



Grades

K-2

Standards-Based Investigations Science Labs



Credits

Associate Editor

Josh Roby

Assistant Editor

Leslie Huber, M.A.

Editorial Director

Dona Herweck Rice

Editor-in-Chief

Sharon Coan, M.S.Ed.

Editorial Manager

Gisela Lee, M.A.

Creative Director

Lee Aucoin

Cover Design

Lee Aucoin

Illustration Manager

Timothy J. Bradley

Interior Layout Design/ Print Production

Robin Erickson

Publisher

Corinne Burton, M.A.Ed.

Shell Education

5301 Oceanus Drive

Huntington Beach, CA 92649

<http://www.shelleducation.com>

ISBN 978-1-4258-0163-2

ePUB ISBN 978-1-5457-1545-1

Table of Contents

Introduction and Research Base

Water Cycle

How Can I Make a Thermometer?

What Makes a Tornado?

Where Does Rain Come From?

Where Does Frost Come From?

Where Does Water Go?

How Does the Weather Change?

When Does the Sun Rise?

How Strong Is the Wind?

How Can I Make Rain?

What Happens When Ice Melts?

How Much Water Is in Ice?

Geology

What Is the World Made Of?

How Are Crystals Made?

How Powerful Is Air?

Which Is Bigger: Hot Air or Cold Air?

What's Inside a Pebble?

How Can I Group Rocks?

Astronomy

What Does the Solar System Look Like?

How Does the Moon Change?

How Do the Sun and Moon Move?

How Does the Sun Rise?

Why Are Some Stars Brighter than Others?

Heredity

How Did I Get My Eye Color?

How Are Babies Like Their Parents?

How Are Seeds Different?

What Are Fingerprints?

Biology

What Do Mini-Beasts Eat?

What Is Mold?

What Is Inside Leaves?

What Do Plants Need?

How Do Mini-Beasts Live?

How Are Plants Different?

How Do Feet Match Homes?

How Do Beaks Match Breakfast?

What Is in My Square Meter?

How Do Seeds Work?

Ecology

Do Plants Need Sunshine?

How Much Can I Breathe?

How Far Can Plants Reach?

What Is in My Square Meter Now?

Diversity of Life

What Are Fossils?

What Were Dinosaurs Like?

How Can I Group Seeds?

Where Are Mini-Beasts?

Can You Find My Grass?

Matter

What Can Goop Do?
How Is Paper Made?
How Can I Make an Egg Grow?
How Do Things Melt?
How Does Dough Work?
Where Does a Wet Handprint Go?
How Are Things Different?
Does It Float?

Energy

How Fast Do Clothes Dry?
How Can I Use the Sun to Cook?
Can I Make the Snake Dance?
How Can I Make Heat?
How Can I Cut a String Without Scissors?
How Do I Use Electricity?
How Can I Light a Lightbulb?
How Can a Battery Make Heat?
How Can a Fruit Make Electricity?
How Does a Flashlight Work?
What Is Sound Made Of?
How Is a Kazoo Made?
How Can I Make Noise?
How Do Shadows Work?

Forces and Motion

How Can I Make a Magnet?
Is It Magnetic?
How Can I Make It Move?
How Fast Does It Fall?
How Can Air Make It Spin?

How Does It Roll?

Where Is It?

How Much Pull Do I Need?

How Do Balloon Rockets Work?

How Do Balls Move?

How Can I Make a Shoebox Guitar?

How Do Things Move?

What Can I Do with a Balloon Rocket?

What Do I Push, Pull, and Twist?

References Cited



How Can I Make a Thermometer?

Name _____



What You Need:

- water
- food coloring
- rubbing alcohol
- drinking straw
- plastic water bottle
- modeling clay



What To Do:

1. Watch your teacher fill the bottle about halfway full with equal parts of water and rubbing alcohol.
2. Add food coloring to the water and rubbing alcohol mixture.
3. Place the straw in the bottle making sure the straw does not touch the bottom of the bottle.
4. Use the modeling clay to seal the top of the bottle closed and to hold the straw in place.
5. Place your hands around the bottle and tell the rest of the class what happens.
6. Pass the bottle around and have each classmate place his or her hands around the bottle to see what happens.

DO NOT DRINK THE WATER AND RUBBING ALCOHOL MIXTURE.



? Next Question

What happens to the water and rubbing alcohol mixture as it is heated and cooled? How could you make the water bottle into a working thermometer?



Notebook

Reflection

Describe the experiment in your science notebook. Be careful to record your observations. Use drawings as well as words.



What Makes a Tornado?

Name _____



What You Need:

- 2 one-liter soda bottles
- rubber washer the same size as the bottle opening
- electrical tape
- water
- food coloring (optional)



What To Do:

1. Fill one of the bottles 2/3 full of water. If you want, add food coloring to the water.
2. Tape the sides of the washer over the mouth of the bottle. Be sure NOT to cover the hole in the middle of the washer.
3. Place the second bottle on top of the washer. (The tops of the bottles are touching each other.)
4. Use electrical tape to fasten the bottles together.
5. Turn the bottles over. Hold the empty bottom bottle still while rapidly moving the top bottle in circles.
6. Let the bottles go. What happens?

? Next Question

Pretend you are stuck in the middle of the bottle tornado. What can you do to survive?



Notebook

Reflection

Describe what happened to the water in this experiment.





Where Does Rain Come From?

Name _____



What You Need:

- ice (one cup of water frozen)
- clear transparent wrap
- measuring cup
- rubber band
- tall, clear drinking glass
- clean sheets of writing paper



What To Do:

1. Watch your teacher set out one cup of ice. Write or draw what you think will happen to the ice. How much water will there be?
2. Once the ice has melted, carefully measure the amount of liquid left behind.
3. Pour the water into the drinking glass. Cover the glass with a piece of transparent wrap. Use the rubber band to keep the clear transparent wrap secured in place. What do you notice happens to the water as time passes?

? Next Question

How much water is in the drinking glass? What makes you think that? What would happen if the water in the drinking glass were frozen? How much water would there be?



Notebook

Reflection

What would life be like if water stayed in only one form, solid ice, water, or vapor, and NEVER changed

| *to another form?*



Where Does Frost Come From?

Name _____



What You Need:

- 2 or 3 ice cubes
- a tin can
- cold water
- spoon
- salt



What To Do:

1. Place your ice cubes in the tin can.
2. Add just enough water to cover the ice cubes.
3. Put a pinch of salt in the water.
4. Stir for two minutes.
5. Draw what you see on the outside of the can.



6. Feel the outside of your can. Is it hot or cold?

7. Is the frost wet or dry?

8. Place a finger on the can for 20 seconds. Lift your finger.
What happened? Draw what you see.



A large empty rectangular box for writing.

9. Moist air freezes on things that are cold and solid. This is called frost. What time of year do you see frost? _____

**? Next
Question**

What happens when you sprinkle salt on the frost?



Notebook Reflection

Weather changes every day. Draw pictures of two other kinds of weather. Next to each picture, write the season when you see that weather the most.



Where Does Water Go?

Name _____



What You Need:

- two clear 250 mL (8 oz.) cups
- ruler
- foil square
- marker
- window
- measuring cup



What To Do:

1. Add 60 mL (1/4 cup) of water to each cup.
2. Mark the water level on the outside of each cup.
3. Cover one cup with foil.
4. Put the cups in the window.
5. Wait three days.
6. Draw what both cups look like. Be sure to draw the line for the water level on each cup.

spot that had sunlight? What happens when the cups are put in a closet?

water molecules in the cups. Describe what happens when you are left out in the sun.



How Does the Weather Change?

Name _____



What You Need:

- an outdoor thermometer



What To Do:

1. Look out the window in the morning.
2. Decide on symbols for each kind of weather. Draw what you see in the chart.
3. Put the thermometer outside. Write the temperature in the chart.

**Key: Cloudy Sunny Windy Snow
Rain Stormy**

	Monday	Tuesday	Wednesday	Thursday	Friday
Morning Weather					
Morning Temperature (°C)					
Afternoon Weather					
Afternoon Temperature (°C)					

4. On what days did the weather change between the morning and the afternoon?

5. How did it change?

6. Between which days of the week did the weather change the most?

7. Was this week mostly hot or cold?

8. At what time of day is the temperature usually warmest?

? Next Question

Listen to a weather forecast. Write it down. Then watch the weather. Was the forecast right? How do you think people make forecasts?

Look at your chart. Did the weather stay the same each day? Did it change?



Notebook Reflection

Look at your weather chart from another month. Which month was colder? Is the usual weather the same or different between each month? Do these changes happen every year?

You've Just Finished your Free Sample

Enjoyed the preview?

Buy: <http://www.ebooks2go.com>