ORIGO STEPPING STONES 2.0

DRAFT

Virginia Supplement

Grade	Standards of learning (SOL)		Supplement lesson
K	**K.2b**	The student, given no more than three sets, each set containing 10 or fewer concrete objects, will compare and order sets from least to greatest and greatest to least.	**Ordering objects** In this lesson, students order three sets of objects from least to greatest and greatest to least.
	K.5	The student will investigate fractions by representing and solving practical problems involving equal sharing with two shares.	**Sharing between two** In this lesson, students use grouping and sharing mats to help share quantities equally between two groups. **Making equal shares** In this lesson, students partition everyday objects into two equal shares.
	K.8	The student will investigate the passage of time by reading and interpreting a calendar.	**Investigating the months of the year** In this lesson, students interpret a calendar. **Working with the days of the week** In this lesson, students name the seven days of the week. They also identify the day before or after a given day.
	K.9	The student will compare two objects or events, using direct comparisons, according to one or more of the following attributes: length (longer, shorter), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder), volume (more, less), and time (longer, shorter).	**Discussing hot and cold temperatures** In this lesson, students make direct comparisons to identify examples of hot and cold.
	K.11b	The student will read and interpret data in object graphs, picture graphs, and tables.	**Making a block graph** In this small group activity, students make a block graph to show their favorite animal at the zoo.
1	**1.4a**	The student will represent and solve practical problems involving equal sharing with two or four sharers.	**Identifying one-half and one-fourth (set model)** In this lesson, students share collections of cubes equally between two and then four groups.
	1.5a	The student, given a familiar problem situation involving magnitude, will select a reasonable order of magnitude from three given quantities: a one-digit numeral, a two-digit numeral, and a three-digit numeral (e.g., 5, 50, 500).	**Exploring magnitude** In this lesson, students provide reasonable estimates for everyday problems involving magnitude.
	1.5b	The student, given a familiar problem situation involving magnitude, will explain the reasonableness of the choice.	**Exploring magnitude** In this lesson, students provide reasonable estimates for everyday problems involving magnitude.
	1.9b	The student will investigate the passage of time and read and interpret a calendar.	**Working with the calendar** In this lesson, students read and interpret a calendar.
	1.13	The student will sort and classify concrete objects according to one or two attributes.	**Recognizing and describing features of everyday objects** In this lesson, students identify everyday objects and describe their defining features.

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Virginia Supplement

Grade	Standards of learning (SOL)		Supplement lesson
2	**2.1d**	Round two-digit numbers to the nearest ten.	**Rounding numbers to the nearest ten** In this lesson, students use the aid of a curvy number line to help round two-digit numbers to the nearest ten.
	2.3a	The student will count and identify the ordinal positions first through twentieth, using an ordered set of objects.	**Matching ordinal number names and symbols** In this lesson, ordinal number names are extended to twentieth (and beyond) through the investigation of birthdays and calendars.
	2.3b	The student will write the ordinal numbers 1st through 20th.	**Matching ordinal number names and symbols** In this lesson, ordinal number names are extended to twentieth (and beyond) through the investigation of birthdays and calendars.
	2.4a	The student will name and write fractions represented by a set, region, or length model for halves, fourths, eighths, thirds, and sixths.	**Recording fractions and the relationship of the parts to the whole (set model)** In this lesson, students read and write unit fractions using a set model.
	2.4c	The student will compare the unit fractions for halves, fourths, eighths, thirds, and sixths, with models.	To address this standard teachers are redirected to Grade 3, Module 8, Lessons 8 and 9.
	2.7a	The student will count and compare a collection of pennies, nickels, dimes, and quarters whose total value is $2.00 or less.	**Identifying and comparing amounts of money (coins)** In this lesson, students identify and compare amounts of money (coins).
	2.7c	The student will use the cent symbol, dollar symbol, and decimal point to write a value of money.	**Identifying and comparing amounts of money (coins)** In this lesson, students identify and compare amounts of money (coins).
	2.10a	The student will determine past and future days of the week.	**Working with the calendar** In this lesson, students interpret a calendar and identify given dates.
	2.10b	The student will identify specific days and dates on a given calendar.	**Working with the calendar** In this lesson, students interpret a calendar and identify given dates.
	2.11	The student will read temperature to the nearest 10 degrees.	**Reading temperatures on a scale** In this lesson, students read, write, and represent temperatures that are shown on a thermometer.
	2.12a	The student will draw a line of symmetry in a figure.	**Making shapes with mirror lines** In this lesson, students are given instructions to make a reflection. They also draw the other side of a reflected shape.
	2.12b	The student will identify and create figures with at least one line of symmetry.	**Making shapes with mirror lines** In this lesson, students are given instructions to make a reflection. They also draw the other side of a reflected shape.
	2.14	The student will use data from probability experiments to predict outcomes when the experiment is repeated.	**Predicting outcomes of a chance experiment** In this lesson, students predict outcomes of a chance experiment.
	2.16	The student will identify, describe, create, extend, and transfer patterns found in objects, pictures, and numbers.	**Exploring patterns** In this lesson, students describe, create, and extend repeating and growing patterns. **Translating patterns** In this lesson, students translate repeating patterns.
	2.17	The student will demonstrate an understanding of equality through the use of the equal symbol and the use of the not equal symbol.	**Balancing addition equations** In this lesson, students use a pan balance model to balance equations.

ORIGO STEPPING STONES 2.0

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Virginia Supplement

Grade	Standards of learning (SOL)		Supplement lesson
3	**3.5**	The student will solve practical problems that involve addition and subtraction with proper fractions having like denominators of 12 or less.	To address this standard teachers are redirected to Grade 4, Module 7, Lesson 5 and Grade 4, Module 7, Lesson 8.
	3.6b	The student will compare the value of two sets of coins or two sets of coins and bills.	**Working with money** In this lesson, students compare values of bills and coins and make transactions.
	3.6c	The student will make change from $5.00 or less.	**Working with money** In this lesson, students compare values of bills and coins and make transactions.
	3.7a	The student will estimate and use U.S. Customary and metric units to measure length to the nearest $\frac{1}{2}$ inch, foot, yard, centimeter, and meter.	To address these standards teachers are redirected to Grade 2, Module 4, Lessons 7–9 and Grade 2, Module 9, Lessons 9–11.
	3.9b	The student will solve practical problems related to elapsed time in one-hour increments within a 12-hour period.	The lesson notes for Grade 3, Module 2, Lesson 9 will be adjusted to meet this standard.
	3.10	The student will read temperature to the nearest degree.	**Reading temperatures on a scale** In this lesson, students read, write, and represent temperatures that are shown on a thermometer.
	3.12a	The student will define polygon.	**Combining and subdividing polygons** In this lesson, students review the definition of a polygon. They then combine and subdivide polygons.
	3.12c	The student will combine and subdivide polygons with three or four sides and name the resulting polygon(s).	**Combining and subdividing polygons** In this lesson, students review the definition of a polygon. They then combine and subdivide polygons.
	3.14	The student will investigate and describe the concept of probability as a measurement of chance and list possible outcomes for a single event.	**Identifying outcomes of everyday chance events** In this lesson, students list the possible outcomes of a chance event (for example, taking a certain color cube from an opaque bag). They also design chance events to match language.
	3.17	The student will create equations to represent equivalent mathematical relationships.	**Exploring equality (more than two addends)** In this lesson, students identify equivalent and non-equivalent relationships.
4	**4.2c**	The student will identify the division statement that represents a fraction, with models and in context.	To address this standard teachers are redirected to Grade 5, Module 9, Lesson 1.
	4.3b	The student will round decimals to the nearest whole number.	To address this standard teachers are redirected to Grade 5, Module 3, Lesson 10.
	4.11	The student will identify, describe, compare, and contrast plane and solid figures according to their characteristics (number of angles, vertices, edges, and the number and shape of faces) using concrete models and pictorial representations.	To address this standard teachers are redirected to Grade 3, Module 12, Lessons 8 and 9.
	4.12	The student will classify quadrilaterals as parallelograms, rectangles, squares, rhombi, and/or trapezoids.	To address this standard teachers are redirected to Grade 3, Module 2, Lesson 12.
	4.13a	The student will determine the likelihood of an outcome of a simple event.	**Quantifying the language of chance** In this lesson, students quantify the language of chance by assigning values from 0 to 1 to everyday language.

ORIGO STEPPING STONES 2.0

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Virginia Supplement

Grade	Standards of learning (SOL)		Supplement lesson
4	**4.13b**	The student will represent probability as a number between 0 and 1, inclusive.	**Using fractions to describe probabilities** In this lesson, students quantify the chance of spinning or not spinning colors or combinations of colors on a spinner. The spinner is partitioned into ten equal parts, allowing students to relate common fractions and decimal fractions.
	4.13c	The student will create a model or practical problem to represent a given probability.	**Using fractions to describe probabilities** In this lesson, students quantify the chance of spinning or not spinning colors or combinations of colors on a spinner. Students then color a spinner or write a story to match a given probability.
	4.14a	The student will collect, organize, and represent data in bar graphs and line graphs.	**Working with bar graphs** In this lesson, students collect, represent, and interpret data in bar graphs.
	4.14b	The student will interpret data represented in bar graphs and line graphs.	**Working with line graphs** In this lesson, students collect, represent, and interpret data in line graphs.
	4.14c	The student will compare two different representations of the same data (e.g., a set of data displayed on a chart and a bar graph, a chart and a line graph, or a pictograph and a bar graph.	**Comparing bar graphs and line graphs** In this lesson, students compare two different representations of the same data.
	4.16	The student will recognize and demonstrate the meaning of equality in an equation.	**Exploring equality** In this lesson, students use a range of operations to identify equivalent and non-equivalent relationships.
5	**5.3a**	The student will identify and describe the characteristics of prime and composite numbers.	**Identifying prime and composite numbers** In this lesson, students apply what they know about the characteristics of odd and even numbers to help identify numbers that are prime or composite.
	5.3b	The student will identify and describe the characteristics of even and odd numbers.	**Identifying prime and composite numbers** In this lesson, students apply what they know about the characteristics of odd and even numbers to help identify numbers that are prime or composite.
	5.10	The student will identify and describe the diameter, radius, chord, and circumference of a circle.	**Identifying parts of a circle** In this lesson, students identify the parts of a circle: circumference, center, radius, diameter, and chord. They use a compass to draw circles to match given criteria.
	5.11	The student will solve practical problems related to elapsed time in hours and minutes within a 24-hour period.	**Working with elapsed time** In this lesson, students solve problems involving periods of elapsed time.
	5.13b	Investigate the sum of the interior angles in a triangle and determine an unknown angle measure.	**Examining angles around a point** In this lesson, students use a benchmark of 180° to calculate an unknown angle inside a triangle.
	5.14a	The student will recognize and apply transformations, such as translation, reflection, and rotation.	**Working with transformations** In this lesson, students identify and apply translations, reflections, and rotations.
	5.14b	The student will investigate and describe the results of combining and subdividing polygons.	**Combining and subdividing polygons** In this lesson, students describe the results of combining and subdividing polygons.
	5.15	The student will determine the probability of an outcome by constructing a sample space or using the Fundamental (Basic) Counting Principle.	**Working with probability** In this lesson, students create lists, tree diagrams, and two-way tables to calculate the sample space of everyday chance events.
	5.16a	The student, given a practical problem, will represent data in line plots and stem-and-leaf plots.	**Working with line plots** In this lesson, students represent and interpret data in a line plot.

ORIGO STEPPING STONES 2.0

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Virginia Supplement

Grade	Standards of learning (SOL)		Supplement lesson
5	**5.16b**	The student, given a practical problem, will interpret data represented in line plots and stem-and-leaf plots.	**Working with stem-and-leaf plots** In this lesson, students represent and interpret data in a stem-and-leaf plot.
	5.16c	The student, given a practical problem, will compare data represented in a line plot with the same data represented in a stem-and-leaf plot.	**Solving real-world problems on line plots and stem-and-leaf plots** In this lesson, students relate line plots and stem-and-leaf plots to solve everyday problems relating to mass.
	5.17a	The student, given a practical context, will describe mean, median, and mode as measures of center.	To address this standard teachers are redirected to Grade 6, Module 9, Lessons 5–8.
	5.17b	The student, given a practical context, will describe mean as fair share.	To address this standard teachers are redirected to Grade 6, Module 9, Lesson 8.
	5.17c	The student, given a practical context, will describe the range of a set of data as a measure of spread.	To address this standard teachers are redirected to Grade 6, Module 9, Lessons 5–8.
	5.17d	The student, given a practical context, will determine the mean, median, mode, and range of a set of data.	To address this standard teachers are redirected to Grade 6, Module 9, Lessons 5–8.
6	**6.7a**	The student will derive π (pi).	**Calculating the area of a circle** In this lesson, students are introduced to the concept of pi. This understanding is then applied to calculate the area of a circle.
	6.7b	The student will solve problems, including practical problems, involving circumference and area of a circle.	**Calculating the area of a circle** In this lesson, students are introduced to the concept of pi. This understanding is then applied to calculate the area of a circle.
	6.9	The student will determine congruence of segments, angles, and polygons.	**Identifying congruent shapes** In this lesson, students identify congruent and non-congruent polygons.
	6.10a	The student, given a practical situation, will represent data in a circle graph.	**Creating and interpreting circle graphs** In this lesson, students build upon their understanding of percentage to create and interpret a circle graph.
	6.10b	The student, given a practical situation, will make observations and inferences about data represented in a circle graph.	**Creating and interpreting circle graphs** In this lesson, students build upon their understanding of percentage to create and interpret a circle graph.
	6.10c	The student, given a practical situation, will compare circle graphs with the same data represented in bar graphs, pictographs, and line plots.	**Comparing circle graphs and bar graphs** In this lesson, students compare two different representations of the same data.

ORIGO STEPPING STONES 2.0

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Virginia Supplement

Summary of Virginia Supplement Lessons

Standards of learning (SOL)		Supplement lesson	Summary
2.4a	The student will name and write fractions represented by a set, region, or length model for halves, fourths, eighths, thirds and sixths.	Recording fractions and the relationship of the parts to the whole (set model)	The lesson below provides an example of how ORIGO Education will represent the fractions set model in the Virginia Supplement.
2.4b	The student will represent fractional parts with models and with symbols.		

Standards of learning (SOL)		Supplement lesson	Summary
3.14	The student will investigate and describe the concept of probability as a measurement of chance and list possible outcomes for a single event.	Probability: Describing the likelihood of a chance event	The lessons below provide examples of how ORIGO Education will address probability across Grades 3–5 in the Virginia Supplement.
4.13a	The student will determine the likelihood of an outcome of a simple event.	Probability: Determining the likelihood of an outcome	
4.13b	The student will represent probability as a number between 0 and 1, inclusive.		
5.15	The student will determine the probability of an outcome by constructing a sample space or using the Fundamental (Basic) Counting Principle.	Probability: Working with sample space	

Virginia Supplement Student Journal (DRAFT)

Standards of learning (SOL): 2.4a, 2.4b – The student will model, name, and write fractions represented by a set, region, or length model for halves, fourths, eighths, thirds, and sixths.

ORIGO STEPPING STONES 2.0

Recording fractions and the relationship of the parts to the whole (set model)

Step In Look at this picture.

How many drinks do you see?

How many drinks have a straw?

What fraction of the drinks have a straw?

Write a numeral to show the number of drinks with a straw. Then write a numeral to show the number of drinks in total.

___ drink has a straw
___ drinks in total

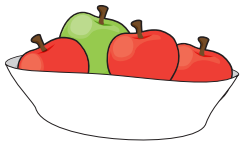
Step Up

1. Write the fraction to match each picture.

a.

___ yellow flower
___ flowers in total

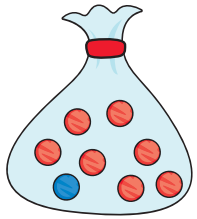
b.



___ green apple
___ apples in total

2. Write a fraction to match each picture.

a.

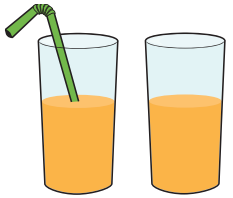


___ blue marble
___ marbles in total

b.

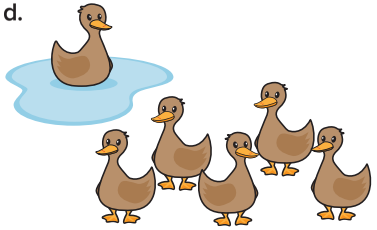
___ hat with dots
___ hats in total

c.



___ drink has a straw
___ drinks in total

d.



___ duck swimming
___ ducks in total

Step Ahead Draw a picture to match the fraction.

$\frac{1}{8}$ bird flying
birds in total

Virginia Supplement Student Journal (DRAFT)

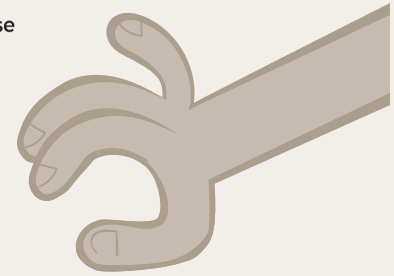
Standards of learning (SOL): 3.14 – The student will use everyday language to describe the likelihood of chance events.

ORIGO STEPPING STONES 2.0

Probability: Describing the likelihood of a chance event

Step In

Imagine you take a pencil from this case without looking.

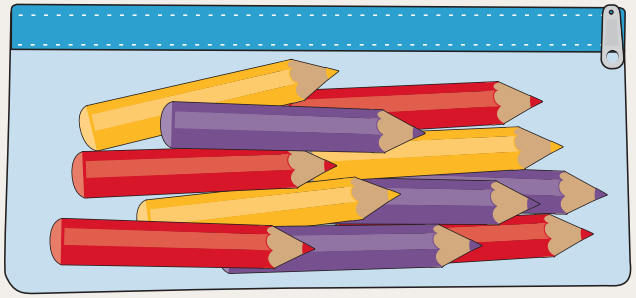


What color pencils can you take from the case?

What color cannot be taken from the case?

What color pencils are most likely to be taken?

What color are you least likely to take out?



Step Up

1. Look at the pencil case above. Write the **color** of the pencil to make each sentence true.

a. _____ is more likely than _____.

b. _____ and _____ are equally likely.

c. It is certain that you will take out _____.

d. It is impossible to take out _____.

e. _____ or _____ are very likely.

2. Jake has removed one red pencil from the case on page 6. Use the labels to complete each sentence.

certain	impossible	more likely	less likely	equally likely

a. Purple is now _____ than red.

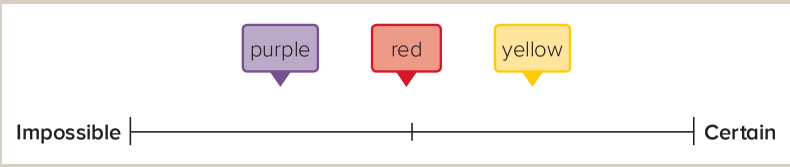
b. Yellow and red are now _____.

c. Red and yellow are now _____ than purple.

d. Green is _____.

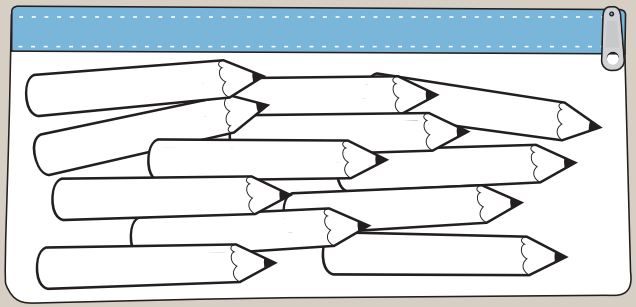
e. Red, purple, or yellow are _____.

3. Draw lines to show the likelihood of each color now.



Step Ahead

Color the pencils below to show that red is twice as likely as yellow to be taken from this case.



Virginia Supplement Student Journal (DRAFT)

Standards of learning (SOL): 4.13a, 4.13b – The student will assign a value between 0 and 1 to describe the likelihood of an outcome.

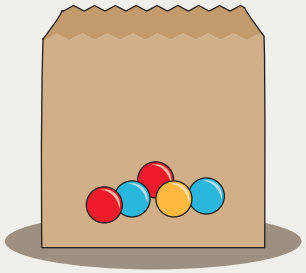
ORIGO STEPPING STONES 2.0

Probability: Determining the likelihood of an outcome

Step In

Imagine these marbles are in a paper bag.

If you take out one marble without looking,
- what would happen?
- what would not happen?



What is the chance of the marble being
- blue, red or yellow?
- green?
- yellow?
- red or blue?

What is the chance of the marble
- not being red?
- not being yellow or blue?

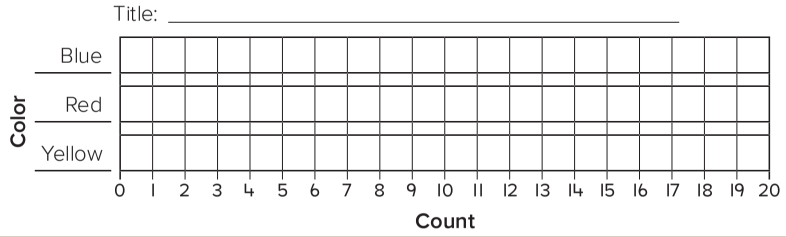
Step Up

1. Place five blue, three yellow, and two red counters in a paper bag. In Question 2, you will take a counter from this bag 20 times without looking.

How many times do you think you will take out each color of counter?

Blue _____ Yellow _____ Red _____

2. Take out one counter without looking and record the outcome on the bar graph. Then return the counter to the bag. Repeat 20 times.



3. How did your results match your predictions?

_____

4. Write the fraction that describes the chance of taking out each color of counter. Then write the total.

a. Blue ___	b. Yellow ___	c. Red ___	d. Total _____

5. Write the fraction to match each of these events. Then draw a ✔ beside the event that is **most likely**.

a. Taking out a yellow or red counter ___

b. Taking out a blue or yellow counter ___

c. Taking out a red or blue counter ___

d. Not taking out a blue counter ___

e. Not taking out a yellow or red counter ___

f. Taking out a green counter ___

Step Ahead

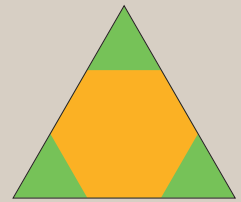
Laura made this game board using pattern blocks. She rolls a marble onto the board and records the colour it stops on. Write fractions to show these.

a. What is the chance of stopping on yellow? ___

b. What is the chance of **not** stopping on yellow? ___

c. What is the chance of stopping on green? ___

d. What is the chance of **not** stopping on green? ___



Virginia Supplement Student Journal (DRAFT)

Standards of learning (SOL): 5.15 – The student will determine the probability of an outcome by constructing a sample space.

ORIGO STEPPING STONES 2.0

Probability: Working with sample space

Step In

This table shows the different combinations of faces that can occur when a number cube is rolled twice.

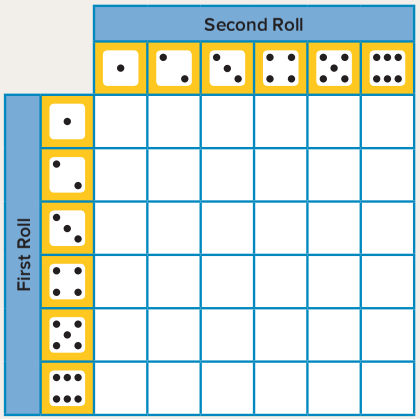
What do the empty squares represent?

How many different combinations can you roll?

Color the square that shows 4 on the first roll and 3 on the second roll.

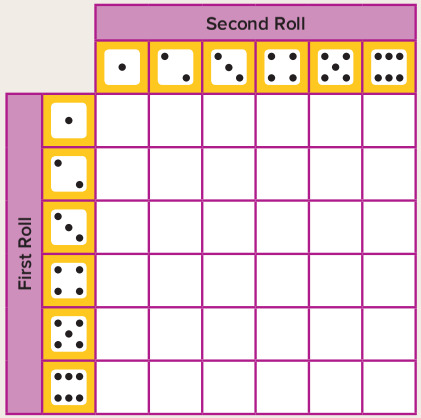
Color the square that shows 3 on the first roll and 4 on the second roll.

What is the chance of rolling each combination you colored?



Step Up

1. Roll a number cube twice. Find the combination that you rolled in this table. Draw a tally in that cell. Repeat ten times.



Look at the table in Question 1.

2. a. How many different combinations did you roll? _____

   b. Did you roll any combination more than once? _____

   c. How many different combinations could you roll? _____

   d. Are some combinations harder to roll than others? Explain your answer.

3. Write a fraction to describe the chance of these events.

   a. Rolling 2 then 5 _____

   b. Rolling double one _____

   c. Rolling 4 or 1 either time _____

   d. Rolling any double _____

   e. Rolling a total of 7 _____

   f. Rolling a total of 9 _____

   g. Rolling a total of 10 _____

   h. Rolling a total of 6 _____

Step Ahead

Draw a tree diagram to show the different combinations of faces that can be rolled when a number cube is rolled twice.