

Overview of Learning Experiences

TEKS	<p>K.5 The student knows that objects and events have properties and patterns. The student is expected to: (A) describe properties of objects; (B) observe and identify patterns and predict what happens next; and (C) recognize and copy patterns.</p> <p>K.6 The student knows that systems have parts and are composed of organisms and objects. The student is expected to: (D) identify parts that, when separated from the whole, may result in the part or the whole not working.</p> <p><i>To read complete TEKS student expectations for K.5 and K.6, see page 34.</i></p>
Engage	<ul style="list-style-type: none"> ◆ Students observe and describe the properties of color and shape in given objects.
Explore	<ul style="list-style-type: none"> ◆ Students manipulate various materials to observe the separation of white light into its component colors.
Explain	<ul style="list-style-type: none"> ◆ Students communicate and analyze their results for patterns. ◆ Students observe, identify, and predict patterns in given examples based on color and shape (circle, square, triangle). ◆ Students recognize and copy the pattern of colors (ROYGBV) demonstrated by the separation of white light.
Elaborate	<ul style="list-style-type: none"> ◆ Students identify the parts needed to observe the colors that make up white light.
Evaluate	<p style="text-align: center;">SUMMATIVE ASSESSMENT</p> <ul style="list-style-type: none"> ◆ The student uses drawings and multiple-choice items to demonstrate his/her ability to identify shapes, colors, and patterns and to analyze the parts of a system that can cause white light to form a pattern of colors.

ENGAGE

1. Gather students into a reading circle and discuss their prior experiences with rainbows. Display photos or slides showing actual rainbows in the sky. Ask those who have seen a rainbow to share information with the class such as the following:



- What colors did you see?
- What shape was the rainbow?
- What was the weather like that day?
- Was it cloudy, sunny, rainy, etc.?
- How long did you get to see the rainbow?
- How did the rainbow make you feel?
- What are some questions you have about rainbows? (*compile student questions on class chart*)

Questioning Strategies

MATERIALS (details p. 28)

For the class:

- photos or slides of natural rainbows
- book, *What Makes a Rainbow?*
- 6 markers (red, orange, yellow, green, blue, violet)
- purple-colored object
- water prism
- overhead projector

For each student:

- 6 pieces of yarn or pipe cleaners per student (red, orange, yellow, green, blue, violet)

ENGAGE



2. Tell students you are going to share with them a beautiful book titled *What*



Makes a Rainbow written by Betty Ann Schwartz. Ask students to listen carefully and be ready to talk about the colors that are in a rainbow. After reading

the book aloud and sharing the illustrations, ask students the following types of questions:

- What was the weather like in the story? (*rainy, followed by sunshine*)
- What were the colors that Little Rabbit learned make up a rainbow? (*record on class chart using matching colors of markers*)
- Look around our room. Can anyone find an object that is the color of purple? (*Point out object(s)*)
- What's another color that is like purple? (*students may or may not know of violet; point out on Crayola™ crayons, purple is labeled with violet in parentheses*)

Questioning Strategies



3. Discuss with students that color is one example of a property of objects. As a formative assessment and reinforcement of the recognition of the colors red, orange, yellow, green, blue, and violet, play a game of "I Spy" based upon the 6 colors.

4. Give each student 6 pieces of yarn or pipe cleaners. To check for each student's individual recognition of the 6 colors, call out the name of a color and have each student hold up the corresponding yarn or pipe cleaner. Ask students to place the colors in the order described in the book. Have students check their answers as you read the book aloud again.

Questioning Strategies

- Do we need to change any of our answers? *(Discuss as needed; have students compare their work and rearrange pieces of yarn or pipe cleaners as needed.)*
- I noticed that some of you placed your yarn into a curved shape. Why did you decide to do that? *(rainbows in sky are curved)*
- In the book, is the rainbow shown as a shape that is curved or straight? *(on last page curved; on ribbon page straight)*
- Show pages in book of colors placed in straight lines vs. curved shape.
- Which shape is like the one in our photos of natural rainbows in the sky? *(curved)*

Teachers of science need to help students recognize the properties of objects as emphasized in grade-level content standards.

National Science Education Standards, p. 116

ENGAGE

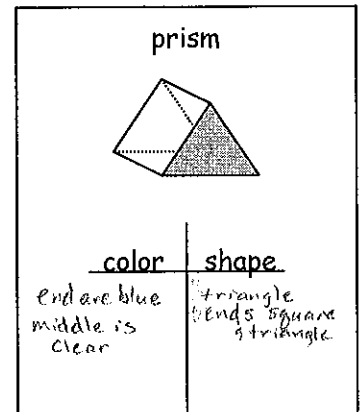


5. Discuss with students that so far we have used two properties to describe rainbows: color and shape. As a formative assessment and reinforcement of student recognition of the two properties, play a quick game of "I Spy" based upon objects having a particular color and shape with curved vs. straight sides. For example, "I Spy" something that is green and has a curved shape.

6. Ask students if they think it is possible to make the colors of the rainbow appear in the classroom. In small groups, have students discuss and then report to other groups their thoughts about if and how this can be done.

Questioning Strategies

- We are going to see if we can make the rainbow colors appear using our overhead projector and this object. Hold up water prism and allow students to observe it from different sides. Sketch the prism on class chart.
- What are two properties that we can use to describe this object? (*color and shape; acknowledge other responses as well*)
- In T-chart labeled "color" and "shape" discuss and record student suggestions for describing the two properties. (*ends are blue, middle is white or no color, etc.; shape has straight sides; two ends are shaped like a triangle, etc.*)



7. Ask students if they can see the colors of the rainbow in the prism. (*no*) What else do we need to make the colors appear? (*light from overhead projector*)

Questioning Strategies

- Before I turn on the projector, let's make some predictions based on what we know so far. What colors do you think we will see? Why? (*acknowledge responses*)
- Do you think we will see colors in a curved shape or in straight lines? Why? (*acknowledge responses*)

Prediction is the use of knowledge to identify and explain observations, or changes, in advance.

National Science Education Standards, p. 116

8. Using the water prism on the overhead, demonstrate the colors of the rainbow. Explain to students that it is necessary to move the prism around until you can see as many colors as possible on the ceiling or wall. Help students realize that it is important to try many different ways of allowing the light to pass through the prism.

Once a spectrum of colors is visible, discuss the following:

Questioning Strategies

- What colors do you see? (*record colors in order of appearance*)
- How would you describe the shape of colors? (*varies depending upon angle light enters prism*)
- If I turn the projector off, do you think we will still see the colors?
- Why not? What is coming out of the projector? (*light; turn projector off*)
- When I turn the projector on again, do you think we will see the colors?
- If we do see the colors again, which ones will we see?
- Do you think the colors will be in the same order? (*turn projector on*)
- Can you see the same colors as before? Are they in the same order?
- Are the colors in the light or in the prism? How do you know? (*acknowledge answers; concept will be revisited*)

9. Ask students if they think there are other ways to make light show the colors of the rainbow. Some students may bring up observations from past experiences such as oil on water puddle, glass ornaments hanging in a window, etc. Ask students if they would like to make light show the colors of the rainbow and what materials they think they might need. During the discussion, *make certain students do not leave out the fact that they will need light.*

EXPLORE

1. Provide each group of students a container of objects including a prism, diffraction grating, CD, bottle of bubble solution, flashlight, and data sheets. Explain to students that their job is to use the objects in the container to find out the best way to see as many of the colors of the rainbow as possible. Let students know that it may not be possible to see all 6 colors; however, they are to try and see as many colors as possible with each of the objects provided. Also point out to students that light is available from the ceiling fixtures, the flashlight, and, if applicable, from the windows.

SAFETY FIRST ALERT

Emphasize safety concerns including the following:

- * **Never, ever look directly into the Sun.** The Sun is so bright that it can hurt your eyes even if you are wearing sunglasses. However, it is okay to look in other parts of the sky.
- * Do not drink the bubble liquid or blow the bubbles into someone else's eyes.
- * If you get the bubble liquid in your eyes, tell your teacher immediately so that your eyes can be washed out.



2. Using an overhead transparency, discuss the format of the data sheet. In each box, students will use crayons to draw lines representing the colors and the order of the colors that they observe using that object.

MATERIALS (details p. 29)

For the class:

- overhead projector
- transparency of *Looking for Rainbow Colors Data Sheet, Master A*

For each group of students:

- prism
- diffraction grating
- compact disc
- bubble solution with wand
- flashlight

For each student:

- crayons
- Looking for Rainbow Colors Data Sheet, Master A*

3. Allow ample time for students to manipulate materials, look for colors of the rainbow, and discuss observations. Monitor as needed and encourage students to try various methods of investigation rather than just one.



4. Have students complete their data sheets by using crayons to record the colors they observe and the order in which they appear.



K through Grade 2:

An important part of students' exploration is telling others what they see, what they think, and what it makes them wonder about. Children should have lots of time to talk about what they observe and to compare their observations with those of others.

Benchmarks for
Science Literacy, p. 10

EXPLORE

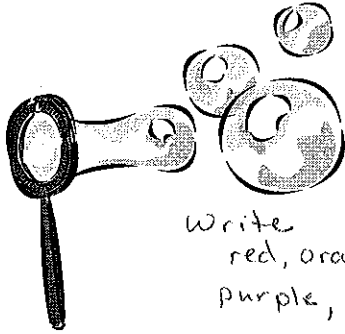
Looking for Rainbow Colors (See Master A)
Data Sheet



Use crayons to record what you see.

EXPLORE

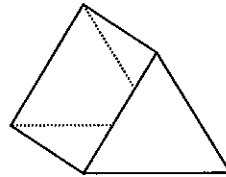
What colors did you see?



Write
red, orange, green, blue,
purple,

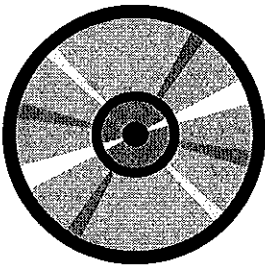
Use crayons to
mark colors
seen

What colors did you see?



Faintly see Orange's
red

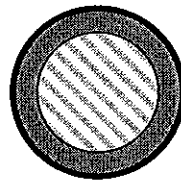
What colors did you see?



rainbow colors +
really bright colors
bright pink,
orange

indigo

reflecting slide
What colors did you see?



orange
yellow
green
blue
purple

EXPLAIN



1. Have students communicate their findings from the Explore activity by demonstrating and describing the procedures they used to find the colors of the rainbow. As students share their results, use matching colors of markers to record on the class chart the order of the colors observed for each of the tested objects.



2. Analyze compiled results with students. Did everyone see the same 6 colors with each object? Which object made the brightest display of colors? Did you see the same colors if you were using different kinds of light? (sunlight vs. flashlight vs. room lighting, etc.)



3. To reinforce the property of shape, ask students which of the objects they tested was shaped like a circle? Shaped like a rectangle? Shaped like a triangle? Which of the objects has curved sides? Has straight sides? Record discussion on class chart.



4. Based on students' prior experiences, either introduce or reinforce the concept of patterns by discussing the following information with students:

- Have you ever heard of the word pattern? (*Write the word "pattern" on class chart if students are at stage for written words to be appropriate.*)
- Can you give an example of a pattern?
- *If students are unable to give examples, provide some appropriate examples for them. (abc, abc, abc) (boy, girl, boy, girl) (day, night, day, night) (123, 123)*

Questioning Strategies

MATERIALS (details p. 30)

For the class:

- markers
- pictures and concrete objects to form patterns
- picture of prism and colored streamers
- laminated color cards, Master F-K
- story, *Prism, the Rainbow Pony*, Part 1 p. 14-15
- transparency, *Rainbow Data Sheet*, Master B
- overhead projector

For each student:

- crayons
- Rainbow Data Sheet*, Master B

EXPLAIN

Shapes		
○	□	△
circle (curved)	rectangle (straight)	triangle (straight)
bubble CD	slide	prism
bubble CD	slide	prism

K through Grade 2:

Students should know that shapes such as circles, squares, and triangles can be used to describe many things that can be seen.

Benchmarks for Science Literacy, p. 223

5. Display examples of patterns based upon colors and shapes using pictures or concrete objects. (*red, yellow, blue, red, yellow blue*) (*circle, square, triangle, triangle, circle, square, triangle, triangle, etc.*) Allow students opportunities to make their own patterns and ask another student to predict what would come next in the sequence. Circulate through the student groups conducting formative assessments and reteaching as needed.

6. Ask students to examine the information collected on the class chart about the colors they observed and conduct the following discussion:

- Do you notice anything special about our data? (*acknowledge all responses*)
- Do you see any patterns in our data? (*acknowledge all responses*)
- If we tried this same activity tomorrow, do you think we would see these same colors? Why or why not? (*acknowledge all responses*)
- If we took these materials to New York (or some other location) and tried this same activity, do you think we would see these same colors? Why or why not? (*acknowledge all responses*)
- If it rains tomorrow and we see a real rainbow in the sky, do you think we would see these same colors? Why or why not? Emphasize to students that in nature there are many beautiful patterns that we can observe, rely upon, and appreciate.
- In our activity, where did the beautiful colors come from? (*lead students to the answer of light*)
- In a real rainbow in the sky, where do the beautiful colors come from? (*light from sun*)
- Remember when we used the water prism to see the colors in the light from the overhead projector? Let's talk about how that happened.

Questioning Strategies

K through Grade 2

From the earliest grades, students should be asked to look for regularities in events, shapes, designs, and sets of numbers.

Benchmarks for Science Literacy, p. 217.

EXPLAIN

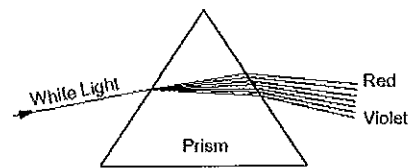
Science assumes that the behavior of the universe is not capricious, that nature is the same everywhere, and that it is predictable and understandable.

National Science Education Standards, p. 116.

Prism's Rainbow Teaching Guide

Grade K

7. Use a graphic display of a prism and colored streamers to model the separation of white light into the 6 colors of red, orange, yellow, green, blue, and violet. Have students compare how the light looked before it went into the prism vs. how it looked after it came out of the prism.



8. Make a "student rainbow" using large laminated color cards labeled with red, orange, yellow, green, blue, and violet. Give students one card each and have them join with 5 other students to arrange themselves in the correct color pattern.

9. Prior to reading the story about *Prism, the Rainbow Pony*, ask students to help list facts they know about rainbows that form in the sky on the class chart. This pre-reading activity will activate prior knowledge and allow the teacher to identify student misconceptions.

Possible student responses may include:

Rainbows are made up of colors.

Colors of the rainbow can be seen in bubbles.

Rainbows in the sky have a curved shape.

10. Read aloud Part 1 of *Prism, the Rainbow Pony*.

Explain that you will finish reading the story tomorrow.

Discuss the following:

- What were some of the things that Amanda's class used to make the colors of the rainbow? (*prism, CDs, plastic slides, bubbles*)
- Why did Amanda have so many questions?
- Why did Amanda's mom take her to the library? What else could Amanda do to find answers to her questions about rainbows? (*Internet or other sources such as talking to a relative*)
- Can you name the pattern of colors that make up a rainbow? Let's all say those colors aloud. (*red, orange, yellow, green, blue, violet*)

Questioning Strategies

Facts about Rainbo

1. Rainbows are made up of colors
2. Rainbows have a curved shaped.
3. Rainbows have the colors:
Red
Orange
Y
G
B
V
4. Rainbows are always in the same pattern.
5. Colors of Rainbow are visible in bubbles, CD, slide, prism

Children are curious about things from birth. By fostering student curiosity, teachers can reinforce the trait of curiosity generally and show that there are ways to go about finding answers to questions about how the world works. Students will gradually come to see that some ways of satisfying one's curiosity are better than others and that finding good answers and solutions is as much fun as raising good questions.

Benchmarks for
Science Literacy, p. 284

EXPLAIN

11. Have students turn to a neighbor and discuss why they think the pony in the story is named Prism.

12. As a formative assessment, have students complete the *Rainbow Data Sheet* using crayons or markers in the colors of the rainbow.

Prism, the Rainbow Pony

Book

EXPLAIN

Part 1

"I had fun at school today," Amanda announced when her mother picked her up from kindergarten. "First, we read a story called *What Makes a Rainbow?* Then, my teacher made a rainbow for us on the ceiling with the light from her overhead projector and a big, clear triangle-shaped container of water called a water prism. We found colors of the rainbow everywhere--on CD's, on some slides with plastic in the middle, and in bubbles! I know a lot about rainbows now, but I still have some questions. Can I catch a rainbow and hold it? Where do the colors come from? Why do we see a rainbow only sometimes after it rains? Why can't we see rainbows all the time? Are there any rules for seeing rainbows?"

"You certainly do have a lot of questions about rainbows!" said her mother. "We'll go to the library on our way home today to find some books that can help us learn more about rainbows."

Amanda was excited about going to the library because she liked to find new books to read. She especially enjoyed going to Story Hour at the library to listen to stories read by Miss Emmy, the children's librarian. When they got to the library, Amanda asked Miss Emmy if she knew of any books about rainbows.

"Why, I certainly do know of a wonderful book about rainbows!" said Miss Emmy. "In fact, I'm going to be reading a book called *Prism, the Rainbow Pony* during Story Hour today. It has the most beautiful pictures of rainbows I have ever seen! We will have a very special visitor with us to help make rainbow banners after the story so we can have a rainbow parade next week in the children's library."

Amanda and her mother went to find a seat close to the front of the children's reading room. She wanted to be able to see all of the beautiful pictures of rainbows clearly when Miss Emmy held up the book to show each page. Maybe she could ask the special visitor some of her rainbow questions!

All of the rest of the children came quietly into the children's reading room, and found places to sit. Soon Miss Emmy began reading the story, which began with a little girl seeing beautiful stripes of color across the sky after a rainstorm. When the little girl in the story asked, "What is that beautiful thing made out of stripes of color?" Amanda whispered that it was a rainbow! Miss Emmy smiled and turned the page.

On the next page, a beautiful pony appeared. It was silvery white and had a rainbow-colored mane and tail. Amanda was amazed to see that the colors of his mane were in the exact pattern that they had seen at school--red, orange, yellow, green, blue, and violet. There was a red band of color at the top of his mane near his ears. The violet band of color was at the bottom of his mane, near his back. His long, flowing tail was also in the rainbow pattern.

The rainbow pony said, "Hello, my name is Prism, the Rainbow Pony. As you can see, I have the same pattern of colors that you see in the sky, which is called a rainbow. Some people say that you can find a pot of gold at the end of a rainbow, but it has never been found by anyone. The true treasure of a rainbow is in its pattern of beautiful colors." Amanda noticed that the pony's name was the same as the triangular-shaped container of water on her teacher's overhead, and wondered why.....

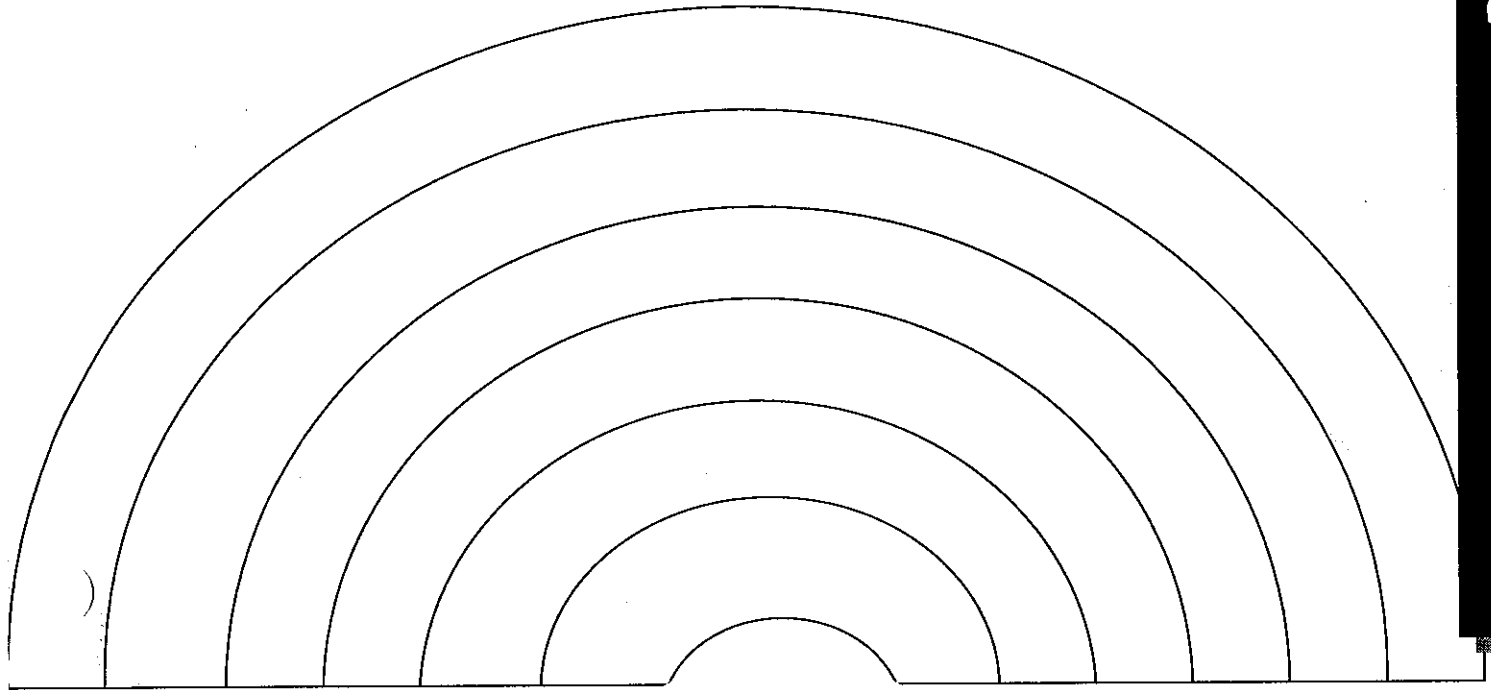
← Here ask
? from
page 12 &
13

Rainbow Data Sheet (See Master B)



the rainbow in the correct pattern of colors.

EXPLAIN



Which color is on TOP? _____

Formative Assessment

Which color is on BOTTOM? _____

ELABORATE

1. Congratulate students on a job well done while viewing their displayed *Rainbow Data Sheets* from yesterday. Have everyone review the pattern of colors by saying them aloud together.

2. Ask students if they remember the name of the story from yesterday. Group students together and continue reading Part 2 of the story.



3. After the story, discuss the following:

- Can you catch a rainbow that's in the sky? Why or why not?
- What are the 3 parts that we need to see a rainbow in the sky? (*use pictures of sun, water, and eye*)
- Why do we need the sun? (*gives the light*)
- Why do we need the water drops? (*bends light to make pattern of colors*)
- Why do we need our eyes? (*to see the colors*)
- Do we have to be standing in a certain place to see a rainbow in the sky? (*sun has to be behind you, and it has to be raining in front of you to see a rainbow*)
- Which color is at the top of a rainbow? (*red*)
- Which color is at the bottom of a rainbow? (*violet*)
- Why was the Rainbow Pony named "Prism"?
- What is the same about a prism and water drops in the sky? (*both can bend light into colors*)
- What is different about a prism and water drops in the sky? (*water drops are natural, prism is manmade; water drops are liquid, prism is solid; shapes are different, etc.*)

MATERIALS (details p. 31)

For the class:

- story, *Prism, the Rainbow Pony*, Part 2, pp. 20-22
- necklaces, *Colors of the Rainbow*, Masters L-T
- book, *The Eye Book*
- CD or tape player
- song, *Rainbow Connection*

For each group of students:

- card sets, *Colors of the Rainbow Cards*, Master U-V
- spray bottles of water

For each student:

- paper plates
- paper streamers (red, orange, yellow, green, blue, violet)
- glue

4. Go back to the pre-reading list of rainbow facts and add new items based on students' suggestions.

5. Using the *Colors of the Rainbow* necklaces, have students arrange themselves into a sequence that would model the parts necessary for the colors of light to form. Have each student tell the name of his/her part and why it is needed. Explain to students that all the parts of the "system" are necessary for us to see the rainbow of colors. Have students predict what would happen if certain parts were removed from the system. (*Remove the light, there will be no colors; remove the eye, we can't see the colors; remove the water drops or prism, nothing bends the light into colors so it just looks white.*)



6. Read aloud *The Eye Book* by Dr. Seuss. Discuss with students the importance of our eyes and why they are a necessary part of the system that allows us to see colors of the rainbow.

7. Provide a set of *Colors of the Rainbow* cards to small groups of students. Have students take turns selecting cards from the set that represent the parts needed for one example of a system that can form colors of the rainbow. After explaining his/her system to the group, the student returns the cards to the set and allows the next student to come up with a different combination of parts that could be used to form a pattern of rainbow colors. Circulate through the groups while conducting formative assessments and reteaching as needed.

8. Ask students if they can think of a way to see a rainbow up in the sky when it is not raining. What else, besides rain, could be used to make water drops? (*water spraying out of a sprinkler, a water fountain, or a waterfall, etc.*)

K through Grade 2

Students in the elementary grades acquire the experiences that they will use in the middle grades and beyond to develop an understanding of systems. Students should practice identifying the parts of things and how one part connects to and affects another. Students should predict the effects of removing or changing parts.

Benchmarks for
Science Literacy, p. 264

ELABORATE

9. On the playground, emphasize the spatial relationships such as behind, over, right, left, in front of, etc. by playing a simple game of "Follow Me". Have students use their bodies



to demonstrate positions in space as you call out the instructions such as "place your hands above your head, put your right hand behind your back, put your back to the sun, etc." Speed up the pace as students become more familiar with the game.



Give each small group of students a spray bottle filled with water. Ask them to follow the rainbow rule of "The sun behind you and water drops in front of you" as they make spray bottle rainbows.



This activity will work best in the early morning or late afternoon when the Sun is positioned lower in the sky.

**SAFETY
FIRST
ALERT**

Emphasize the importance of the sun in this activity but caution students that it is harmful to look directly into the sun.



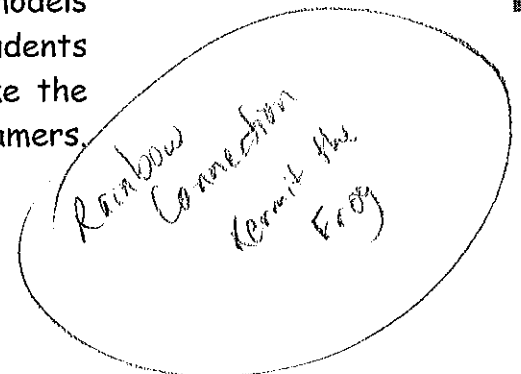
10. Have students make models of rainbows out of crepe paper streamers, glue, and paper plates. Stapling each streamer prolongs its attachment to the plate.

11. Play the song *Rainbow Connection* for students. Ask students to move their bodies to the beat of the music.



Help students identify the pattern they hear. Hold a "rainbow parade" by having students move through the room waving their paper plate models with streamers to the musical beat. Ask students

how the pattern they are hearing in the music is like the pattern they are seeing in the rainbow-colored streamers. How are the patterns different?



Prism, the Rainbow Pony

Part 2

Amanda looked around the room at all the students who were at Story Hour. It was easy to tell that the boys and girls were enjoying the book that Miss Emmy was reading.

The Rainbow Pony smiled and gave a small whinny of amusement. "A rainbow is beautiful," he said, "but it's really a system made of three parts: light, drops of water, and the eyes of a person looking for a rainbow. In fact, you can only catch a rainbow with your eyes!"

On the next page, the Rainbow Pony showed a picture of the parts of a rainbow system and explained each part.

A rainbow system is made of sunlight shining into drops of water to make a rainbow.

(The light from the rainbow must enter our eyes for us to see it!)



"A rainbow is formed by light. All of the colors are in the light. Most of the time, light looks white, like my white coat. We can't see the colors unless something causes the light to bend and separate into the colors of red, orange, yellow, green, blue, and violet. Light can be bent into the rainbow colors by things such as bubbles, CDs, special plastics called diffraction gratings, and prisms. I was named after the science tool called a prism. A prism is shaped like a triangle and is see-through. A famous scientist named Isaac Newton discovered many years ago that prisms cause white light to change into a pattern of rainbow colors.

Amanda was glad to have many of her questions answered, and to understand why the pony had the same name as the triangle-shaped container of water on her teacher's overhead projector. As Miss Emmy turned to the next page, Amanda saw the raindrops on the page, and was relieved to hear the little girl's last question, "Why don't we see rainbows every time it rains?"

"I am glad you asked that question," said Prism, the Rainbow Pony. The parts of a rainbow system have to be in a special order to work. If a part of the rainbow system is missing, you won't be able to see a rainbow. Here are some rules to follow when looking for a rainbow:

Rainbow Rules

1. Stand with the sun behind you and water drops in front of you when looking for rainbows. The water drops can be from rain, a sprinkler, or a water fountain.
2. The best time to look for a rainbow is early in the morning or late in the day after a rainstorm.
3. Rainbows always appear opposite from the Sun. (You cannot see a rainbow by looking into the Sun, and it is not good for your eyes to do so.)

On the last page of the book, Prism galloped off toward the next rainbow after thanking the children for their courteous behavior during Story Hour.

After the story, Miss Emmy introduced a special guest, Miss Suzy, who had come to help the children make paper plate rainbows. She asked them to decorate their plates with pictures about rainbows while she handed out six crepe paper streamers in the colors of the rainbow. Of course, Amanda's was very beautiful, because she drew a picture of Prism the

Rainbow Pony on the plate. She couldn't wait for the Rainbow Parade after next week's Story Hour. It would be a really special day, because it was going to happen on her birthday!

On the morning of her birthday, light shining in the window woke Amanda up very early. Sitting in the middle of the beam of light was a beautiful toy pony all her own! He had a soft white coat and a mane and tail of rainbow colors. (Can you guess what she named him?) Her mother said she could take him to school to show her teacher and to the library to show Miss Emmy. It was a very special day for Amanda. Her mother brought rainbow sprinkle cupcakes and rainbow sherbet for her party at school. Miss Emmy and all of her friends decided to let Amanda and Prism lead the rainbow parade at the library.

Follow-up
Questions from
P. 17 - 19

The Eye Book
§
Colors of Rainbow
Card sets

EVALUATE

1. After reading and discussing the story, creating spray bottle rainbows, and participating in the rainbow parade, add to the class list of what students know about rainbows. Class discussion will clarify any misconceptions before students complete the summative evaluation.

2. Have students complete the summative assessment sheet. In most cases, the teacher will need to read and explain the instructions and format as students mark and draw answers. In other cases, the teacher may need to read the questions and record the student's oral responses. To assist the kindergarten students' orientation on the sheet, small icons have been added to some lines. For example, prior to reading the instructions for the first item, the teacher can direct the students' attention to the box with the flower beside it. It is often helpful to have the student place the index finger of the hand they do not write with on top of the icon (left or right depending upon their handedness). After allowing ample time for students to mark their answer, the teacher can then direct attention to the box with the bunny beside it, and so on.

MATERIALS (details p. 31)

For the class:

- transparencies, *Colors of the Rainbow Assessment* sheets, Master C-E

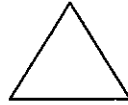
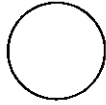
For each student:


- Colors of the Rainbow Assessment* sheets, Master C-E
- crayons

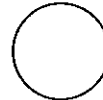
Colors of the Rainbow (See Masters C-E) Assessment

EVALUATE

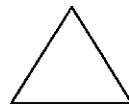
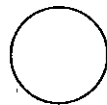
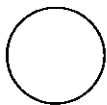
 Color the circle red, the square green, and the triangle violet.




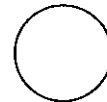
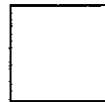
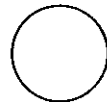
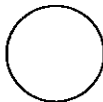
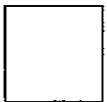
 Put an X on the shape with curved sides.



 Which part comes next in the pattern? Draw your answer.



 Which part comes next in the pattern? Draw your answer.



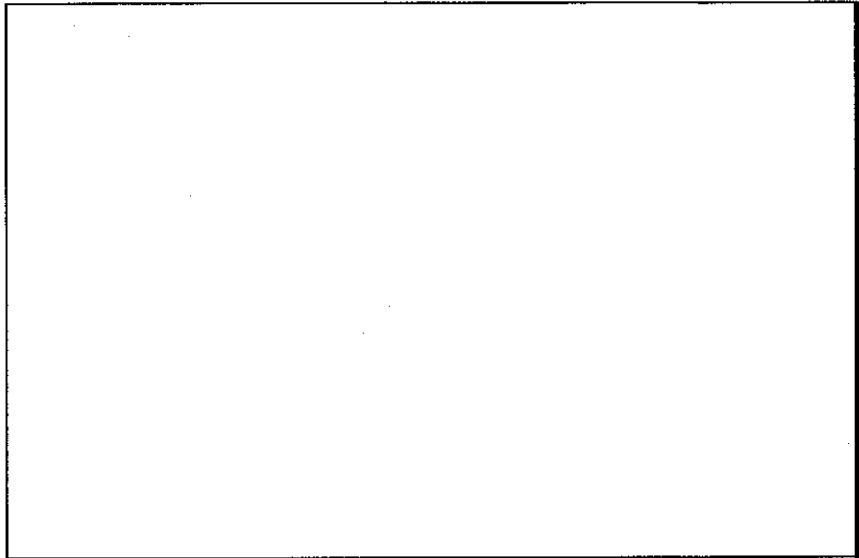
Prism's Rainbow

Teaching Guide

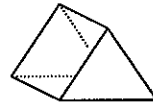
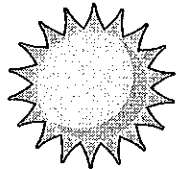
Grade K

EVALUATE

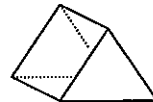
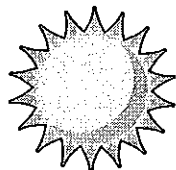
Draw a picture of a rainbow.
Use colors to make the right pattern.



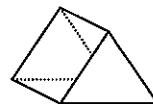
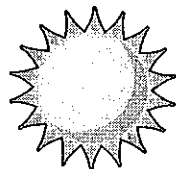
Which part do we use to see? Circle your answer.



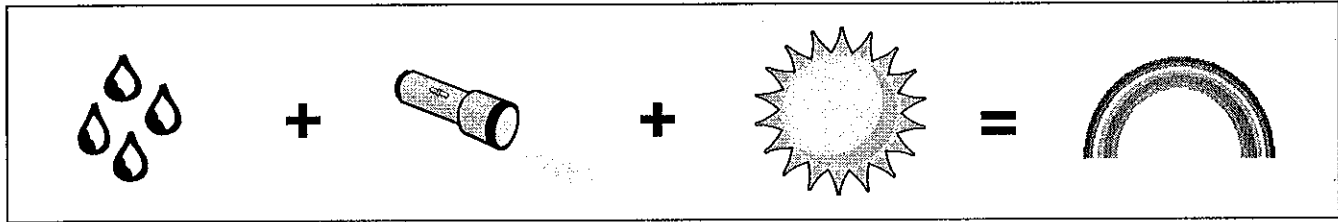
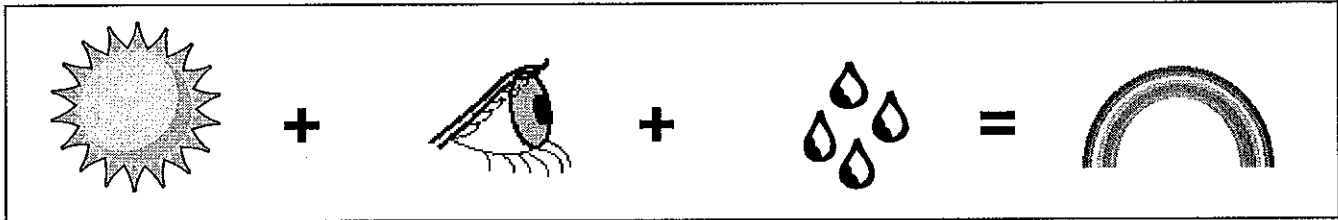
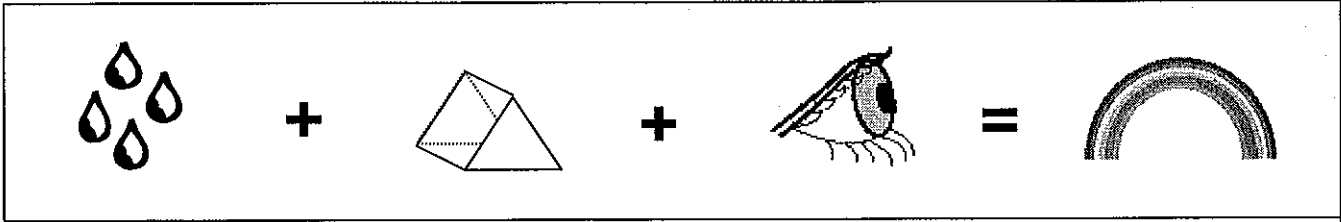
Which part gives us light? Circle your answer.



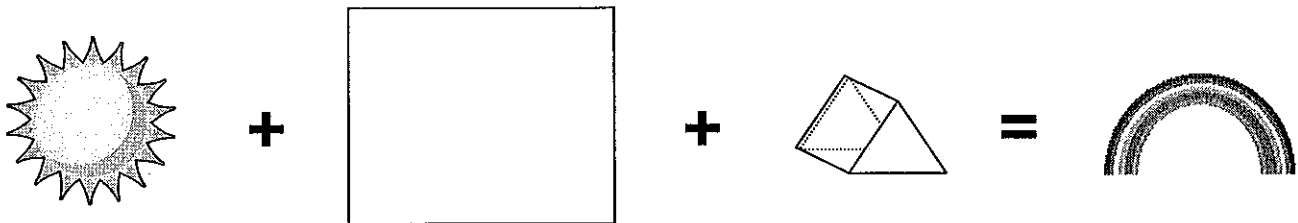
Which part can bend light into colors? Circle your answer.



Which of the following boxes best shows the parts that can make a rainbow? Circle your answer.



Draw the part in the box that is missing to make a pattern of rainbow colors.



Colors of the Rainbow Assessment Scoring Rubric

EVALUATE

TASK	CRITERIA	LEVELS OF PROFICIENCY		
		BEGINNING LEARNER	MEETING EXPECTATIONS	EXCEEDING EXPECTATIONS
TEKS K.5 Identify Properties & Patterns	Identifies properties	Identifies less than 2 shapes and colors	Identifies all 3 shapes and colors	Identifies all 3 shapes and colors plus recognizes shape with curved sides
	Identifies patterns	Does not identify next part in either given pattern	Identifies next part in 1 given pattern	Identifies next part in 2 given patterns
	Identifies pattern of colors in dispersed light (ROYGBV)	Includes less than 5 colors in correct sequence	Includes 5 colors in correct sequence	Includes all 6 colors in correct sequence
TEKS K.6 Analyze parts of a system	Identifies what given parts contribute to the system	Matches less than 2 parts to function	Matches 2 parts to function	Matches all 3 parts to function
	Identifies parts working together as system (eye, sun, object to disperse light)	Does not mark item correctly AND does not draw missing part	Marks item correctly OR draws missing part	Marks item correctly AND draws missing part

Materials Detail Sheet

Intro, stimulate interest
link to cognition -
brainstorming
prior knowledge

ENGAGE**For the class:**

- photos or slides of natural rainbows

Use photos from clip art, books, or personal collection that depict an actual rainbow in nature.

- book, *What Makes a Rainbow?* by Betty Ann Schwartz

ISBN 158117076-9

Currently available in the book section of popular discount stores. (\$8.95)

- 6 markers

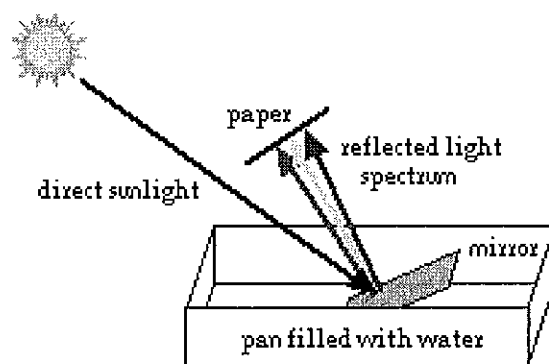
red, orange, yellow, green, blue, violet

- overhead projector

- water prism

Available from vendors of science teaching supplies by catalog order. (\$25)

OPTIONAL: If water prism is not available, use the following setup.



On a sunny day, fill a dish with water and rest a flat mirror against the inside. Use clay to hold the mirror still. Place the dish so that sunlight falls directly onto the mirror. Hold a sheet of white paper in front of the mirror and move its position until a rainbow of colors appears on it. You may need to adjust the positions of the mirror and the paper several times to get the desired results. The wedge of water between the mirror and the surface of the water acts as a prism and separates the white sunlight.

For each student:

- 6 pieces of yarn or pipe cleaners per student (red, orange, yellow, green, blue, violet)

Cut each piece into approximate lengths of 15 centimeters. Place each set of 6 into plastic bag.