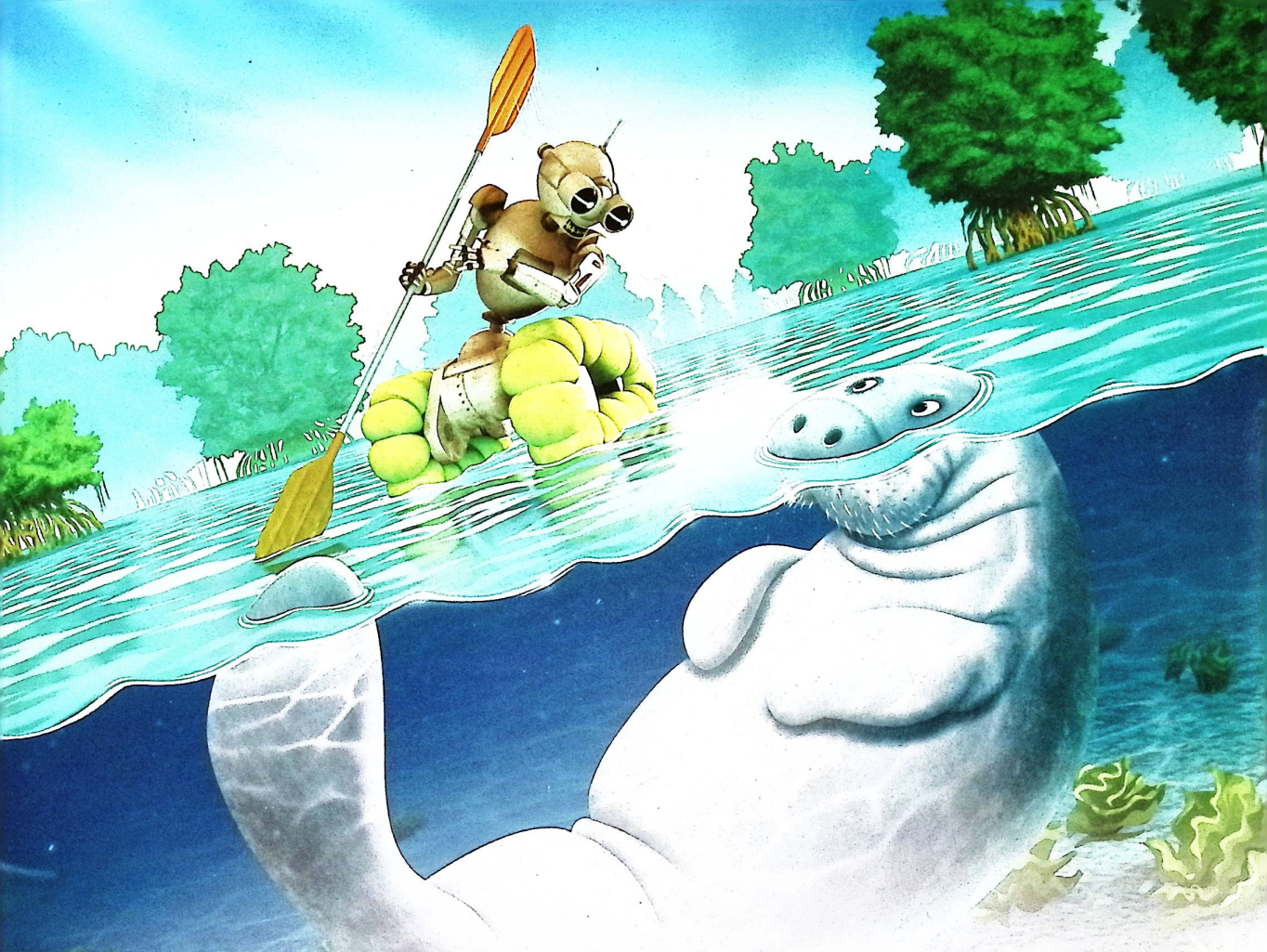


Teacher's Resource Masters

GRADE 4 VOLUME 2

Topics 8-16

Home-School Connection Letters
Pick a Project
enVision® STEM Activities
Daily Review
Reteach to Build Understanding
Build Mathematical Literacy
Enrichment
Teaching Tools

enVision® Mathematics

Grade 4
Volume 2: Topics 8–16

Topic 8
Extend Understanding of Fraction Equivalence and Ordering

Topic 8 Home-School Connection (English and Spanish)

Topic 8 Pick a Project A–D

enVision® STEM Activity.....8-5, 8-6

Daily Review (D).....8-1 through 8-7

Reteach to Build Understanding (R).....8-1 through 8-7

Build Mathematical Literacy (M).....8-1 through 8-7

Enrichment (E).....8-1 through 8-7

Topic 9
Understand Addition and Subtraction of Fractions

Topic 9 Home-School Connection (English and Spanish)

Topic 9 Pick a Project A–C

enVision® STEM Activity.....9-2, 9-7

Daily Review (D).....9-1 through 9-10

Reteach to Build Understanding (R).....9-1 through 9-10

Build Mathematical Literacy (M).....9-1 through 9-10

Enrichment (E).....9-1 through 9-10

Topic 10
Extend Multiplication Concepts to Fractions

Topic 10 Home-School Connection (English and Spanish)

Topic 10 Pick a Project A–D

enVision® STEM Activity.....10-2, 10-5

Daily Review (D)..... 10-1 through 10-5

Reteach to Build Understanding (R)..... 10-1 through 10-5

Build Mathematical Literacy (M)..... 10-1 through 10-5

Enrichment (E)..... 10-1 through 10-5

Topic 11
Represent and Interpret Data on Line Plots

Topic 11 Home-School Connection (English and Spanish)

Topic 11 Pick a Project A–C

enVision® STEM Activity.....11-1

Daily Review (D)..... 11-1 through 11-4

Reteach to Build Understanding (R)..... 11-1 through 11-4

Build Mathematical Literacy (M)..... 11-1 through 11-4

Enrichment (E)..... 11-1 through 11-4

Topic 12
Understand and Compare Decimals

Topic 12 Home-School Connection (English and Spanish)

Topic 12 Pick a Project A–D

enVision® STEM Activity.....12-3, 12-4

Daily Review (D)..... 12-1 through 12-6

Reteach to Build Understanding (R)..... 12-1 through 12-6

Build Mathematical Literacy (M)..... 12-1 through 12-6

Enrichment (E)..... 12-1 through 12-6

Topic 13
Measurement: Find Equivalence in Units of Measure

Topic 13 Home-School Connection (English and Spanish)

Topic 13 Pick a Project A–C

enVision® STEM Activity.....13-2, 13-5

Daily Review (D)..... 13-1 through 13-7

Reteach to Build Understanding (R)..... 13-1 through 13-7

Build Mathematical Literacy (M)..... 13-1 through 13-7

Enrichment (E)..... 13-1 through 13-7

Topic 14
Algebra: Generate and Analyze Patterns

Topic 14 Home-School Connection (English and Spanish)

Topic 14 Pick a Project A–D

enVision® STEM Activity.....14-3

Daily Review (D)..... 14-1 through 14-4

Reteach to Build Understanding (R)..... 14-1 through 14-4

Build Mathematical Literacy (M)..... 14-1 through 14-4

Enrichment (E)..... 14-1 through 14-4

Topic 15
Geometric Measurement: Understand Concepts of Angles and Angle Measurement

Topic 15 Home-School Connection (English and Spanish)

Topic 15 Pick a Project A–C

enVision® STEM Activity.....15-4, 15-5

Daily Review (D)..... 15-1 through 15-6

Reteach to Build Understanding (R)..... 15-1 through 15-6

Build Mathematical Literacy (M)..... 15-1 through 15-6

Enrichment (E)..... 15-1 through 15-6

Topic 16
Lines, Angles, and Shapes

Topic 16 Home-School Connection (English and Spanish)

Topic 16 Pick a Project A–D

enVision® STEM Activity.....16-4, 16-5

Daily Review (D)..... 16-1 through 16-6

Reteach to Build Understanding (R)..... 16-1 through 16-6

Build Mathematical Literacy (M)..... 16-1 through 16-6

Enrichment (E)..... 16-1 through 16-6

Teaching Tools.....1 through 33

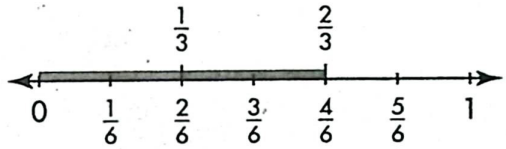
Name _____

Home-School Connection
Topic 8

Extend Understanding of Fraction Equivalence and Ordering

Dear Family,

Your child is learning about fractions. An important part of this topic is identifying equivalent fractions. Equivalent fractions name the same part of a whole. The number line below shows $\frac{1}{3}$ and $\frac{2}{6}$ are equivalent fractions, and $\frac{2}{3}$ and $\frac{4}{6}$ are equivalent fractions because they are the same distance from zero.



The concept of equivalent fractions will allow your child to compare fractions in this topic as well as add and subtract fractions in a later topic.

Fraction Match

Materials index cards and pencil

Make a set of fraction cards out of index cards or cut out those shown below. Each player picks 8 fraction cards. Have your child lay one card as the starting card in the center of the table. Players take turns connecting equivalent fractions to the starting card until all cards have been played or no further connections are possible.

$\frac{1}{2}$	$\frac{2}{4}$	$\frac{3}{6}$	$\frac{4}{8}$	$\frac{5}{10}$	$\frac{6}{12}$	$\frac{2}{3}$	$\frac{1}{3}$
○○○	▦	▦	○○○	▦	▦	▦	▦

$\frac{2}{6}$	$\frac{4}{12}$	$\frac{1}{4}$	$\frac{2}{8}$	$\frac{3}{12}$	$\frac{4}{6}$	$\frac{3}{4}$	$\frac{9}{12}$
▦	▦	○○	▦	▦	○○ ○○	▦	○○ ○○

Observe Your Child

Ask your child to create more fraction cards to extend the game.

Copyright © Savvas Learning Company LLC. All Rights Reserved.

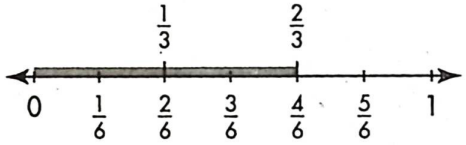
Nombre _____

De la escuela al hogar (en español)
Tema 8

Ampliar el conocimiento de la equivalencia y orden de las fracciones

Estimada familia:

Su niño(a) está aprendiendo sobre fracciones. Una parte importante de este tema consiste en identificar fracciones equivalentes. Las fracciones equivalentes nombran la misma parte de un todo. La siguiente recta numérica muestra que $\frac{1}{3}$ y $\frac{2}{6}$ son fracciones equivalentes y que $\frac{2}{3}$ y $\frac{4}{6}$ son fracciones equivalentes porque están a la misma distancia del cero.



El concepto de fracciones equivalentes le permitirá a su niño(a) comparar fracciones en este tema y también sumar y restar fracciones en un tema posterior.

Emparejar fracciones

Materiales tarjetas de fichero y lápiz

Haga un conjunto de tarjetas de fracciones con tarjetas de fichero o recorte las que se muestran abajo. Cada jugador toma 8 tarjetas de fracciones. Pida a su niño(a) que coloque una tarjeta en el centro de la mesa para comenzar. Los jugadores se turnan para unir fracciones equivalentes a la tarjeta inicial hasta que hayan usado todas las tarjetas o no haya más uniones posibles.

$\frac{1}{2}$	$\frac{2}{4}$	$\frac{3}{6}$	$\frac{4}{8}$	$\frac{5}{10}$	$\frac{6}{12}$	$\frac{2}{3}$	$\frac{1}{3}$
○○○	▦	▦	○○○	▦	▦	▦	▦

$\frac{2}{6}$	$\frac{4}{12}$	$\frac{1}{4}$	$\frac{2}{8}$	$\frac{3}{12}$	$\frac{4}{6}$	$\frac{3}{4}$	$\frac{9}{12}$
▦	▦	○○	▦	▦	○○ ○○	▦	○○ ○○

Observe a su niño(a)

Pídale que cree más tarjetas de fracciones para ampliar el juego.

Copyright © Savvas Learning Company LLC. All Rights Reserved.

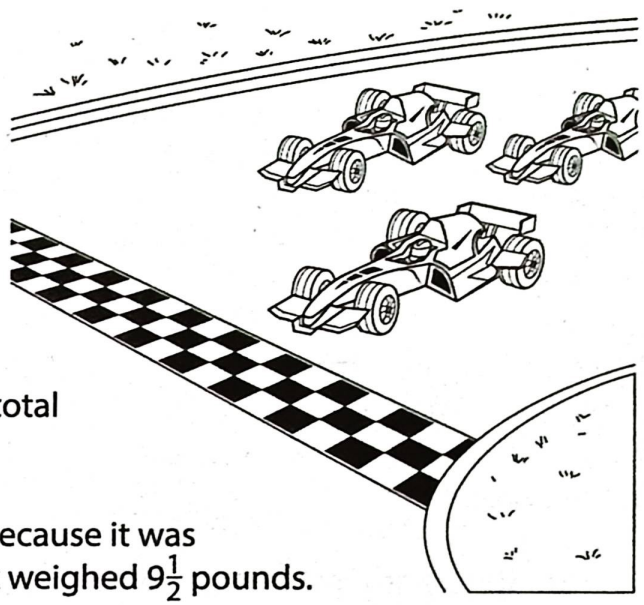
Name _____

Pick a Project

Project 8A

Indianapolis Motor Speedway

The Indianapolis Motor Speedway is the largest sporting facility in the world. It can hold up to 400,000 people! The speedway, located in Indiana, was built in 1909. It includes a racetrack that is exactly $2\frac{1}{2}$ miles (4 km) long.



The Indy 500 is probably the most well-known race held at the Speedway. During that event, race cars travel 200 laps around the track for a total distance of 500 miles.

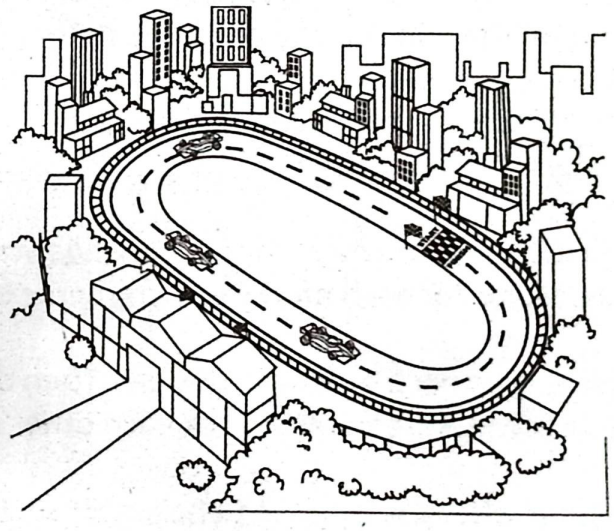
The Speedway is also known as the Brickyard because it was paved in 1911 with $3\frac{1}{5}$ million bricks. Each brick weighed $9\frac{1}{2}$ pounds.

It has since been paved over with asphalt, except for a small strip near the finish line. Winners have a tradition of kissing the bricks to honor the history of the Speedway.

Your Project Create a Fraction Game

Many facts related to the Indianapolis Motor Speedway involve measurements that can be written as fractions or mixed numbers. Have an adult help you research some of these interesting facts.

Use your questions and answers to create a game. You can model your game after an existing game such as bingo or *Jeopardy*, or you can make up your own game.



Create a game card that lists the materials needed, the number of players, the rules, and the goal (or how to win). Then, test the game with your friends or family. Adjust the rules, add or delete questions, and fix incorrect answers as needed.

Copyright © Savvas Learning Company LLC. All Rights Reserved.

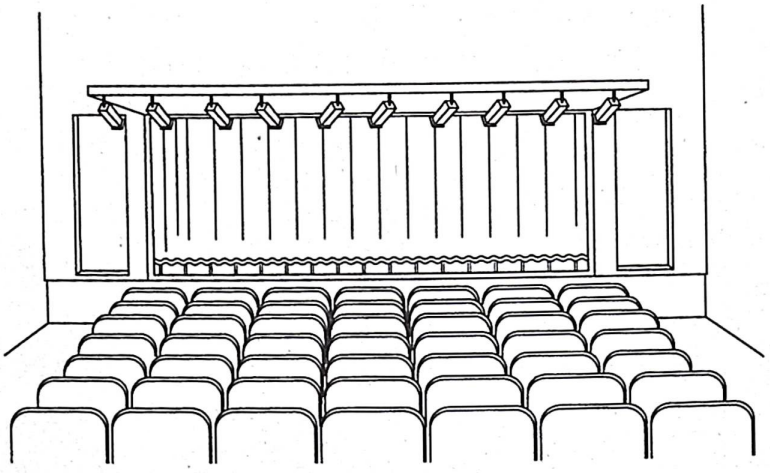
Name _____

Pick a Project

Project 8B

All the World's a Stage

Next time you see a live theater production, such as a play or musical, think about the structures and lighting on stage. Sure, there are actors performing on the stage. But how is the scenery created? It is done by a stage crew.

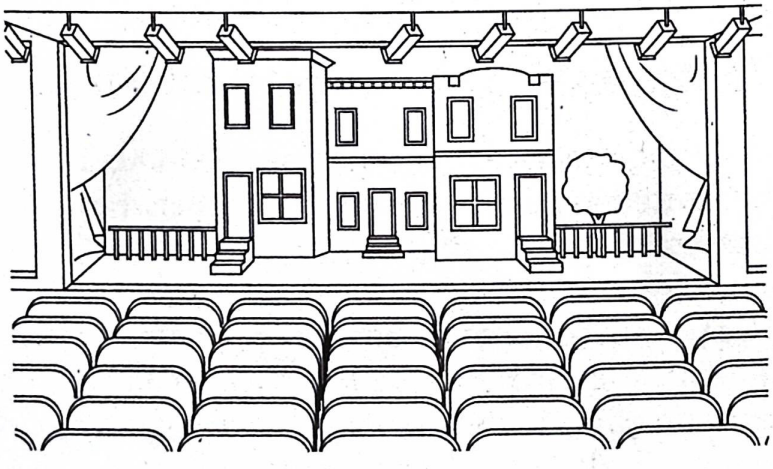


The stage crew are members of the production. These people are in charge of various technical aspects of the production.

Some of the stage crew builds the stage sets. Others are responsible for lighting. Sometimes the scenes may change and the lights turn dimmer, depending on the mood that needs to be conveyed. So while actors say their lines, the setting is important, too!

Your Project Build a Model

With a partner, build a set for a two-act play. You and your partner build two models, one for each act, before the full stage production begins. Decide what your play is about. What would the two sets be for each part? Do the scenes take place inside or out? Does the set need windows and doors? It's up to you.



First, design the model for Act 1 while your partner designs the model for Act 2. Label all measures for each model in increments of $\frac{1}{2}$ inch.

Next, give each other the designs. Then each of you converts all measurements into $\frac{1}{8}$-inch measurements. Check each other's work. Now you can build the models!

Materials: rulers, paper, pencil, craft sticks for models, tape, glue

Copyright © Savvas Learning Company LLC. All Rights Reserved.

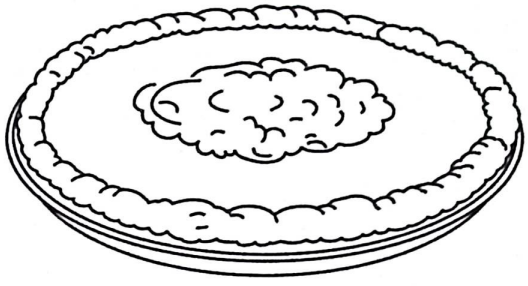
Name _____

Pick a Project

Project 8C

Part of a Pie

Do you have a favorite type of pie?



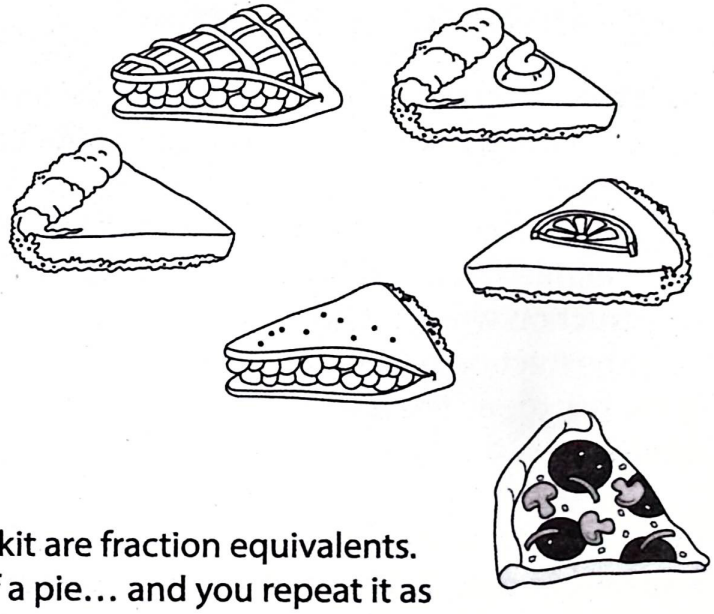
Many people like pies that are made of fruit, chocolate, or other ingredients.

Pizzas are often called "pizza pies" because they are usually round in shape. Legends say that the first pizza was made in Italy for King Umberto 1 and Queen Margherita. It had tomatoes, mozzarella cheese, and basil. Today there is a type of pizza known as Pizza Margherita.

Pizza was brought to the United States by people from Italy. The first pizzeria, or a restaurant that sold pizza, opened in1905 by a grocer in New York City.

Your Project Write and Perform a Skit

The name of your skit is "Pie in the Sky." You own a shop that makes pies. It can be any kind of pie: pizza, apple, pumpkin… anything you like.



Every pie you sell comes in different sizes. You choose. Maybe some are cut into 8 pieces, some 6 pieces. Maybe you have a huge pie that is cut into many pieces! Or maybe you put numbers in a hat and pick.

The only thing you have to write into your skit are fraction equivalents. Perhaps your customer asks for a fraction of a pie… and you repeat it as its fraction equivalent. Or you can involve the audience to guess a fraction equivalent of an order. You decide! The show must go on!

Materials: paper, pencil

Copyright © Savvas Learning Company LLC. All Rights Reserved.

Name _____

Pick a Project

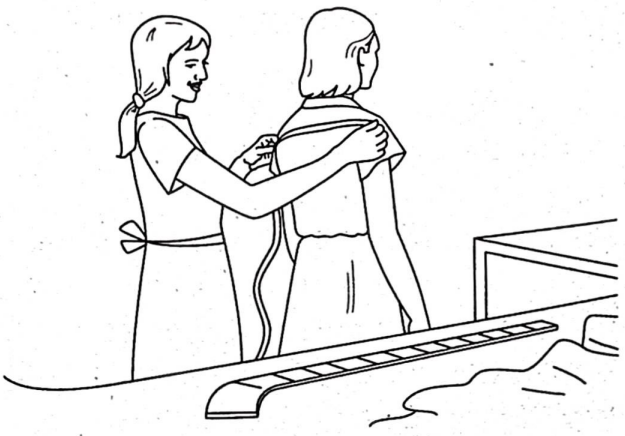
Project 8D

Tailor Made

A tailor is a person who makes fitted clothes such as shirts, suits, and pants to fit individual customers.

Maybe an older family member gives you a jacket you love. The only problem is that the sleeves are too long!

You can take it to a tailor, who will measure your arms, and then cut the fabric and sew it back up. The sleeves will be shortened so that it fits! Now, when you get older and grow out of the jacket, whom will you give it to?



Your Project: Create a Game

With a partner, make up a game and all of its rules. The object of the game is to find equivalent fractions.

$\frac{1}{3}$

For example, one of you might pretend to have a job that deals with fractions, such as a tailor or a construction worker who cuts wood. One of you says only the fraction part of the measurement, and the other has to say the fraction equivalent and how you found it.

$\frac{2}{6}$

But that's just an example. You decide the rules and how to play. Tell how to keep score. How does someone win? Is there overtime or bonus points? Have fun!

$\frac{4}{12}$

Materials: paper, pencil

Copyright © Savvas Learning Company LLC. All Rights Reserved.

Name _____

enVision® STEM Activity 8-5

Color Vision

Did You Know? A majority of humans can see all colors of the visible-light spectrum. These colors include violet, indigo, blue, green, yellow, orange, and red. Some animals can only see a portion of the visible-light spectrum. For example, rabbits are believed to see only blues and greens.

Color	Correctly Selected
Violet	$\frac{1}{3}$
Blue	$\frac{10}{12}$
Green	$\frac{7}{12}$
Yellow	$\frac{3}{5}$
Orange	$\frac{2}{5}$
Red	$\frac{1}{6}$

In order to determine which colors the animal can see, scientists show the animal three panels. Two of the panels are black and one panel is one color from the visible-light spectrum. If the animal touches the colored panel, then a piece of food is provided. The table above shows the results of a color-spectrum experiment for a squirrel. The **Correctly Selected** column indicates that the squirrel correctly identified the color panel that fraction of the 12 times it was tested. For example, the squirrel correctly identified the violet panel $\frac{1}{3}$ of the times it was tested.

1. Use a benchmark fraction to compare the fraction of times the squirrel correctly selected violet to the fraction of times the squirrel correctly selected red.

_____

2. Use a benchmark fraction to compare the fraction of times the squirrel correctly selected green to the fraction of times the squirrel correctly selected red.

_____

3. Use a benchmark fraction to compare the fraction of times the squirrel correctly selected violet to the fraction of times the squirrel correctly selected blue.

_____

4. **Extension** An animal is believed to see a color when it correctly selects the colored panel greater than $\frac{1}{2}$ of the times it is tested. Which two colors is the squirrel believed to see?

_____

Copyright © Savvas Learning Company LLC. All Rights Reserved.