

Take a Chance on Probability

Grades 3-4

Probability and Statistics is one of the strands tested on the California Standards Test.

Probability is introduced in 3rd grade. Many students do not work on probability concepts in 5th grade. They return to probability in 6th grade. It is critical to spend time exploring these ideas in 4th grade.

Lesson 1: Simple Events

SDAP 4.2.0 – Students make predictions for simple probability situations

SDAP 4.2.2 – Express outcomes of experimental probability situations verbally and numerically

The probability of an event can be described as the relationship of the number of favorable outcomes to the number of possible outcomes.

Example 1:

“Toss a coin. What are the possible outcomes? [heads or tails] If I want the coin to land on tails, tails would be my favorable outcome. On a regular coin, how many sides are tails? [1] A coin has two faces, so it has 2 possible outcomes. What is the probability of

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What is the probability of drawing an Emerald or a Sapphire? $\frac{6+4}{16} = \frac{10}{16}$, likely
 $= \frac{5}{8}$

What is the probability of drawing a topaz? , impossible

You Try 3:

prepare linker cubes, rainbow tiles, or photocopy gem sheet for groups to use

As a group find a set of gems that match the probabilities described. Then draw and label your bag of gems.

Draw a new bag with 12 gems:

Diamonds – equally likely

Emeralds – unlikely

Sapphires – impossible

Rubies - -

Record the probability of pulling each kind of gem from your bag. What type of gem is most likely to be picked?

If you have time design and describe a bag of your own. See if a group member can build it using your description of the probability of each gem.

Example 4:

Lesson 2: Permutations and Multiple Simple Events

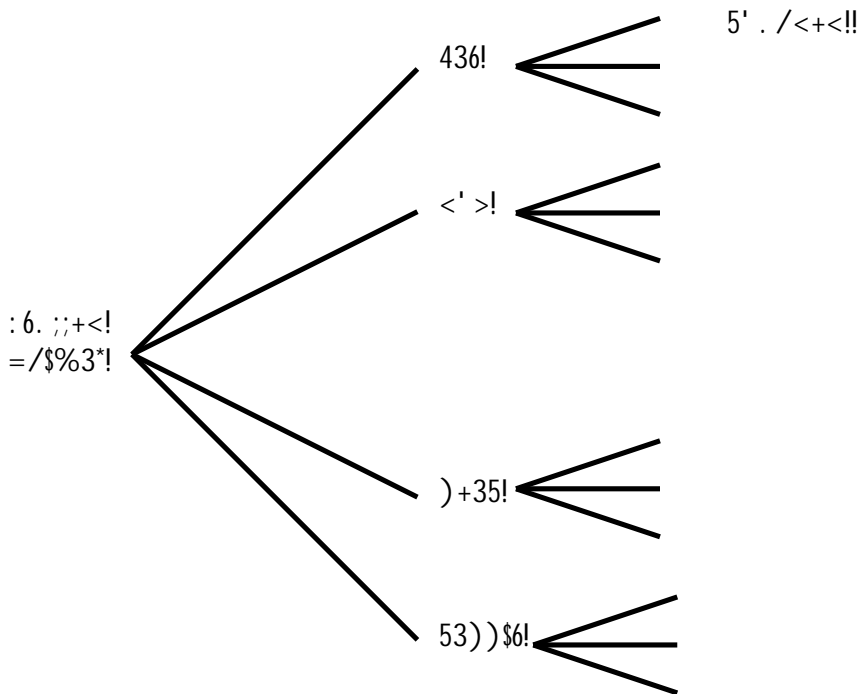
SDAP 4.2.1 – Represent all possible outcomes for simple probability situations in an organized way

When there are more than two events or factors generating an outcome, tree diagrams will help you discover all of the possible outcomes. Then you can determine the probability of a particular outcome.

Example 1:

How many different stuffed animals can you design?

Body: cat, dog, bear, rabbit
Ears: rounded, pointed, droopy
Fur: black, yellow



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How many combinations did you describe? [18]

You Try 2:

Write the equation that describes the combinations. [$\times \times =$]

What is the probability of guessing the sundae I'd order? [—]

If you know vanilla is my favorite flavor, what is the probability for your guess? [$\frac{1}{6}$]

How would the tree diagram change if the number of scoops became an option?

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Date _____

Warm-Up

CST: Grade 4 NS 1.5	Review: Grade 4 NS 1.9
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Megan bought a package of 10 erasers. If 3 of

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Answer Key to Warm-Up

CST: Grade 4 NS 1.5	Review: Grade 4 NS 1.9
<p>Megan bought a package of 10 erasers. If 3 of the erasers are pink, what fraction of the number of erasers in this package is pink?</p> <p>A $\frac{3}{7}$</p> <p>B $\frac{1}{3}$</p> <p>C —</p> <p>D $\frac{1}{10}$</p> <p>Explain how to eliminate the other choices.</p> <p>3 and 10 have no common factors other than 1, so the denominator must be 10, thus choices A and B cannot be correct. More than 1 eraser is pink, so choice D is also wrong.</p>	<p>Locate $\frac{7}{12}$ on the number line below.</p> <p>Is $\frac{7}{12}$ greater or less than —? How do you know?</p>

Review: Grade 4 AF 1.2

