together. (*See image for reference.*)



✂ **(Optional) Subatomic Particles –** Make some subatomic cookies with your students using a sugar cookie, white icing, and three different colors of M&M's. See the following website for directions:

http://technoprairie.blogspot.com/2009/02/atomic-cookies.html

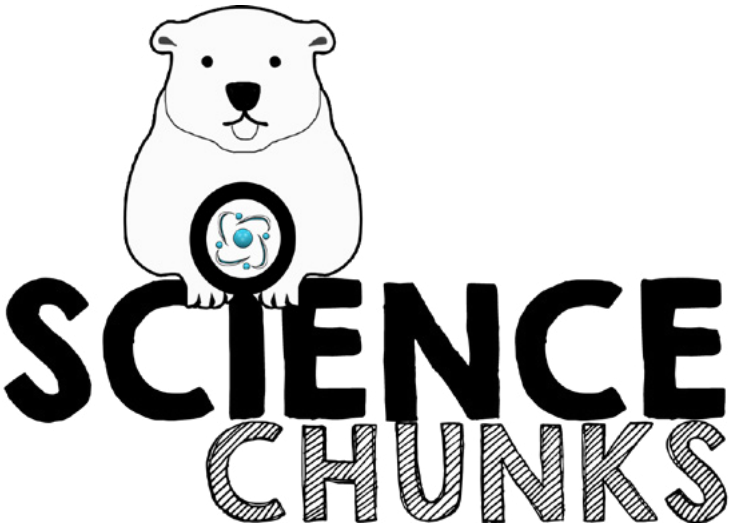
To-Do List

Essential

- ☐ Read the appropriate reading assignment.
- ☐ Define electron, proton, neutron, and isotope.
- ☐ Complete the lapbook or notebook assignments.
- ☐ Do the "Model Atom" activity.

Optional

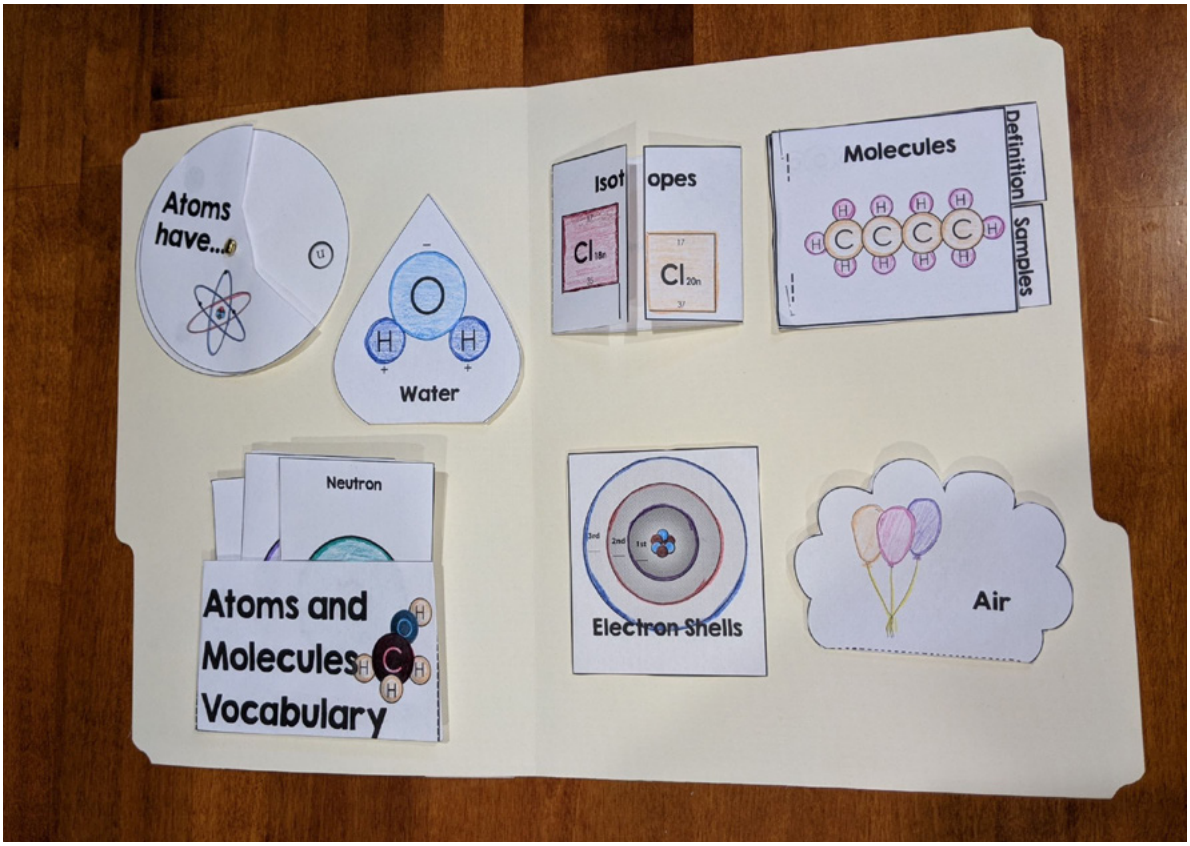
- ☐ Get one or more of the library books to read.
- ☐ Fill out a lab report sheet (p. 41) for one of the activities.
- ☐ Do "Subatomic Particles" activity.



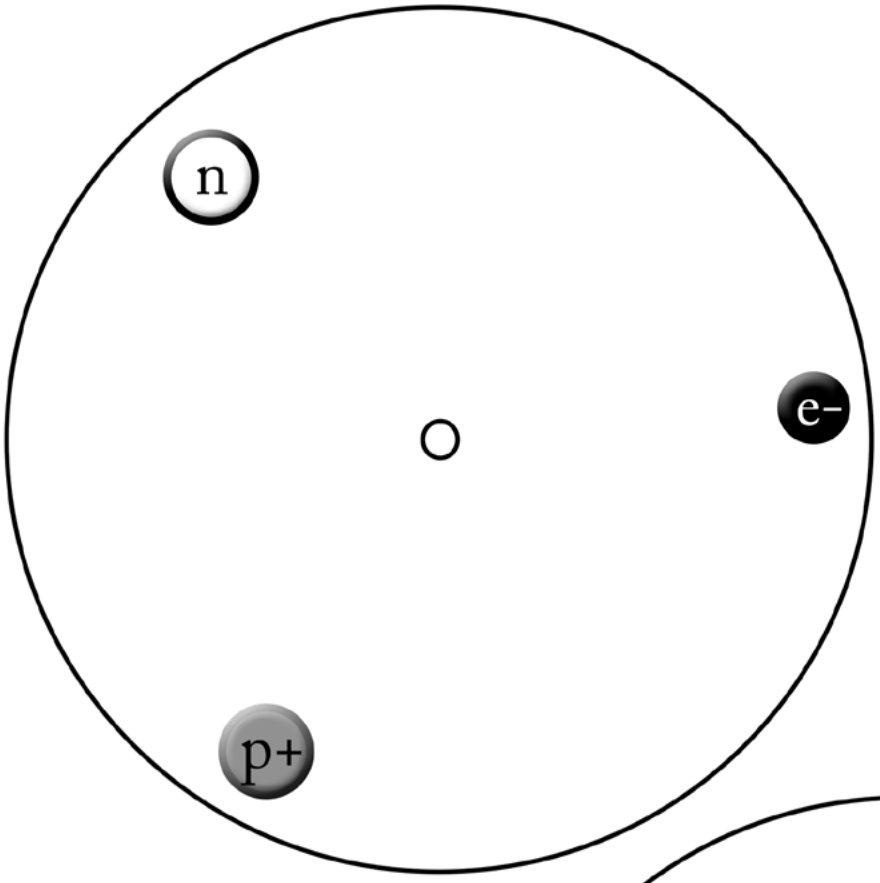
Student Lapbook Templates

Atoms and Molecules Lapbook

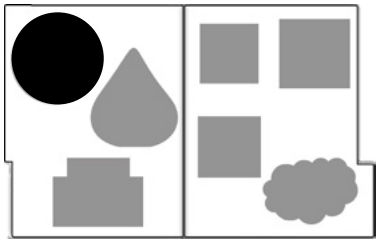
You will need two sheets of card stock or one file folder. If you are using card stock, begin by taping the two sheets together on the longest edge. The completed lapbook will look like this on the inside:

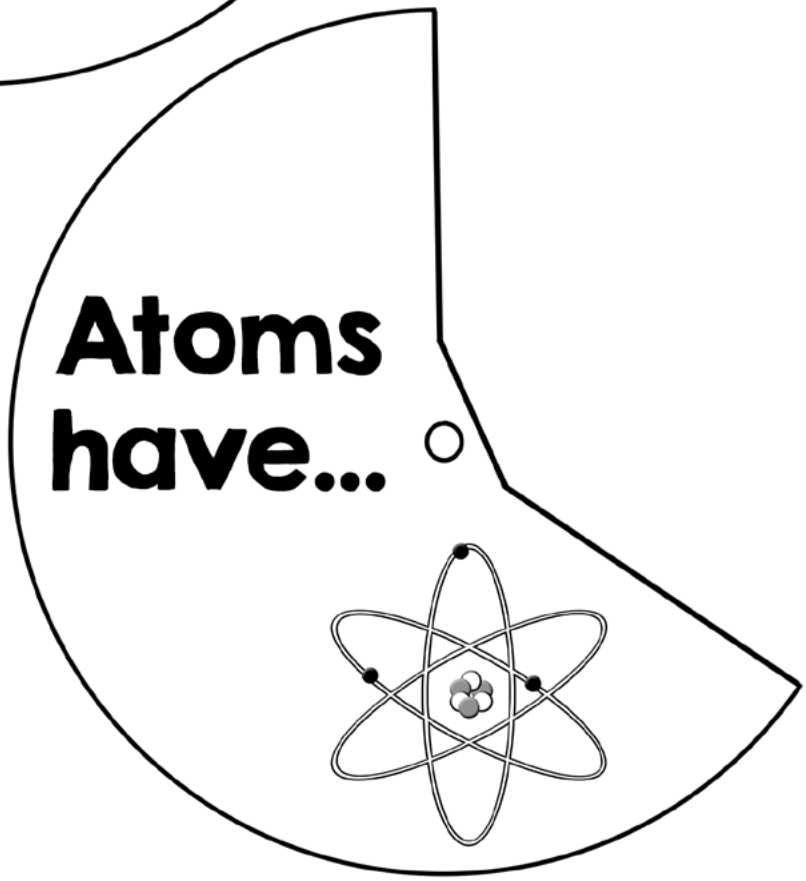


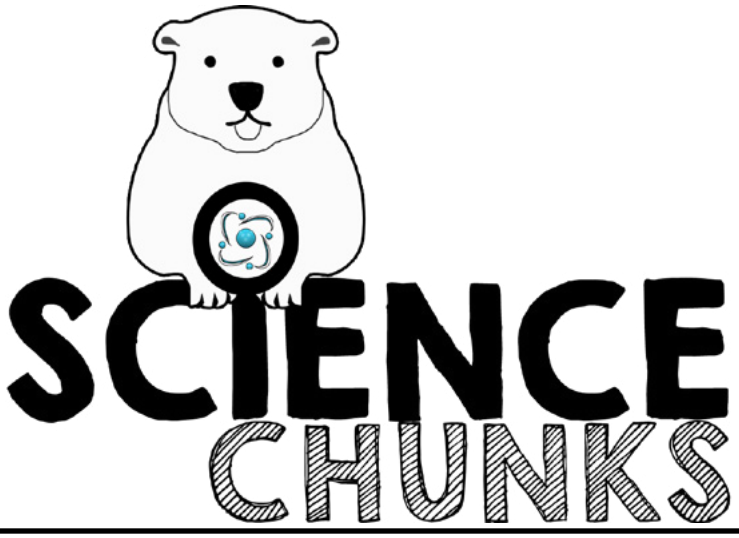
Atoms Wheel-book



Instructions: Cut out along the outer solid lines and punch a hole where the holes are in the center. Stack the pages with the cover on top, insert a brad faster into the hole and secure it on the undersid so that the cover can freely move around the bottom page.

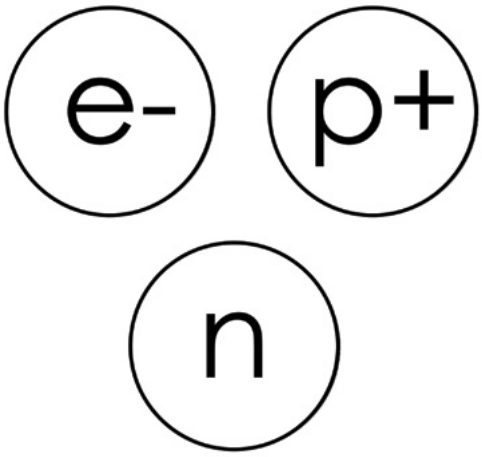






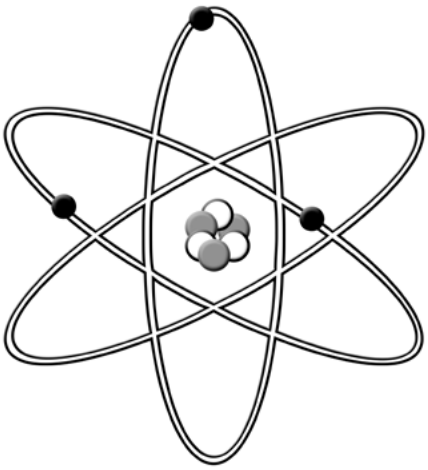
Student Notebook Pages

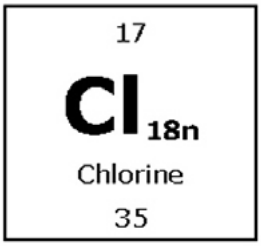
Atoms



Subatomic Particles

Atoms

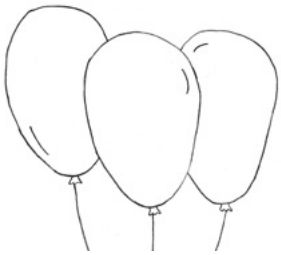




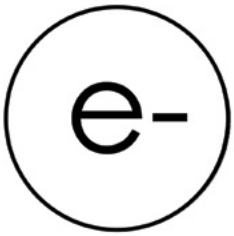
Isotopes

Atoms and Molecules Vocabulary

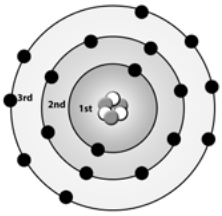
Air —



Electron —



Electron Shell —



Hard Water —