

**NOEO  
SCIENCE  
CHEMISTRY 2  
LAB MANUAL**



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LAB MANUAL**

Created by Dr. Randy Pritchard

**noeo science**  
MOSCOW, IDAHO

# Noeo Science Packages

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Physics 1

Chemistry 1

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**unit 1:**  
**ATOMS AND**  
**MOLECULES**

Week 1: The Parts of the Atom. . . . . 3  
Week 2: How Molecules and Atoms Combine . . . . . 13





# Week 1: The Parts of the Atom

## Day 1 Worksheet

### SCHEDULE

	DAY 1	DAY 2	DAY 3	DAY 4
<i>The Usborne Science Encyclopedia</i>			pp. 10-11 Optional: internet links on p. 11	
<i>Explanatorium of Science</i>	pp. 46-47			
<i>Experiment Guide</i>		Brownian Motion		Dancing Balls

### OVERVIEW

Chemistry is about exploring matter itself, starting with the tiny building blocks that make up our world. Even though these building blocks are too small to look at, they explain how a lot of the things we see work. This is why we begin this unit of Chemistry with the basic building blocks of matter: atoms and molecules. Your child will be learning what the different

parts of atoms are and how they are joined together through positive and negative charges. Remember, we study science in two ways: 1) by asking questions and testing possible answers (the scientific method), and 2) by reading about the work of other scientists who have followed the scientific method.

## READING QUESTIONS

1. What holds electrons in place in their shells?

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2. What is Bohr's model?

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3. What is wrong with it?

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## Week 1: The Parts of the Atom

### Day 2 Worksheet

#### EXPERIMENT QUESTIONS: BROWNIAN MOTION

1. What is the movement of molecules called?

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2. What is heat, at a molecular level?

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3. Why did the cold water distribute the dye slower than the warm water?

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## Week 1: The Parts of the Atom

### Day 3 Worksheet

#### READING QUESTIONS

1. Sketch an atom. Label the nucleus, protons, neutrons, and the electron shells. Color the different parts and label the correct electrical charge of each subatomic particle.

2. Use the Usborne Science Encyclopedia glossary to define atom.

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3. Define electron.

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## Week 1: The Parts of the Atom

### Day 4 Worksheet

#### READING QUESTIONS

1. What happened when you put the piece of plastic over the opening?

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2. How is static electricity caused?

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3. Are objects of opposite charges repelled by each other?

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## Week 2: How Molecules and Atoms Combine

### Day 1 Worksheet

#### SCHEDULE

	DAY 1	DAY 2	DAY 3	DAY 4
<i>The Usborne Science Encyclopedia</i>		pp. 12-13 Optional: internet links on p. 13		pp. 14-15 Optional: internet links on p. 15
<i>Explanatorium of Science</i>			pp. 48-49	
<i>Experiment Guide</i>	Gas Underwater			

#### OVERVIEW

This week we will continue to picture how molecules and atoms combine. Although atoms are so small you can't see them with a light microscope, the different ways they combine change how the things you can see act and react with one another.

## EXPERIMENT QUESTIONS: GAS UNDERWATER

1. What happened to the paper when you put the cup into the water?

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2. Why did that happen?

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## Week 2: How Molecules and Atoms Combine

### Day 2 Worksheet

#### EXPERIMENT QUESTIONS: MOMENTUM

1. Use the *Usborne Science Encyclopedia* glossary to define atomic number.

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2. Define mass number.

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3. All the isotopes of an atom have the same atomic number, but have different \_\_\_\_\_.

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## Week 2: How Molecules and Atoms Combine

### Day 3 Worksheet

#### EXPERIMENT QUESTIONS: MOVING PENNIES

1. What are elements?

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2. What are the horizontal and vertical rows in the table called?

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3. What elements are human beings made up of?

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4. What is one cool fact about the elements that you learned?

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## **Week 2: How Molecules and Atoms Combine**

### **Day 4 Worksheet**

#### **READING QUESTIONS**

Sketch a model of a water molecule. Color and label the parts.

