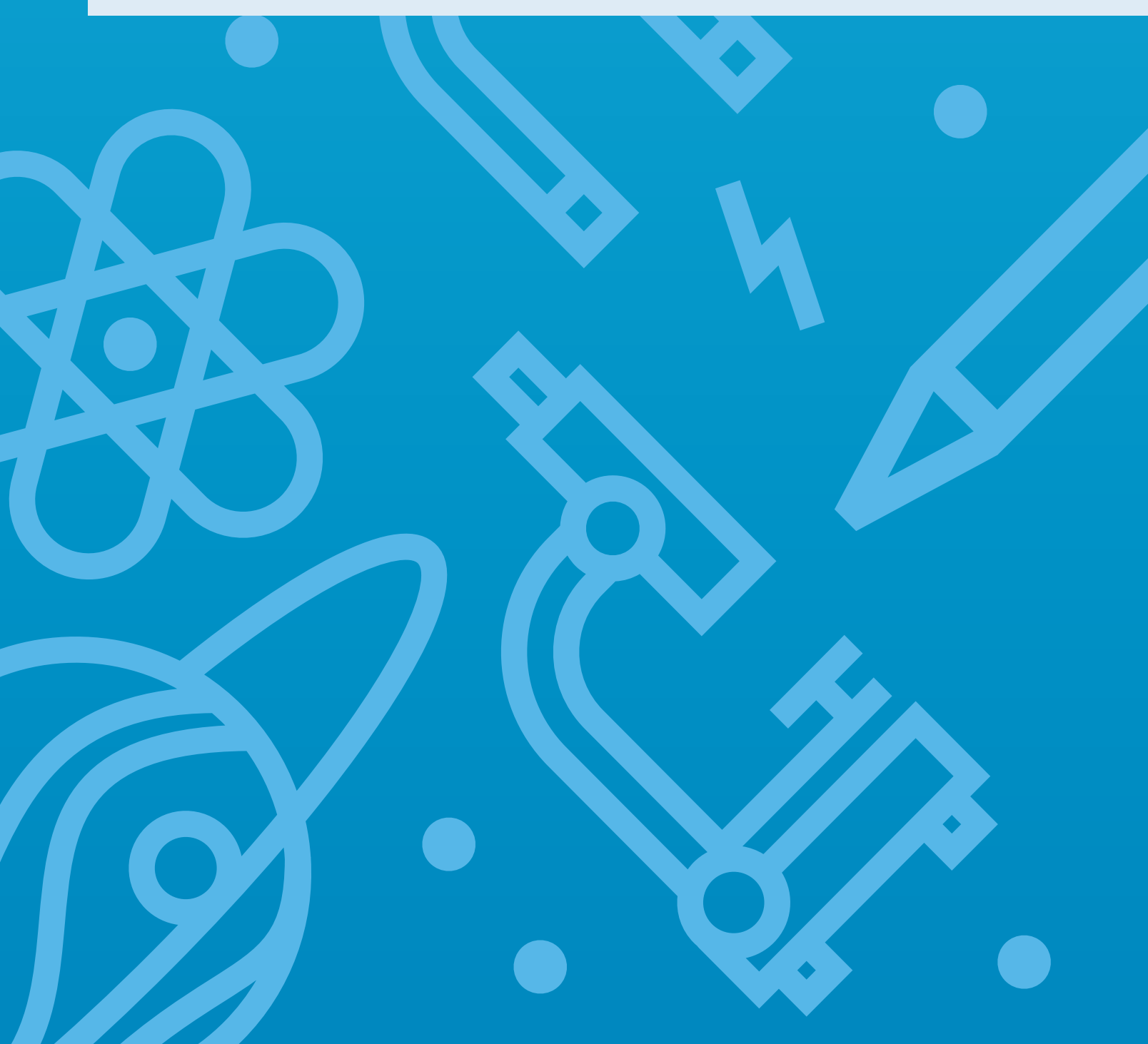




CALVERT™
PUBLICATIONS

2nd grade | Unit 7



SCIENCE

PHYSICAL PROPERTIES

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Learn with our friends!



When you see me, I will help your teacher explain the exciting things you are expected to do.



When you do actions with me, you will learn how to write, draw, match words, read, and much more.



You and I will learn about matching words, listening, drawing, and other fun things in your lessons.



Follow me and I will show you new, exciting truths that will help you learn and understand what you study. Let's learn!

PHYSICAL PROPERTIES



The world is an amazing place. As you look around you, there are many things to see. These things have different colors. They have different shapes and sizes. They feel different. Some feel hard. Some feel soft. There are many different **physical** things in this world.

Something that is physical can be seen and **touched**. For example, a table is a physical thing. You can see it and touch it. Physical things, such as a table, have different **properties**. Some of these **physical properties** of things are color, shape, size, and how something feels. In this workbook, you will learn more about these physical properties of things: color, shape, size, and how something feels.

Objectives

Read these objectives. They will tell what you will be able to do when you have finished this workbook.

1. You will be able to name the three primary colors.
2. You will be able to tell how different colors are made by combining other colors.
3. You will be able to name the colors of the rainbow.
4. You will be able to describe some seasonal colors.
5. You will be able to tell about the different sizes and shapes of things around you.
6. You will be able to tell how things feel.
7. You will be able to explain how some things are soft and some things are hard.
8. You will be able to link a physical property to an object.

New Words

These words will appear in **boldface** (darker print) the first time they are used.

alum (al um). A powder used to make things hard.

circle (cir cle). A round and flat shape.

clay. Sticky earth that gets hard.

clothes. Something to wear.

crayons (cray ons). Colored wax sticks used for drawing.

fleece. The wool of sheep.

holiday (hol i day). A special day of celebration; a day off from work or school.

indigo (in di go). A dark shade of blue.

octagon (oc ta gon). A shape with eight equal sides and eight corners.

physical (phys i cal). Having a material existence that can be seen by the senses.

physical properties (phys i cal prop er ties). Something about an object which can be seen or touched.

potter (pot ter). A person who makes things out of clay.

primary (pri ma ry). First; the one from which others are made.

properties (prop er ties). Natural qualities of something.

rainbow (rain bow). An arch of many colors that sometimes forms in the sky during or after a rain.

reason (rea son). Explains why.

rectangle (rec tan gle). A shape with four sides and four corners.

rough. Having a bumpy surface.

signs. Pictures or words that give directions.

smooth. Without bumps.

square. A shape with four equal sides and four corners.

thin. The sides are close together.

touch. To feel.

triangle (tri an gle). A shape with three sides and three corners.

yield. To give way to another.

1. ALL ABOUT COLORS

The world is full of different colors. Color is a physical property of things. People can also help make things with colors.

In this section of the workbook, you will learn more about colors. You will also make some different colors!



Words to Study

clothes. Something to wear.

crayons (cray ons). Colored wax sticks used for drawing.

holiday (hol i day). A special day of celebration; a day off from work or school.

indigo (in di go). A dark shade of blue.

physical (phys i cal). Having a material existence that can be seen by the senses.

physical properties (phys i cal prop er ties). Something about an object which can be seen or touched.

primary (pri ma ry). First; the one from which others are made.

rainbow (rain bow). An arch of many colors that sometimes forms in the sky during or after a rain.

reason (rea son). Explains why.

Ask your teacher to say these words with you.



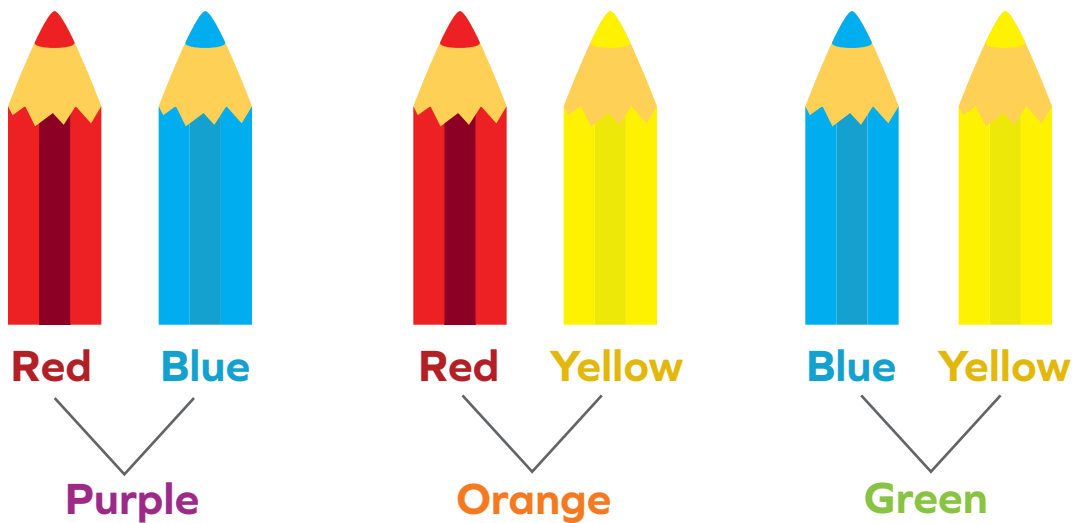
Teacher Check

Initial

Date

Primary Colors

Three of the colors that you see are called **primary** colors. The primary colors are red, yellow, and blue. The **reason** that these colors are called primary is because you can mix them in different ways to make many other colors.



From the three primary colors, many other colors can be made. For example, if you mix the colors red and blue, you will get purple. If you mix red and yellow, you will get orange. If you mix blue and yellow, you will get green.

There is another interesting thing about colors. You can mix white with any of these colors and get lighter colors. For example, if you mix white with red, you get pink. If you mix white with blue, you get light blue. Mixing white with green will give a light green color. If you want darker colors, you must mix them with the color black. For example, mixing black with blue will give a dark blue color. What happens when you mix black and white? You get gray!



Do this activity with colors.

These supplies are needed:

- tubes or pots of finger paint in the following colors: red, yellow, blue, black, white
- at least 6 paper plates
- an old shirt or apron to protect your clothing
- paper towels to clean your fingers and hands

Follow these steps and answer the questions. Put a check (✓) in the box when you do each step.

1. Place small and equal amounts of the red and yellow finger paints on a paper plate.

2. Mix the paints together well with your fingers.

3. Clean your hands and fingers with the paper towel.

1.1 What color did you make? _____

4. Place small and equal amounts of the red and blue finger paints on a new paper plate.

5. Mix the paints together well with your fingers.

6. Clean your hands and fingers with the paper towel.

1.2 What color did you make? _____

(continued on the following page)

- 7. Place small and equal amounts of the blue and yellow finger paints on a new paper plate.
- 8. Mix the paints together well with your fingers.
- 9. Clean your hands and fingers with the paper towel.

1.3 What color did you make? _____

- 10. Place small and equal amounts of the black paint and one of the other colors (red, yellow, or blue) on a new paper plate.
- 11. Mix the paints together well with your fingers.
- 12. Clean your hands and fingers with the paper towel.

1.4 Is the new color lighter or darker?

- 13. Place small and equal amounts of white paint and one of the other colors on a new paper plate.
- 14. Mix the paints together well with your fingers.
- 15. Clean your hands and fingers with the paper towel.

1.5 Is the new color lighter or darker?

- 16. Place small and equal amounts of the black and white finger paints on a new paper plate.

(continued on the following page)

- 17. Mix the paints together well with your fingers.
- 18. Clean your hands and fingers with the paper towel.

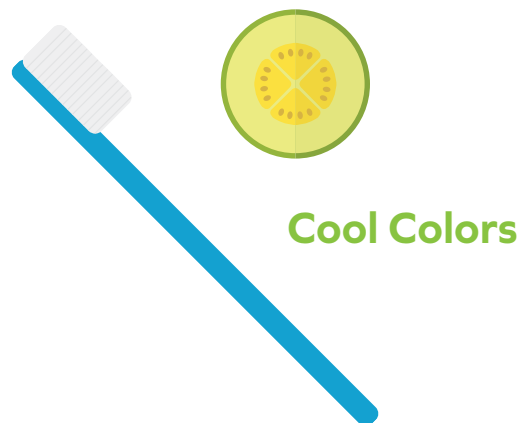
1.6 What color did you make? _____



Teacher Check _____
Initial Date

Some colors are known as “cool” colors. Green and blue are cool colors. Some colors are “warm” colors. Red, orange, and brown are warm colors.

Everything around us is colorful. We see colors in the flowers and trees. We see colors in the **clothes** we wear. Maybe you have **crayons** with many colors. People and animals, too, have many colors. Color is everywhere.





Answer these questions.

1.7 What are the three primary colors?

- a. _____
- b. _____
- c. _____

1.8 Tell what colors you get if you mix these colors:

- a. red and yellow _____
- b. red and blue _____
- c. blue and yellow _____
- d. blue and white _____
- e. red and white _____
- f. black and white _____

1.9 Name a cool color. _____

1.10 Name a warm color. _____



Draw lines to match.

- | | | | | |
|-------------|--------------|---|---|--------------|
| 1.11 | as red as | ▶ | ◀ | the sky |
| 1.12 | as blue as | ▶ | ◀ | a tree trunk |
| 1.13 | as green as | ▶ | ◀ | a cherry |
| 1.14 | as yellow as | ▶ | ◀ | the night |
| 1.15 | as black as | ▶ | ◀ | the grass |
| 1.16 | as brown as | ▶ | ◀ | the sun |



The Rainbow

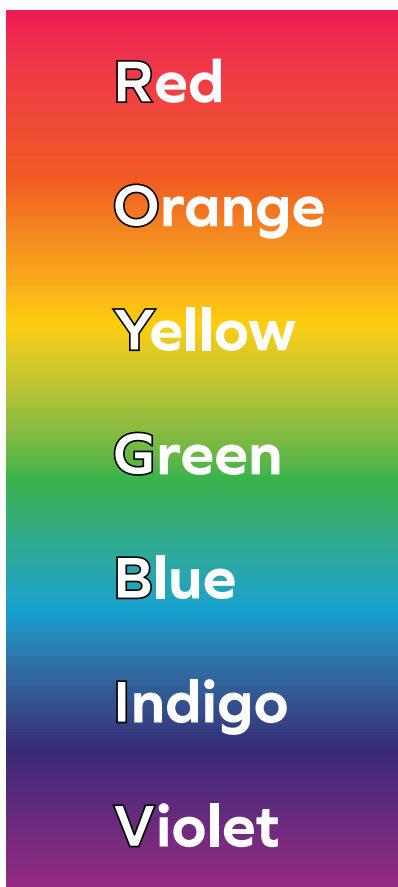
A **rainbow** is an arc in the sky during or after rain. Have you ever seen a rainbow in the sky? It is very pretty!

A full rainbow usually has seven main colors. Can you tell what the colors are from the rainbow shown in the picture?

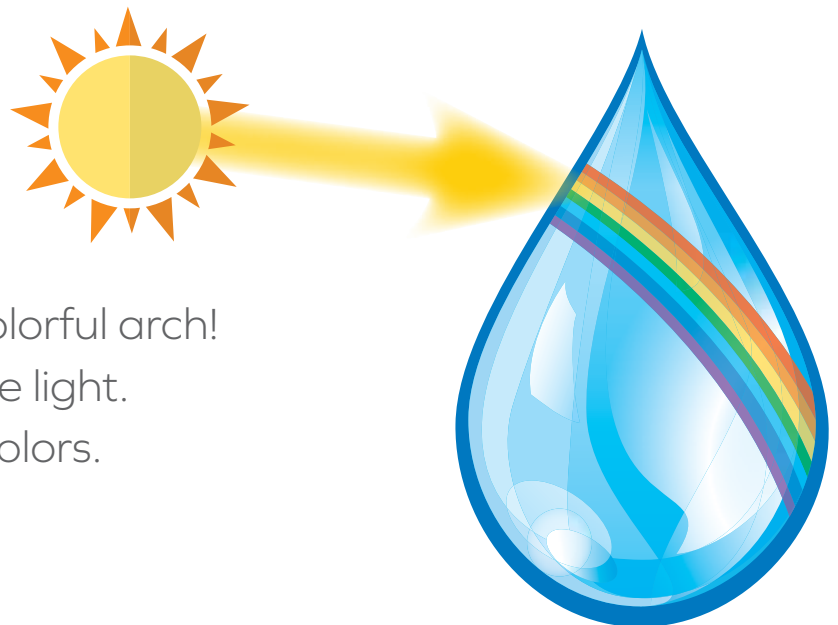


The seven colors of the rainbow are red, orange, yellow, green, blue, **indigo**, and violet.

There is a funny way to remember the colors of the rainbow. It is a pretend person's name: **Roy G. Biv**. Each letter of his name stands for a color of the rainbow, and the colors are in the correct order. Look at the picture of Roy's name with the correct colors of the rainbow shown.



A rainbow appears when the sun shines during or after the rain. The sun beams white light that is made up of seven colors: red, orange, yellow, green, blue, indigo, and violet. When sunlight hits a drop of rain in the sky, the white light bends and spreads out into a band of those seven colors. When it rains there are many water droplets in the sky! All the raindrops bend sunlight into the seven colors that we see reflected in the sky.



White light bends into a colorful arch!
All seven colors are in white light.
Rainbows have all seven colors.



Do this activity to see some **rainbow** colors!

These supplies are needed:

- a compact disc (also known as a CD)
- a flashlight
- a room that you can make dark
- a piece of white paper

Follow these steps and answer the questions. Put a check (✓) in the box when you do each step.

1. Take the CD and look at the blank, shiny side (the side that does not have printing on it).

1.17 Can you see the rainbow colors on the surface?

2. Tilt the shiny side of the CD back and forth while looking at it.

1.18 What happens? _____

(continued on the following page)

SELF TEST 1

Each answer = 1 point

List the colors.

1.01 List the three primary colors.

a. _____

b. _____

c. _____

1.02 List the seven colors of the rainbow.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

Circle the correct answer.

- 1.03** When yellow and red are mixed, you get _____ .
blue orange
- 1.04** When blue and white are mixed, you get _____ .
light blue gray
- 1.05** When blue and yellow are mixed, you get _____ .
green purple
- 1.06** To make a color lighter, you add _____ to it.
black white
- 1.07** When black and white are mixed, you get _____ .
violet gray
- 1.08** Circle the letters of the two correct answers that explain why rainbows appear.
- a. Rainbows appear because raindrops bend white light.
 - b. Rainbows appear because of the rain.
 - c. Rainbows appear because the sun is rising in the sky.
 - d. Rainbows appear because the sun is setting in the sky.

Draw lines to match the season or holiday with the special colors seen or used during that time.

- | | | | | |
|--------------|-------------------|---|---|---------------------------|
| 1.09 | fall | ▶ | ◀ | red, white, blue |
| 1.010 | Fourth of July | ▶ | ◀ | green |
| 1.011 | Valentine's Day | ▶ | ◀ | light yellow
and green |
| 1.012 | St. Patrick's Day | ▶ | ◀ | orange, brown |
| 1.013 | spring | ▶ | ◀ | blue, silver |
| 1.014 | winter | ▶ | ◀ | red |



Teacher Check

Initial Date



My Score



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