

**NOEO
SCIENCE
BIOLOGY 1**
EXPERIMENT GUIDE

**NOEO
SCIENCE
BIOLOGY 1
EXPERIMENT GUIDE**

Created by Dr. Randy Pritchard

noeo science
MOSCOW, IDAHO

Noeo Science Packages

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Introduction

Science is not a spectator sport. The best way for you to learn science is by doing hands-on experiments and activities. Each experiment and activity builds on the material that you cover in the week's readings, and at the end of each experiment there is a section that explains what should have happened, and *why* it happened.

You might notice that in between the Experiments there are some Activities and Optional Activities. Activities include the supplies you'll need, but they don't require as much explanation as Experiments, and you won't be answering questions about them. Optional Activities are fun, optional things to do related to the reading of the week—most of the time they're outings or family activities, or they need materials that we didn't want to require you to buy.

Experiment Kits

There are 4 experiment kits, including all of the wild and wacky materials that you will need for your experiments. Each kit lists its contents sorted by what you'll need for each week's experiments.

You're going to have *fun* learning science!



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WEEK 1: THE ATMOSPHERE AND WINDS

Experiment: Blown Away!

Our Question

Does wind
have power?

Materials

From Home

- construction paper
- ruler
- scissors
- thumbtack
- pencil with eraser

Instructions

Follow the instructions on pages 12–13 of *Experiments in Earth Science and Weather*.

What We Learned

Wind can help us do all sorts of things, such as fly a kite, sail a boat, or generate electricity. Wind also spins your pinwheel!



WEEK 2: CLOUDS

Experiment: The Water Cycle

Our Question

When you have a wet washcloth, where does the water go when it dries?

Materials

From Home

- 3 identical washcloths

Instructions

Follow the instructions on pages 8–9 of *Experiments in Earth Science and Weather*.

What We Learned

The water from your washcloth evaporates into the air and changes from a liquid to a gas. This is part of the water cycle.



WEEK 2: CLOUDS

Experiment: Make a Cloud

Our Question

How do
clouds form?

Materials

From Home

- Glass jar
- Matches (use with an adult's help)
- Gallon-sized Ziploc bag
- Ice

Instructions

Follow the instructions on page 22 of *Weather Clues in the Sky: Clouds*.

What We Learned

Clouds form as warm air rises, and cool air falls. This is part of the water cycle, and water droplets will eventually fall from the clouds as rain.



WEEK 3: RAIN AND THUNDERSTORMS

Experiment: Let It Rain

Our Question

How does water get inside clouds?

Materials

From Home

- 2 rubber toys, such as a duck or ball
- 2 plastic toys, such as action figures
- 2 metal toys, such as cars

Instructions

Follow the instructions on pages 6–7 of *Experiments in Earth Science and Weather*.

What We Learned

Warm air carries tiny water droplets that collect inside a cloud and then fall as rain. The warm air from your shower carried tiny water droplets that collected on your toys and mirror.



WEEK 3: RAIN AND THUNDERSTORMS

Experiment: Electric Sky

Our Question

What is electric in the sky?

Materials

From Home

- scissors
- flat piece of styrofoam, at least as big as your hand
- aluminum pie tin
- tape

Instructions

Follow the instructions on pages 16–17 of *Experiments in Earth Science and Weather*.

What We Learned

Lightning is electric in the sky and looks like a flash. When you create static electricity and then touch the metal pie tin, you feel a spark.



WEEK 4: RAINBOWS AND WEATHER EVENTS

Experiment: The Beauty of Rainbows

Our Question

How is a
rainbow made?

Materials

From Home

- glass cup
- water
- paper

Instructions

Follow the instructions on pages 10–11 of *Experiments in Earth Science and Weather*.

What We Learned

As sunlight travels through water, the light bends and is sorted into different colors.



WEEK 4: RAINBOWS AND WEATHER EVENTS

Experiment: Twister!

Our Question

How do
tornadoes begin?

Materials

From Home

- two 2-liter bottles
- water
- duct tape

Instructions

Follow the instructions on pages 14–15 of *Experiments in Earth Science and Weather*.

What We Learned

High speed winds spin inside clouds and form a tornado, just like the water spins inside the bottle and forms a funnel.