



## Science Chunks: Light Sample Packet

Teach your students the basics of light in bite-sized chunks. The following sample packet includes most of the first lesson of the *Science Chunks: Light* digital unit study. You will see:

- ✓ The Introduction (*beginning on p. 4*)
- ✓ The Lesson (*beginning on p. 8*)
- ✓ The Lapbooking Templates (*beginning on p. 11*)
- ✓ The Notebooking Templates (*beginning on p. 14*)

If you have questions about what you see, please let us know by emailing [support@elementalscience.com](mailto:support@elementalscience.com). To get started, head to:

🔗 <https://elementalscience.com/products/science-chunks-light-unit>

# A Peek Inside a Science Chunks Unit

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## 1. Lesson Topic

Focus on one main idea throughout the week. You will learn about these ideas by reading from visually appealing encyclopedias, recording what the students learned, and doing coordinating hands-on science activities.

## 2. Information Assignments

Find two reading options—one for younger students, one for older students, plus optional library books.

## 3. Notebooking Assignments

Record what your students have learned with either a lapbook or a notebook. The directions for these options are included for your convenience in this section along with the vocabulary the lesson will cover.

## 4. Hands-on Science Assignments

Get the directions for coordinating hands-on science activities that relate to the week's topic.

## 5. Lesson To-Do Lists

See what is essential for you to do each week and what is optional. You can check these off as you work through the lesson so that you will know when you are ready to move on to the next one.

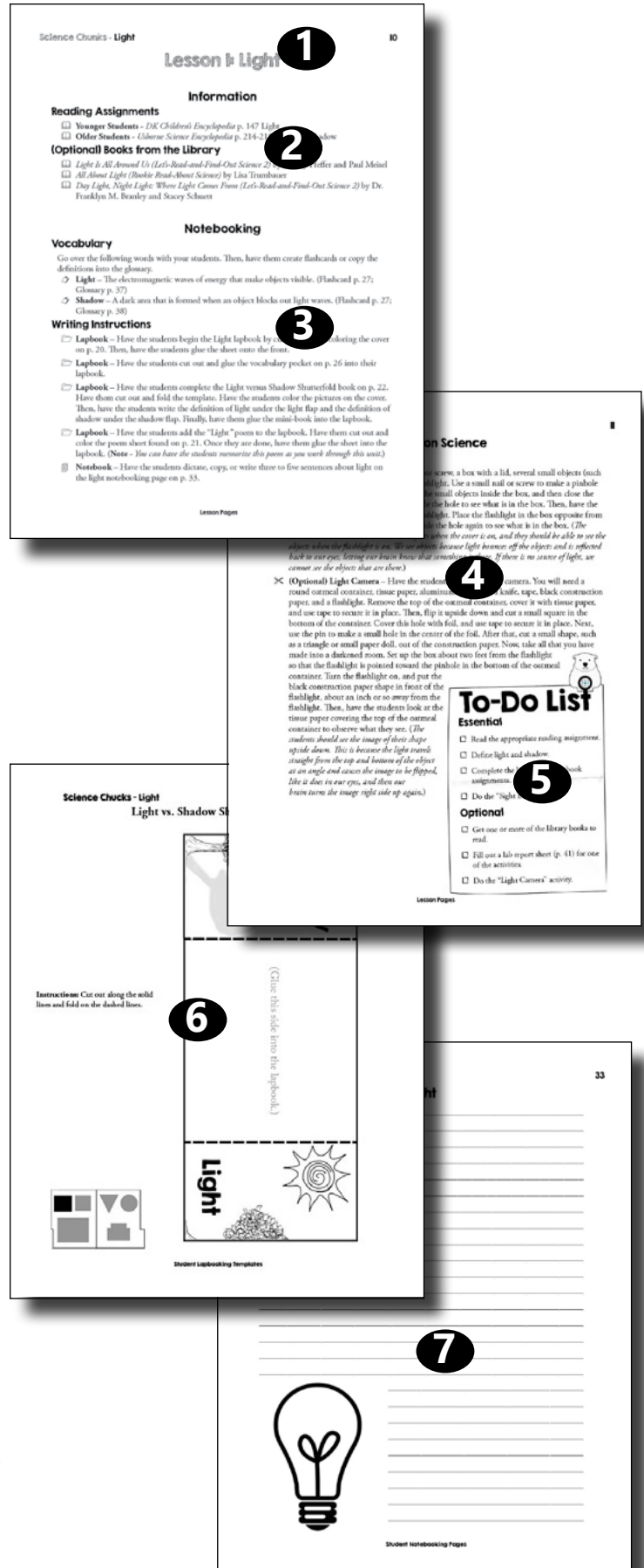
## 6. Lapbook Templates

Get all the information you need to create a lapbook on the subject.

## 7. Notebook Templates

Have all the sheets you need to create a notebook on the subject, including a glossary for the vocabulary terms.

In the appendix you will find a blank activity sheet, a blank lab report sheet, and a review sheet (or quiz).



## **THIS UNIT IS INTENDED FOR HOME USE ONLY**

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# Unit Introduction

*Science Chunks - Light* is a unique and versatile unit study that leads you through a survey of light. It is designed to be a gentle approach to homeschool science based on the Unit Study method suggested in *Success in Science: A Manual for Excellence in Science Education* by Bradley and Paige Hudson. This study can be used as a stand-alone unit for elementary science.

## What Is Included in This Unit

*Science Chunks - Light* includes the three keys to teaching science. With each lesson you will be doing the following:

- ✓ Listening to (or reading) **scientific information** from visually appealing encyclopedias
- ✓ Dictating (or writing down) what the students have learned and seen using **lapbooking or notebooking**
- ✓ Watching (and doing) **hands-on science** through a variety of science activities

Here is how this works for a lesson.

## Section 1 - Information

The elementary student is an empty bucket waiting to be filled with information, and science-oriented books are a wonderful way to do that. These books can include age-appropriate children's science encyclopedias, living books for science, and/or children's nonfiction science books.

In this program, the reading assignments and additional books scheduled in the lesson fulfill this component. The reading assignments are broken for you into two levels: younger students (1st to 3rd grade) and older students (4th to 6th grade).

Our idea is that you will read these selections with your students, pausing to ask questions or discussing the information once you are done reading.

## Section 2 - Notebooking

The purpose of the notebooking component for elementary science education is to verify that the students have placed at least one piece of information into their knowledge bucket. You can use notebooking sheets, lapbooks, and/or vocabulary words to fulfill this requirement.

In this program, we have included two writing options, a lapbook and a notebook, for you to use with your students. In the lapbook section, you will find all of the templates and pictures you will need to complete a lapbook on light. In the notebook section, you will find all the pages you need to create a simple notebook on light, including notebooking sheets and a glossary.



## Section 3 - Hands-on Science

Scientific demonstrations and observations are meant to spark students' enthusiasm for learning science, to work on their observation skills, and to demonstrate the principles of science for them. This component of elementary science education can contain scientific demonstrations, hands-on projects, and/or nature studies.


In this program, the coordinating activities at the end of each lesson fulfill this section of elementary science instruction. If you would like to record what you have done, you can use one of the templates in the appendix pp. 40-41.

## What You Need in Addition to This Guide

### Books Scheduled

The following books are what we used to plan the reading assignments for this unit:

 **Younger Students** - *DK Children's Encyclopedia*

 **Older Students** - *Usborne Science Encyclopedia*

However, you could certainly use the encyclopedias you already have on hand or books from the library. Simply look up the topic assigned for the day, read about it, and complete the section in your lapbook.

You will need also simple craft supplies and other science materials—see a complete list of essential items on p. 8.

## How This Unit Works

We have included a to-do list with each lesson to give you an idea of what is essential and what is optional. There are several ways you can schedule this unit. Here is a quick look at a few of the options.

### Possible Schedules for Your Week

- **One Day** – You can set aside about an hour to an hour and a half each week to complete all the essential tasks in one day.
- **Two Days** – You can set aside about 30 to 40 minutes twice a week to complete all the essential tasks, plus a few more, in two days. On the first day, you can complete the reading assignments and either the lapbook or notebook assignments. On the second day, you can complete the coordinating activity and the vocabulary assignments as well as read any library books.
- **Three Days** – You can set aside about 30 minutes three times a week to complete all the essential tasks, plus a few more, in three days. On the first day, you can complete the reading assignments and either the lapbook or notebook assignments. On the second day, you can complete the coordinating activity and write a lab report using one of the templates. On the third day, you can do the vocabulary assignments as well as read any library books.





- **Four Days** – You can set aside about 20 to 30 minutes four times a week to complete all the essential tasks, plus a few more, in four days. On the first day, you can complete the reading assignments and either the lapbook or notebook assignments. On the second day, you can complete the coordinating activity and write a lab report. On the third day, you can do the vocabulary assignments as well as read any library books. On the fourth day, you can do the optional coordinating activity as well as read any library books.

If you choose to complete one lesson per week, this unit will take you four weeks to complete.

## Final Thoughts

### Read Further

If you would like to read more about philosophy behind the Science Chunks series, check out *Success in Science: A Manual for Excellence in Science Education* and the following articles from our website.

- **The Three Keys to Teaching Science** – This article shares the three keys to teaching science, including a free session that walks you through what each key can look like.  
 <https://elementalscience.com/blogs/news/3-keys>
- **The Basics of Notebooking** – This article details the basic components of notebooking along with how a few suggestions on what notebooking can look like.  
 <https://elementalscience.com/blogs/news/what-is-notebooking>
- **Lapbooking versus Notebooking** – This article takes a look at the differences between lapbooking and notebooking.  
 <https://elementalscience.com/blogs/news/lapbook-or-notebook>
- **Scientific Demonstrations versus Experiments** – This article explains the difference between scientific demonstrations and experiments along with when and how to employ these methods.  
 <https://elementalscience.com/blogs/news/89905795-scientific-demonstrations-or-experiments>

### Last Words

As the author and publisher of this curriculum, I encourage you to contact me with any questions or problems that you might have concerning *Science Chunks - Light* by emailing us at [support@elementalscience.com](mailto:support@elementalscience.com). I, or a member of our team, will be more than happy to answer them as soon as I am able. I hope that you will enjoy creating memories using *Science Chunks - Light*!

~ Paige Hudson

# Materials List

## Lapbook Materials

You will need the following materials to complete the lapbook:

- ✂ 2 sheets of 8 ½" by 11" card stock OR 1 file folder
- ✂ Colored pencils or crayons
- ✂ Markers for decorating the cover
- ✂ Glue stick
- ✂ Scissors
- ✂ Stapler

## Notebook Materials

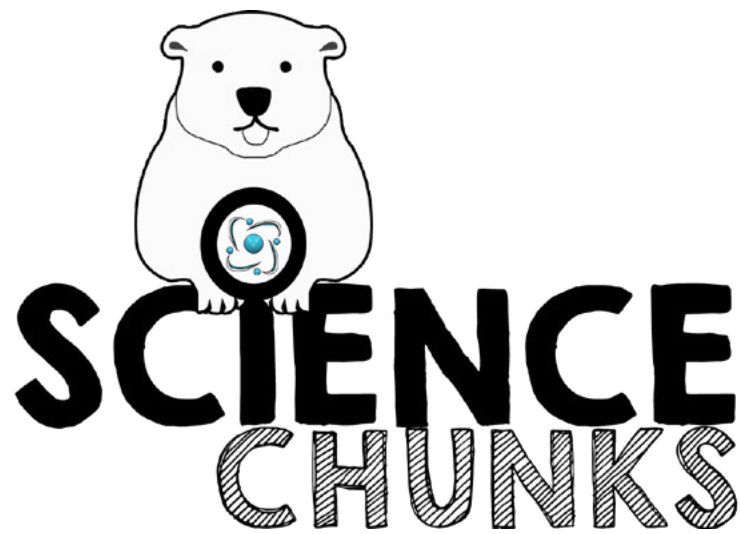
You will need the following materials to assemble the notebook:

- ✂ Hole punch and 3 brad fasteners or string OR
- ✂ Staples

## Coordinating Activity Materials

You will need the following materials to complete the essential coordinating activities:

- ✂ **Lesson 1:** A small nail or screw, a box with a lid, several small objects (such as a ball, a pencil, or a toy car), and a flashlight
- ✂ **Lesson 2:** A piece of paper, paint (red, yellow, and blue), pencil, and a paintbrush
- ✂ **Lesson 3:** An empty toilet paper roll, a thick mylar sheet, scissors, tape, card stock, a straw, and markers
- ✂ **Lesson 4:** A glass jar, water, pencil, and an index card



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# Lessons






# Lesson 1: Light

## Information

### Reading Assignments

-  **Younger Students** - *DK Children's Encyclopedia* p. 147 Light
-  **Older Students** - *Usborne Science Encyclopedia* pp. 214-215 Light and Shadow



### (Optional) Books from the Library

-  *Light Is All Around Us (Let's-Read-and-Find-Out Science 2)* by Wendy Pfeffer and Paul Meisel
-  *All About Light (Rookie Read-About Science)* by Lisa Trumbauer
-  *Day Light, Night Light: Where Light Comes From (Let's-Read-and-Find-Out Science 2)* by Dr. Franklyn M. Branley and Stacey Schuett






## Notebooking

### Vocabulary

Go over the following words with your students. Then, have them create flashcards or copy the definitions into the glossary.

-  **Light** – The electromagnetic waves of energy that make objects visible. (Flashcard p. 27; Glossary p. 37)
-  **Shadow** – A dark area that is formed when an object blocks out light waves. (Flashcard p. 27; Glossary p. 38)

### Writing Instructions

-  **Lapbook** – Have the students begin the Light lapbook by cutting out and coloring the cover on p. 20. Then, have the students glue the sheet onto the front.
-  **Lapbook** – Have the students cut out and glue the vocabulary pocket on p. 26 into their lapbook.
-  **Lapbook** – Have the students complete the Light versus Shadow Shutterfold book on p. 22. Have them cut out and fold the template. Have the students color the pictures on the cover. Then, have the students write the definition of light under the light flap and the definition of shadow under the shadow flap. Finally, have them glue the mini-book into the lapbook.
-  **Lapbook** – Have the students add the “Light” poem to the lapbook. Have them cut out and color the poem sheet found on p. 21. Once they are done, have them glue the sheet into the lapbook. (**Note** - You can have the students memorize this poem as you work through this unit.)
-  **Notebook** – Have the students dictate, copy, or write three to five sentences about light on the light notebooking page on p. 33.

## Hands-on Science

### Coordinating Activity

- ✂ **Sight Box** – You will need a small nail or screw, a box with a lid, several small objects (such as a ball, a pencil, or a toy car), and a flashlight. Use a small nail or screw to make a pinhole at the end of one side of the box. Place the small objects inside the box, and then close the lid tightly. Ask the students to look inside the hole to see what is in the box. Then, have the students step back as you turn on the flashlight. Place the flashlight in the box opposite from the objects. Ask the students to look inside the hole again to see what is in the box. (*The students should not be able to see the objects when the cover is on, and they should be able to see the objects when the flashlight is on. We see objects because light bounces off the objects and is reflected back to our eyes, letting our brain know that something is there. If there is no source of light, we cannot see the objects that are there.*)
- ✂ **(Optional) Light Camera** – Have the students make a pinhole camera. You will need a round oatmeal container, tissue paper, aluminum foil, a pin, a knife, tape, black construction paper, and a flashlight. Remove the top of the oatmeal container, cover it with tissue paper, and use tape to secure it in place. Then, flip it upside down and cut a small square in the bottom of the container. Cover this hole with foil, and use tape to secure it in place. Next, use the pin to make a small hole in the center of the foil. After that, cut a small shape, such as a triangle or small paper doll, out of the construction paper. Now, take all that you have made into a darkened room. Set up the box about two feet from the flashlight so that the flashlight is pointed toward the pinhole in the bottom of the oatmeal container. Turn the flashlight on, and put the black construction paper shape in front of the flashlight, about an inch or so away from the flashlight. Then, have the students look at the tissue paper covering the top of the oatmeal container to observe what they see. (*The students should see the image of their shape upside down. This is because the light travels straight from the top and bottom of the object at an angle and causes the image to be flipped, like it does in our eyes, and then our brain turns the image right side up again.*)



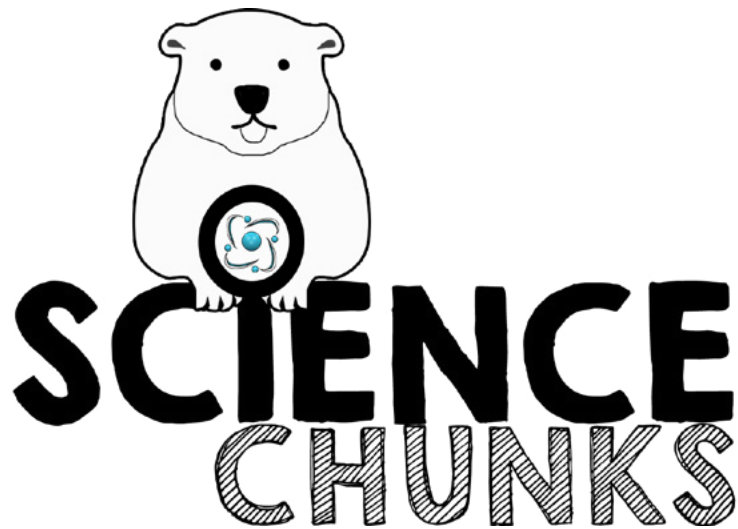
## To-Do List

### Essential

- ☐ Read the appropriate reading assignment.
- ☐ Define light and shadow.
- ☐ Complete the lapbook or notebook assignments.
- ☐ Do the “Sight Box” activity.

### Optional

- ☐ Get one or more of the library books to read.
- ☐ Fill out a lab report sheet (p. 41) for one of the activities.
- ☐ Do the “Light Camera” activity.

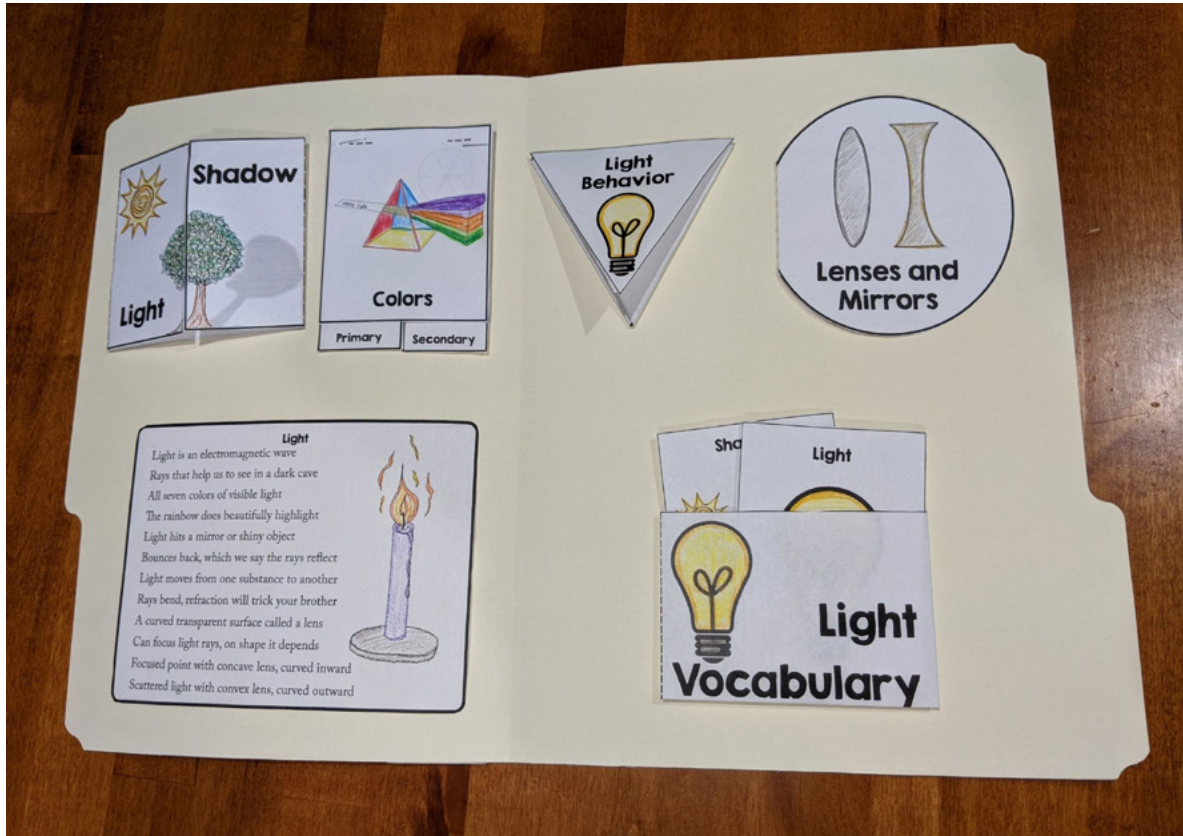


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# **Student Lapbook Templates**

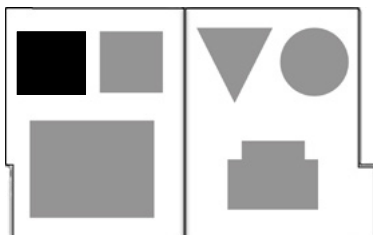
# Light Lapbook

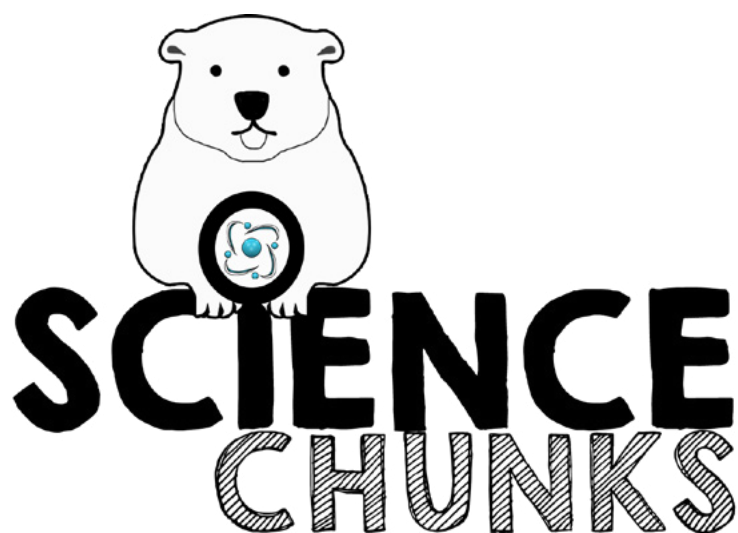
You will need two sheets of card stock or one file folder. If you are using card stock, begin by taping the two sheets together on the longest edge. The completed lapbook will look like this on the inside:



# Light versus Shadow Shutterfold Book

**Instructions:** Cut out along the solid lines and fold on the dashed lines.





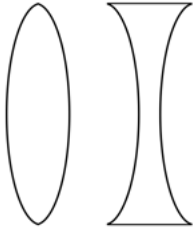
# **Student Notebook Pages**

## Light

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.[illegible]

# Light Vocabulary

Lens —




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Light —




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Mirror —



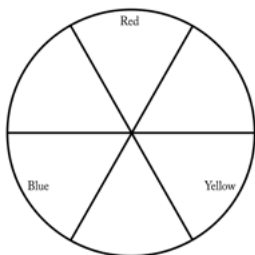

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Primary colors —




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