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## How to Use This Book

Welcome to Learning About Science for Young Learners! The purpose of this unit is to help you introduce your children to physical characteristics, states of matter, temperature, the sun, light, color, shadows, magnets, sound, friction, energy, and simple machines. Each topic is broken into short, bite-sized pieces accompanied by simple activities. You can work through the entire book or simply choose to focus on specific topics. If you choose to work through the entire unit, there are 60 daily lessons, broken into twelve weeks of five days each. Each week has four days of science and activities and one day of review. The final two weeks are review weeks for the unit.

Week One:	What is Science and Physical Characteristics
Week Two:	States of Matter: Solids and Liquids
Week Three:	States of Matter: Gases and Changing States
Week Four:	Temperature and the Sun
Week Five:	Light, Color, and Shadows
Week Six:	More About Light
Week Seven:	Magnets
Week Eight:	Sound and Friction
Week Nine:	Energy and Simple Machines
Week Ten:	More About Simple Machines
Week Eleven:	Review, Pt. 1
Week Twelve:	Review, Pt. 2

I hope you enjoy Learning About Science for Young Learners!



# Supplies Needed for Experiments

## **Page 14:**

plastic blocks or other small plastic toys  
two different size boxes or plastic containers—one that is too small to get all the toys in and one that is a little too big

## **Page 17:**

water  
four different containers to put water in, such as a small glass, a measuring cup, a bowl, and another container (If you have one of those that is square or oval, that would be helpful to see how the liquid changes shape.)

## **Page 22:**

small box, such as a shoebox  
hole punch (not necessary if paper is torn into small pieces instead of punched out)  
different color scraps of construction paper  
game marker  
small plastic cube (game die could be used)

## **Page 25:**

ice cube tray  
pan with lid  
water

## **Page 27:**

plastic glass  
thermometer

## **Page 34:**

globe (if possible)

## **Page 45:**

red play dough  
yellow play dough  
blue play dough  
white play dough

## **Page 52:**

a glass (it must be clear glass that is transparent)  
spoon that is taller than the glass  
water

## **Page 56:**

magnet  
objects to try to attract with the magnet (suggestions would be metal paper clips, coins, small nails, plastic game markers, a small cardboard box, metal toy car or truck, plastic toy car or truck)

# Supplies Needed for Experiments (continued)

## Page 58:

two magnets (bar magnets work well for this exercise)

## Page 60:

magnet

nail (make sure it is blunted and not sharp) or paper clip (it must be a metal that will be attracted to a magnet)

few paper clips that will be attracted to a magnet

## Page 62:

magnet (does not have to be the same shape as the one in the picture)

glass (large enough opening on top to put a magnet into and not too thick because the magnet may not be very strong)

water

envelope

paper clips and/or tacks

## Page 65:

bell and triangle (you can use any two objects from around the house that will vibrate to make a sound the student can hear and that they can put their hand on to stop the vibration)

## Page 69:

box (shoebox or plastic container)

books (thicker books so they will add some weight to the box)

plastic toys

## Page 77:

large book

toy that will not hurt or scratch the book

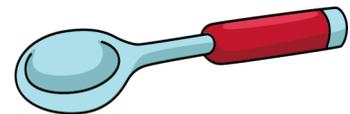
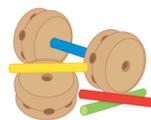
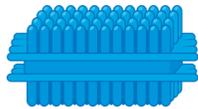
## Page 84:

ruler

small toy that can be put on the end of a ruler

blocks or household item to use as a fulcrum for the lever

Examples:



## What is Science?

Do you know what science is and why it is important?

Science is a way we can study what is going on around us. When we study science, it helps us understand things like what type of homes different animals like to live in. That can help you take better care of a pet. There are many other things you can learn and understand when you study science, too.

One thing you can learn from science is why it is warmer to stand in the sun than it is to stand in the shade.

You can also learn about water freezing in the winter time. That helps you know when to watch out for any ice when you are outside.

If you have plants at your house, you can learn things from science to help you take better care of them.

Another thing science can help you learn is how some kinds of simple machines can help make work easier.

Let's get started learning about science.

# SCIENCE

## What are Physical Characteristics?

Physical characteristics is just a hard way to say what something looks like, feels like, sounds like, or smells like.

For example, if you had to say what the physical characteristics of an empty pizza box were, you could say it is square, made of cardboard, and smells like pizza. Physical characteristics help you identify something.

If someone told you they saw an animal that was black with a white stripe, had a lot of fur, and smelled really bad, would you know what the animal was? If you said a skunk, you would probably be right!

Let's ask some questions to find out what the physical characteristics are of a house. Look at the house below. Then, answer the questions.



Is it a big house?

What color is the house?

Are there any doors in the house?

Are there any windows in the house?

What shapes are the windows?

What else can you tell about the house to help someone know what it looks like?

See what you can tell about this picture.



What color is the piece of cake?

What flavor do you think the cake is?

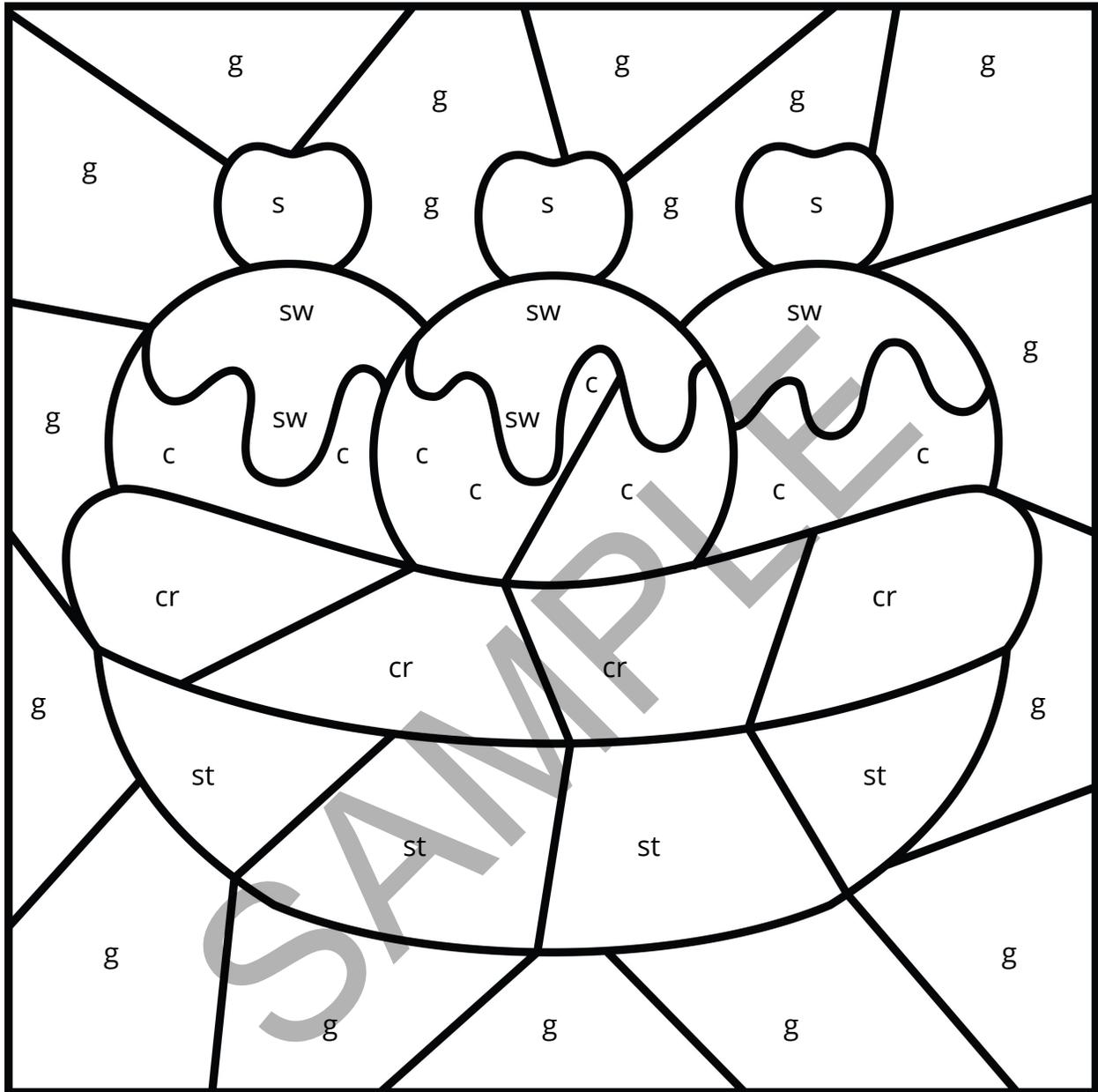
How big is the piece of cake?

What does the cake have sticking out of it?

What else can you tell about the cake?

# What Am I?

Follow the directions below to color the picture.



I am cold. Color the space pink ● if it has a **c** in it for cold.

I am sweet. Color the space brown ● if it has an **sw** in it for sweet.

I am soft. Color the space red ● if it has an **s** in it for soft.

I am creamy. Color the space yellow ● if it has an **cr** in it for creamy.

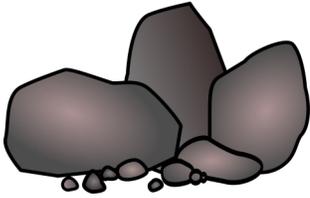
I am sticky. Color the space blue ● if it has an **st** in it for sticky.

I taste good. Color the space purple ● if it has an **g** in it for good.

# Physical Characteristics

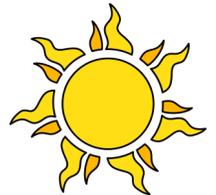
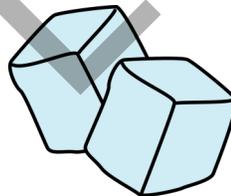
Look at the pictures in row #1. If the picture shows something that is hard, put an X on it. If it shows something that is soft, draw a circle around it.

1.



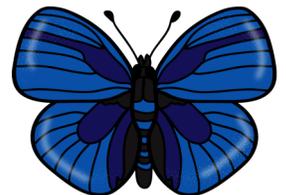
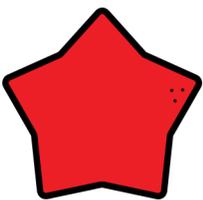
Look at the pictures in row #2. If the picture shows something that is hot, put an X on it. If it shows something that is cold, draw a circle around it.

2.



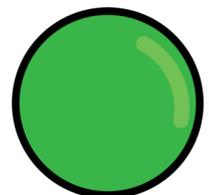
Look at the pictures in row #3. If the picture shows something that is blue, put an X on it. If it shows something that is red, draw a circle around it.

3.



Look at the pictures in row #4. If the picture shows something that is green, put an X on it. If it shows something that is yellow, draw a circle around it.

4.



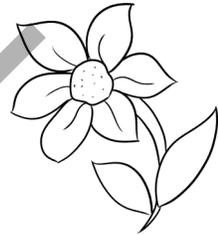
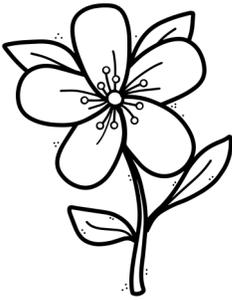
# What is Science? and Physical Characteristics

## Let's Review

1. \_\_\_\_\_ is a way we can study what is going on around us. Color the correct answer.

# SLEEPING SCIENCE

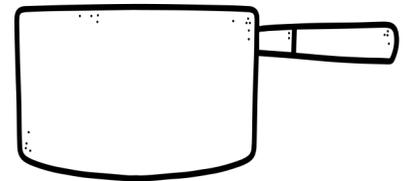
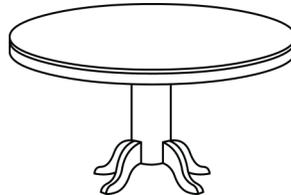
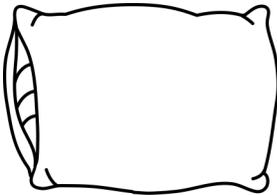
2. Which of the flowers is the tallest? Color the correct answer.



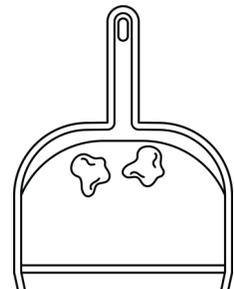
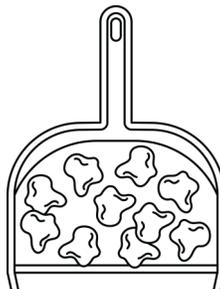
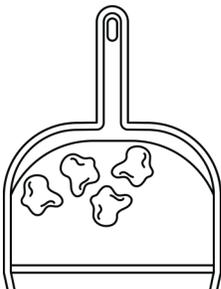
3. Which of the shirts has long sleeves? Color the correct answer.



4. Which of these is soft? Color the correct answer.



5. Which dustpan has the most dust? Color the correct answer.



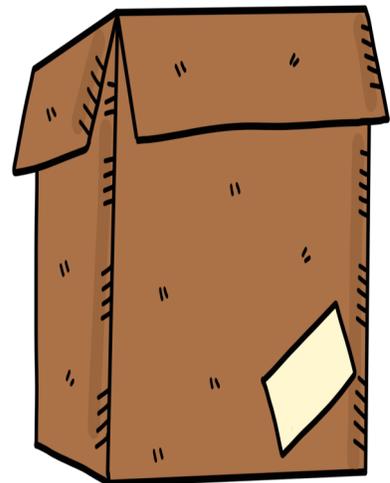
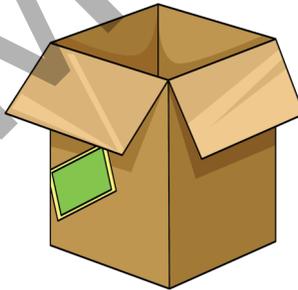
## States of Matter: Solids

Have you ever noticed that everything in the world is either a solid, like a table, a chair, a book, a dish of ice cream, or a person; a liquid, like water or lemonade; or gas, like the air around us? These three words, solid, liquid, and gas, describe the way everything exists around us. They are called “states of matter.”

Sometimes, things can be all of these three states at different times. Water is a liquid. But, when water is frozen, it becomes a solid, and when water is heated, it turns into a gas. We don't find a lot of things that this happens to everyday, but there are some.

Let's start by talking about solids.

A solid is a state of matter where things have a certain shape and they take a certain amount of space. For example, a chair is a solid. It doesn't matter what size box you put it in, it is always the same size and the same shape. Since we can't change the size and shape of the chair without breaking it, we would have to find a box that is just the right size to put it in. Which box would the chair fit in? Draw a circle around the right box.



It doesn't matter how much you try, you can't put that chair in a box that is too small. You can push and work, but you will just tear the box. If you try to put the chair in a box that is too big, the chair will fit, but the chair doesn't get any bigger. It just has a lot of room around it in the box.

*For Teachers and Parents:*

Supplies: plastic blocks or other small plastic toys  
two different size boxes or plastic containers—one that is too small to get all the toys in and one that is a little too big

**Always supervise any activity with children.**

Ask the student to try to put all the toys in the smallest container.

**Ask:** Do they fit? Do they suddenly get smaller and all fit in the smaller container?

Ask the student to try to put all the toys in the larger container.

**Ask:** Do they fit? Do they suddenly get larger and fill the larger container?

**Talk About It!**

**Ask:** Did you find that the plastic toys stayed the same size no matter what size container you put them in?

**Explain:** This is one of the things that tells you the object is a solid. It does not change its size or shape no matter what size container it is put in.

Talk about some of the things you see around you that are solids. Give reasons why they are solids. Ask the student to draw a picture on the next page of something that they talked about that is a solid.

