

Title: Carnival Capers—Fun with Probability

Brief Overview:

Step right up to a classroom of carnival fun! Students will enjoy exploring concepts of probability while engaging in carnival-themed games. They will describe the likelihood of outcomes/events, create organized lists to determine all possible combinations, and assign numerical value to express probability. Through cooperative learning, students will discover how useful and relevant probability is in real-life.

NCTM Content Standard/National Science Education Standard:

Data Analysis and Probability

Grade/Level:

Grade 3

Duration/Length:

Three days at 60-minute lesson

Student Outcomes:

Students will:

- Describe the probability of an event by using the terms impossible, less likely, equally likely, more likely, or certain.
- Identify possible outcomes of a real-life situation by making an organized list.
- Describe the probability of an event by using numbers to represent the chances.

Materials and Resources:

Day 1

- Student resource sheets (SR 2, 3, 4, 5)
- Manipulative likelihood cards for each student (See SR 1)
- Floating rubber ducks
- Colored circle stickers
- Bowl(s)
- Water

Day 2:

- Transparency of SR 6
- Student resource sheets (SR 6, 7, 8, 9)
- 3 different party hats
- 3 different clown ruffles or leis
- Crayons

- Optional: red foam or rubber noses for each child

Day 3

- Student resource sheets (SR 10, 11, 12, 13)
- Felt squares—2 red, 6 blue, 7 green, 5 yellow
- Balloon template
- Magnet tape
- 3 ping pong balls
- Adhesive-backed Velcro strips
- Blindfold
- 4 carnival-type prizes of different size/value (ex: 1 very large stuffed animal and 3 smaller stuffed animals)
- **Allow at least 1 hour for preparation and set-up**

Development/Procedures:

Lesson 1—“Duck Pond Probability”

Teacher Preparation:

- Teacher may decide to have one duck pond per group or to have just one display for the entire class. For each duck pond, nine ducks are required. Place colored stickers or use permanent markers to mark duck bottoms as follows: 2 green, 4 blue, 2 yellow, 1 red. Place in bowl of water.

Preassessment—

- Distribute manipulative likelihood cards to each student (SR 1). He/She will assess student prior knowledge by posing the following questions. Students will respond by holding up the appropriate card.

What is the likelihood of:

- Our class saying the “Pledge of Allegiance” tomorrow morning?
- It getting dark tonight?
- Elephants flying over our school?
- It snowing tomorrow?
- Getting an A on your next math test?

After each response, students must justify their answers by describing the vocabulary to the class.

Launch –

- Ask one final question: What is the likelihood of our class participating in a carnival this week? Regardless of student response, the teacher will inform them that this statement is certain. The class will briefly discuss the concept of a carnival by sharing what they know about carnivals or fairs.

Teacher Facilitation –

- Tell the students the first booth they will visit at the carnival is the duck pond. Begin by passing out SR 2 and duck ponds. Students will work cooperatively to complete the worksheet. Once students have completed the worksheet, review responses. Answer key may be found on TR 1. While discussing the “purple duck,” likelihood, the teacher will guide students to discover that “impossible” can be represented by using 0. Draw the probability scale on the board. Student volunteers will place their response cards in the appropriate position.

Impossible

Less Likely

More Likely

Certain

Next, the concept of “equally likely” will be introduced by asking, “Is there any other color that has the same likelihood as yellow?” (Yes, green). The teacher will guide students to “discover” the concept of equally likely and write this in on the scale. Extend student thinking by asking, “How can we be certain to pick a blue duck?”

Student Application—

- Pass out SR 3. Students will work individually to complete Part A of the worksheet. Answers will be reviewed and then students will read and discuss part B of this problem. After class discussion, the teacher will model an acceptable BCR response. Determine each student’s progress toward understanding of the concept through observation. Answer key may be found on TR 2.

Reteaching/Extension –

- For those who have not completely understood the lesson, teacher will guide this group through SR 4. Answer key may be found on TR 3. For those who have understood the lesson, students will complete the extension worksheet SR 5. Answer key may be found on TR 4.

Lesson 2—“Clowning Around”

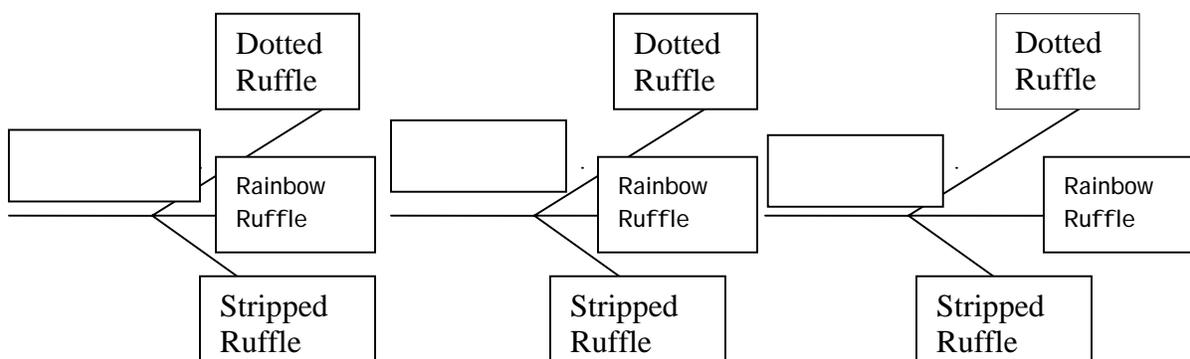
Preassessment/Launch—

- Tell the students that they will “clown around” a bit. Distribute clown noses. Display a transparency of SR 6 on the overhead projector. Students should read the problem. Inform the students that they are responsible for helping Clarence today as you show the available hats and ruffles. Students are asked to predict how many combinations are possible. Record all predictions on the board and then distribute SR 7. Challenge the students to come up with as many combinations as possible. Students will be invited forward to dress their fellow classmate with a combination. All students will use crayons to record this combination on their worksheets.

Teacher Facilitation—

- Ask students alternative methods for finding all possible combinations. Introduce and model the concept of tree diagrams using the clown problem. First draw the tree diagram frame. Demonstrate how to place the information on each “branch.”

EXAMPLE:



Demonstrate how to create a list of combinations from the tree diagram.

Student Application—

- In a group or with a partner, students will use tree diagrams to complete SR 8. The teacher will assess understanding through observations and discuss strategies with small groups. Answer key can be found on TR 5.

Reteaching/Extension—

- A reteach group will be pulled if necessary to complete SR 9 with teacher. Answers can be found on TR 6. The remaining students will complete an activity (SR 9A) to extend their thinking of this concept. Answers can be found on TR 7.

Lesson 3—“Balloon Pop Probability”

Teacher Preparation—

- Balloon Array: Use balloon template to trace and cut 20 felt balloons: 2 red, 6 blue, 7 green, 5 yellow. Magnets should be attached to the back of each balloon and then mounted on a magnetic surface in an array (with minimal space between balloons). Prepare ping-pong balls by wrapping thin strips of Velcro (the rough, hook-like part) around the ball. Tape a “toss line” at an appropriate distance from the balloon target.

Preassessment/Launch—

- Pass out SR 10. Students will work with a partner to observe the balloon array and write 3 true statements. Students should be encouraged to use probability vocabulary. Statements will be shared with class. Answers can be found on TR 8.

Teacher Facilitation—

- Model recording the numerical probability of hitting a blue balloon in 2 ways: _____ out of _____ and in fraction form. Students should follow along on their paper. Students will work with their group to record the probability of hitting a green balloon. Then, students will work individually to write the probability of hitting a red and a yellow balloon. Then, present prizes to extend student thinking. Ask which color balloon must be hit in order to win the very large stuffed animal. (Larger prizes usually go to the least likely outcome). Students should be given time to discuss in their groups and then share with the class. (Guide them, if necessary, to recognize that the red balloon has the least chance of being hit and therefore, will result in the largest/best prize).

Student Application—

- Students will work through #1 on SR 11 with their partner. They should attempt to complete #2 individually. Answers can be found on TR 9.

Reteaching/Extension—

- Pull a reteach group, if necessary, and guide them through SR 12, using manipulatives. Answers can be found on TR 10. The rest of the class will work to complete SR 13.

As a reward, inform the students that they will now play “Balloon Pop Probability!” To play the game, each child will be blindfolded and placed at the toss line. They will toss one ball at the balloon array. If the ball does not hit a balloon on the first try, they must throw again. After each toss, the ball must be removed and given to the next student. Each student will then have the opportunity to play the game.

Summative Assessment:

Students will have selected response and BCR questions that assess understanding of the following objectives:

- Describe the probability of an event by using the terms impossible, less likely, equally likely, more likely, or certain.
- Identify possible outcomes of a real-life situation by making an organized list.
- Describe the probability of an event by using numbers to represent the chances.
- Answers can be found on TR 11.

Authors:

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Likelihood Cards

impossible

certain

less likely

more likely



Duck Pond Probability

The total number of ducks in the pond is _____.

There is/are _____ green duck(s) in the pond.

There is/are _____ blue duck(s) in the pond.

There is/are _____ red duck(s) in the pond.

There is/are _____ yellow duck(s) in the pond.

Probability Word Bank

Impossible

Less Likely

More Likely

Certain

Using words from the Word Bank, describe the likelihood of...

Choosing a green duck than a red duck? _____

Choosing a red duck than a blue duck? _____

Choosing a yellow duck than a blue duck? _____

Choosing a purple duck? _____

Name _____ Date _____

TR 1



Duck Pond Probability

The total number of ducks in the pond is 9.

There is/are 2 green duck(s) in the pond.

There is/are 4 blue duck(s) in the pond.

There is/are 1 red duck(s) in the pond.

There is/are 2 yellow duck(s) in the pond.

Probability Word Bank

Impossible

Less Likely

More Likely

Certain

Using words from the Word Bank, describe the likelihood of...

Choosing a green duck than a red duck? More likely

Choosing a red duck than a blue duck? Less likely

Choosing a yellow duck than a blue duck? Less likely

Choosing a purple duck? Impossible



Just Ducky!

PART A- Dizzy Dean has decided to play the Duck Pond game.

Fill in the blanks below to describe Dizzy's chances of picking the different color ducks.

| |
|---|
| Word Bank more likely less likely certain impossible equally likely |
|---|

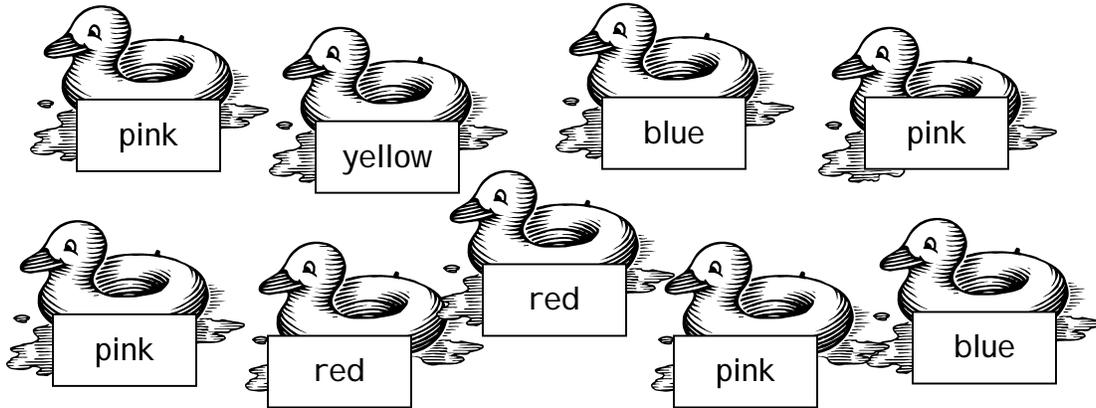
It is _____ that Dizzy will pick a duck.

It is _____ that Dizzy will pick a pink duck.

It is _____ that Dizzy will pick a blue duck.

It is _____ that Dizzy can will pick an orange duck.

Dizzy is equally likely to pick a _____ or _____ duck.



PART B - If Dizzy picks a yellow duck, he will win the big prize.

Do you think that Dizzy will win the big prize? _____

Use what you know about probability to explain why you think your answer is correct.



Just Ducky!

PART A- Dizzy Dean has decided to play the Duck Pond game.

Fill in the blanks below to describe Dizzy's chances of picking the different color ducks.

Word Bank

more likely
less likely
certain
impossible
equally likely

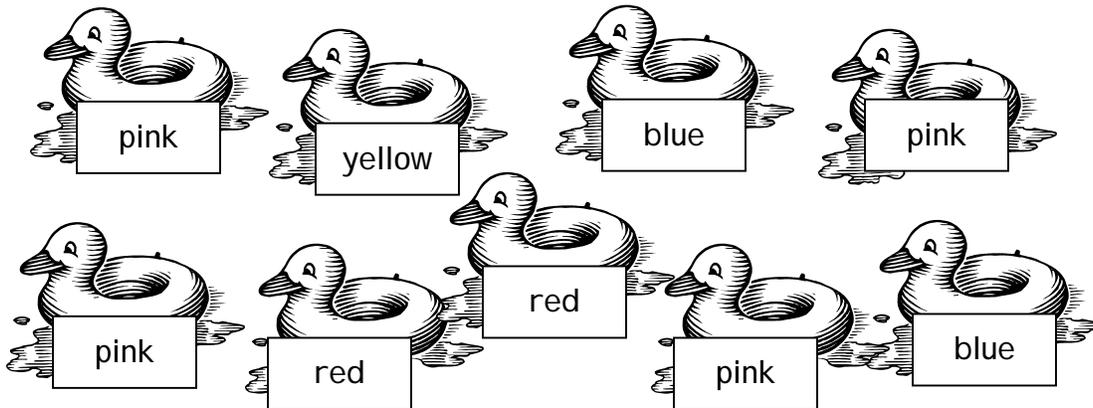
It is certain that Dizzy will pick a duck.

It is more likely that Dizzy will pick a pink duck.

It is less likely that Dizzy will pick a blue duck.

It is impossible that Dizzy can will pick an orange duck.

Dizzy is equally likely to pick a red or blue duck.



PART B - If Dizzy picks a yellow duck, he will win the big prize.

Do you think that Dizzy will win the big prize? No

Use what you know about probability to explain why you think your answer is

correct. * Refer to rubric. An Exemplary Response would be...No. I do not

think that Dizzy will win the big prize. He needs to pick a yellow and there is

only one yellow duck. All the other ones are different colors. He is less

likely to win.



Frisky Fish

PART A- It is your turn to play the Frisky Fish game. I imagine you are blindfolded and you reach into the fish bowl. You catch one fish. Using words from the Word Bank, describe the likelihood of...

Catching a red fish _____

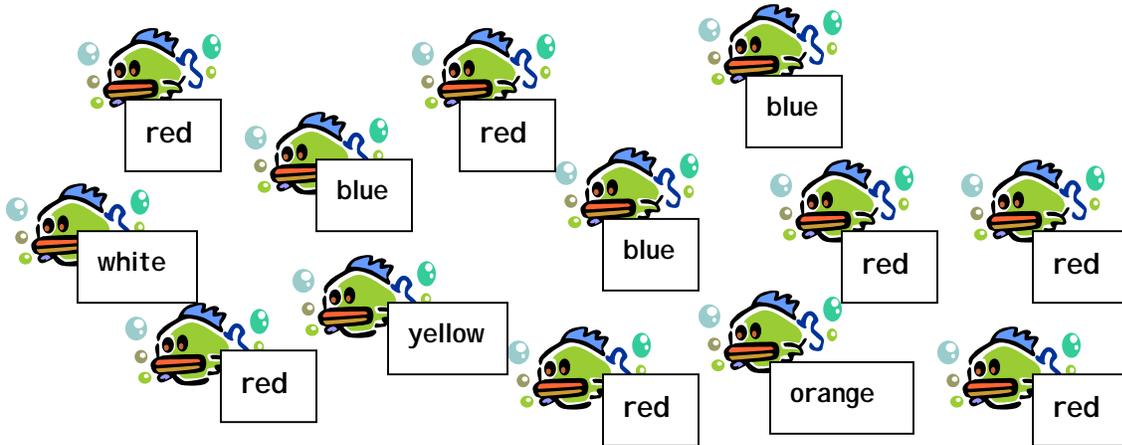
Catching a yellow fish than a blue fish _____

Catching a black fish _____

Catching a yellow fish than a red _____

Catching an orange fish or white fish _____

Word Bank
more likely
less likely
certain
impossible
equally likely



Part B - To win the game you have to catch a red fish. Do you think you can win?
Explain your answer. Remember to use your word bank to help you.



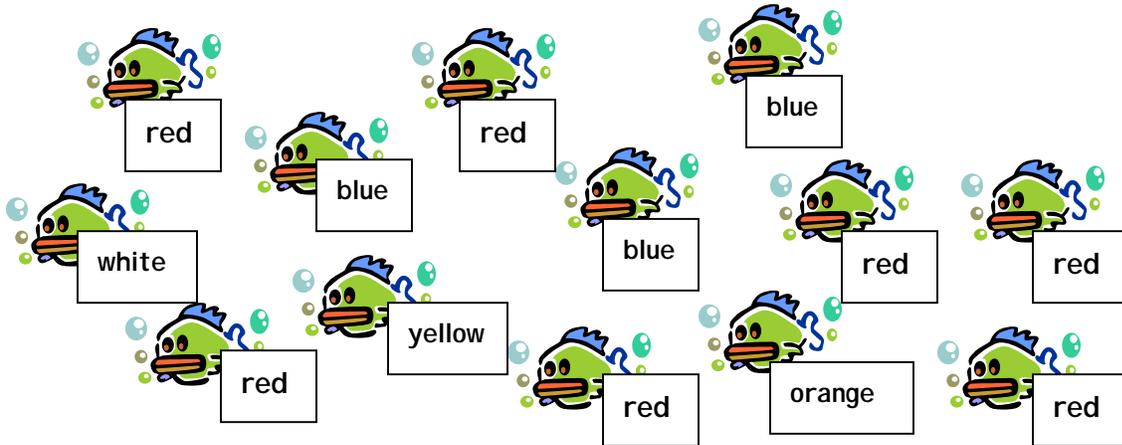
Frisky Fish

TR 3

PART A- It is your turn to play the Frisky Fish game. Imagine you are blindfolded and you reach into the fish bowl. You catch one fish. Using words from the Word Bank, describe the likelihood of...

- Catching a red fish more likely
- Catching a yellow fish than a blue fish less likely
- Catching a black fish impossible
- Catching a yellow fish than a red fish less likely
- Catching an orange fish or white fish equally likely

Word Bank
 more likely
 less likely
 certain
 impossible
 equally likely



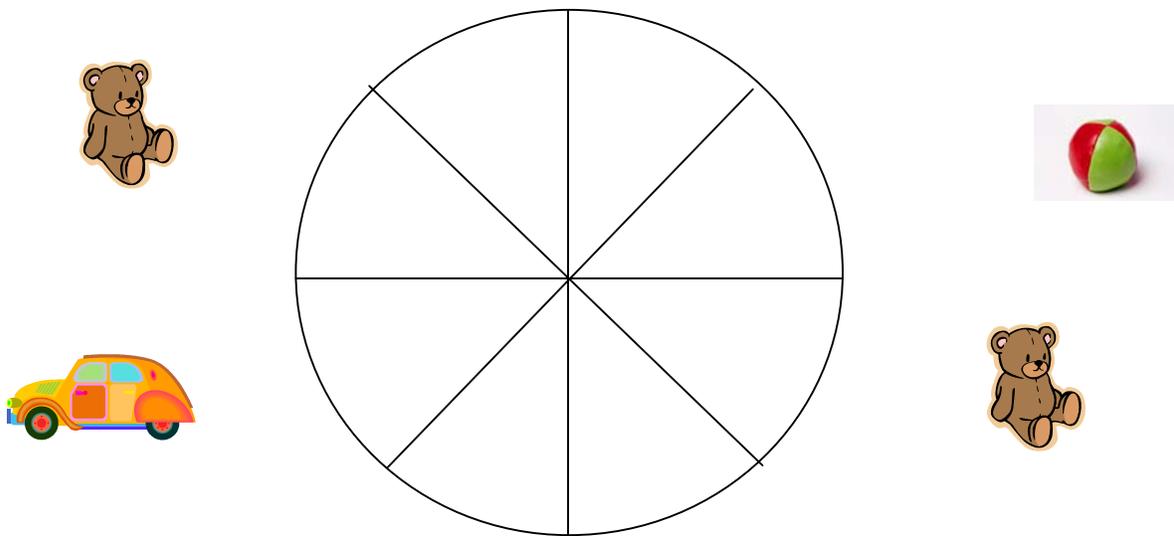
Part B - To win the game you have to catch a red fish. Do you think you can win? Explain your answer. Remember to use your word bank to help you. An exemplary response should use the probability vocabulary to justify the answer. Ex. I think I can win because there are more red fish than the other colors so it is more likely that I will pick a red fish.



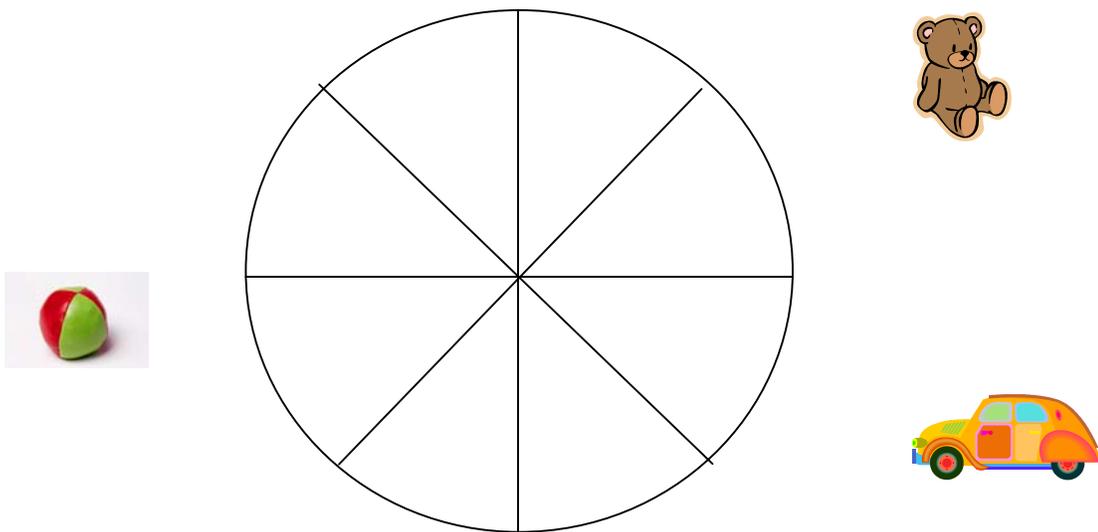
Spin-A-Prize

Carnival Boss Bobo needs your help! He has asked you to help design a carnival game called Spin-A-Prize. Players can win one of three prizes: a beany baby, a ball, and a toy car. Boss Bobo needs you to design 2 spinners.

Spinner #1: Label this spinner so that it is *less likely* for the player to win a beany baby.



Spinner #2: Label this spinner so that it is *equally likely* for the player to win a beany baby or a toy car, but *less likely* for the player to win a ball.





Spin-A-Prize

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Spinner #1: Label this spinner so that it is *less likely* for the player to win a beany baby. Accept a variety of responses, as long as the parameters are met.

A large circle divided into 8 equal sectors. To the left of the spinner are a teddy bear and a toy car. To the right are a ball and another teddy bear.

A large circle divided into 8 equal sectors. To the left of the spinner are a teddy bear and a toy car. To the right are a ball and another teddy bear.

Spinner #2: Label this spinner so that it is *equally likely* for the player to win a beany baby or a toy car, but *less likely* for the player to win a ball.

Accept a variety of responses, as long as the parameters are met

A large circle divided into 8 equal sectors. To the left of the spinner is a ball. To the right are a teddy bear and a toy car.

A large circle divided into 8 equal sectors. To the left of the spinner is a ball. To the right are a teddy bear and a toy car.

Name _____ Date _____

SR6

Help Clarence the Clown

Clarence the Clown is visiting from Cleveland to perform at the carnival. He could only pack 3 hats and 3 ruffles for his costumes because his suitcase is small. BoBo the Boss Clown says that Clarence may not wear the same costume twice. He must wear a different costume each day. How many days will Clarence be able to perform at the carnival?



Clowning Around!

Use your crayons to draw each "clown" in our class as they are dressed with a different costume.



Name _____

Date _____

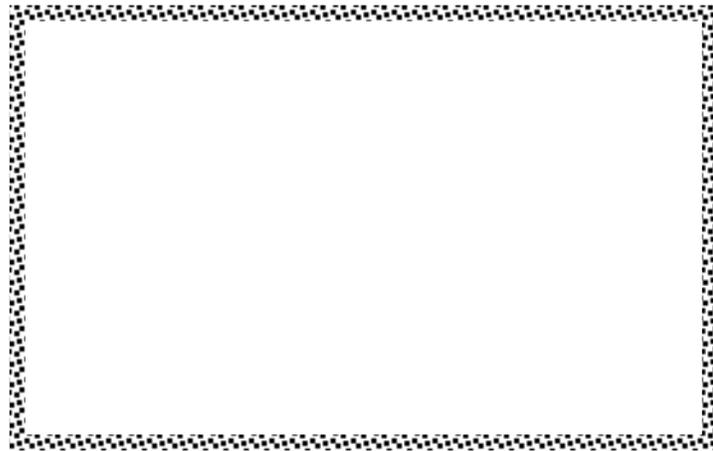
SR 8

It's Munch Time!



Part A.

Your mom gives you money to buy one drink and one food at the carnival. Look at the menu below. How many different snack combinations could you munch on?

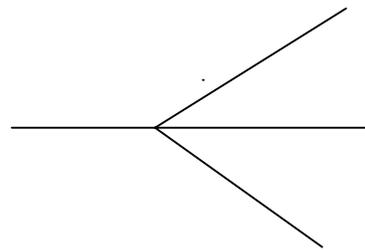
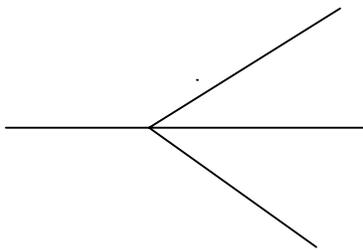


There are _____ different snack combinations.

Part B.

Use what you know about probability and listing possible combinations to explain how you found your answer. Use pictures, words, numbers, or symbols in your answer.

Step 1: Use tree diagrams to organize the information.



Name _____

Date _____

Step 2: Write all possible combinations.

| | |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Step 3: There are _____ possible combinations.

Think: Why is it important to organize the information before making a list?

It's Munch Time!



Part A.

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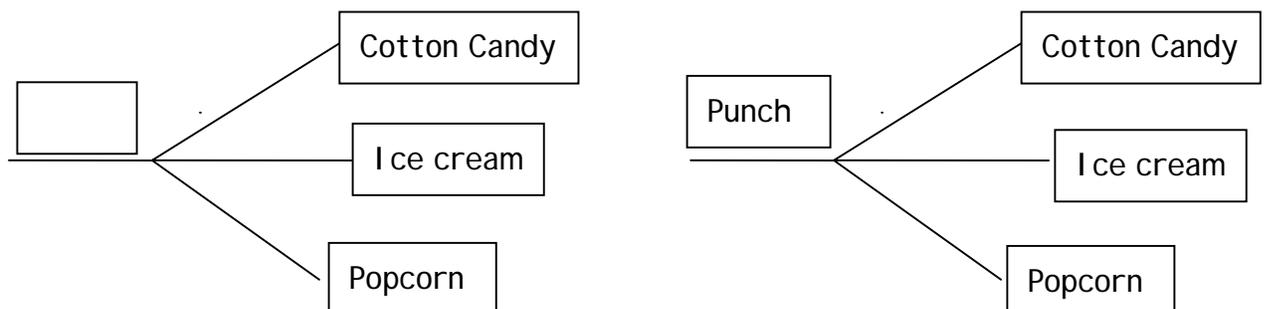
| Munch Time Menu | |
|-----------------|--------------|
| <u>Drinks</u> | <u>Food</u> |
| Soda | Cotton Candy |
| Punch | Ice cream |
| | Popcorn |

There are 6 different snack combinations.

Part B.

Use what you know about probability and listing possible combinations to explain how you found your answer. Use pictures, words, numbers, or symbols in your answer.

Step 1: Use tree diagrams to organize the information



Step 2: Write all possible combinations.

Soda & Cotton Candy

Punch & Cotton Candy

Soda & Ice cream

Punch & Ice cream

Soda & Popcorn

Punch & Popcorn

Step 3: There are 6 possible combinations.

Think: Why is it important to organize the information before making a list?

It is important to organize information before making a list because tree diagrams make sure that no information is left out.

What to Ride?



Part A

Your friend, Dave, gave you 2 ride tickets for the carnival. You can choose 1 water ride and 1 land ride. How many possible combinations are there?

| <u>Water Rides</u> | <u>Land Rides</u> |
|--------------------|-------------------|
| Slide | Whip |
| Boats | Rollercoaster |
| | Ferris Wheel |
| | Bumper Cars |

There are _____ possible ride combinations.

Part B.

Use what you know about probability and listing possible combinations to explain how you found your answer. Use pictures, words, numbers, or symbols in your answer.

Name _____

Date _____

TR 6

What to Ride?



Part A

Your friend, Dave, gave you 2 ride tickets for the carnival. You can choose 1 water ride and 1 land ride. How many possible combinations are there?

| <u>Water Rides</u> | <u>Land Rides</u> |
|--------------------|-------------------|
| Slide | Whip |
| Boats | Rollercoaster |
| | Ferris Wheel |
| | Bumper Cars |

There are 8 possible ride combinations.

Part B.

Use what you know about probability and listing possible combinations to explain how you found your answer. Use pictures, words, numbers, or symbols in your answer.

**Example of exemplary response. Refer to rubric for further guidance.
I know there are 8 combinations because I constructed a tree diagram to organize the information. I matched the slide to each land ride and I matched the boats to each land ride. There were 4 slide combinations and 4 boats combinations. 4 combinations + 4 combinations = 8 combinations

Name _____

Date _____

SR 9A

Extend Your Thinking...



Ride tickets at the carnival cost 50 cents. Sarah has quarters, dimes, and nickels in her pocket. She decides to purchase one ticket to ride the rollercoaster. How many different combinations of coins could she give to buy the ticket?

There are _____ combinations of coins.

List all the coin combinations Sarah could make.

Extend Your Thinking...



Ride tickets at the carnival cost 50 cents. Sarah has quarters, dimes, and nickels in her pocket. She decides to purchase one ticket to ride the rollercoaster. How many different combinations of coins could she give to buy the ticket?

There are 10 combinations of coins.

List all the coin combinations Sarah could make.

Quarter, Quarter

Quarter, Dime, Dime, Nickel

Quarter, Dime, Nickel, Nickel, Nickel

Quarter, Nickel, Nickel, Nickel, Nickel, Nickel

Dime, Dime, Dime, Dime, Dime

Dime, Dime, Dime, Dime, Nickel, Nickel

Dime, Dime, Dime, Nickel, Nickel, Nickel, Nickel

Dime, Dime, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel

Dime, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel

Nickel, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel, Nickel

Bunches of Balloons



Launch your Learning...

Write 3 statements to describe the balloon array.

1. _____
2. _____
3. _____



The probability of hitting a blue balloon can be expressed as:

_____ out of _____ OR _____

.....

The probability of hitting a green balloon is

_____ out of _____ OR _____

.....

The probability of hitting a yellow balloon is

_____ out of _____ OR _____

.....

What is the probability of hitting a red balloon?

Name _____

Date _____

TR 8

Bunches of Balloons



Launch your Learning...

Write 3 statements to describe the balloon array.

1. Statements will vary.

2.

3.



The probability of hitting a blue balloon can be expressed as:

6 out of 20 OR 6/20

The probability of hitting a green balloon is

7 out of 20 OR 7/20

The probability of hitting a yellow balloon is

5 out of 20 OR 5/20

What is the probability of hitting a red balloon?

2 out of 20 OR 2/20

Name _____

Date _____

SR 11

Apply your knowledge...

1. There are 12 secret prizes in a bag. Four of the prizes are puzzles. The rest are stickers. What is the probability of picking a **sticker**?

Think: How many total prizes are there? _____

How many puzzles are there? _____

So, there must be _____ stickers.

The probability of choosing a **sticker** would be _____.

2.

- Part A. There are 17 tickets in a bag. Eight are red. The rest are blue. Jenny randomly pulls one out of the bag. What is the probability of her pulling a blue ticket?

The probability of picking a blue ticket is _____.

- Part B. Use what you know about probability to explain how you found your answer. Use pictures, words, or symbols in your explanation.

Apply your knowledge...

1. There are 12 secret prizes in a bag. Four of the prizes are puzzles. The rest are stickers. What is the probability of picking a sticker?

Think: How many total prizes are there? 12

How many puzzles are there? 4

So, there must be 8 stickers.

The probability of choosing a sticker would be 8/12 OR 8 out of 12 OR 2/3.

2.

Part A. There are 17 tickets in a bag. Eight are red. The rest are blue. Jenny randomly pulls one out of the bag. What is the probability of her pulling a blue ticket?

The probability of picking a blue ticket is 9/17 OR 9 out of 17.

Part B. Use what you know about probability to explain how you found your answer. Use pictures, words, or symbols in your explanation.

The number of blue stickers can be found by subtracting the total number of stickers and the number of red stickers. $17 - 8 = 9$ blue stickers. There are 9 chances of picking a blue sticker out of 17 total chances.



Extra Practice...

1. There are 15 secret prizes in a bag. Nine of the prizes are lollipops. The rest are pencils. What is the probability of picking a **pencil**?

Think: How many total prizes are there? _____

How many lollipops are there? _____

So, there must be _____ stickers.

The probability of choosing a **pencil** would be _____.

2.

- Part A. There are 16 stickers in a bag. Eight say, "Fair Fun". The rest are "Cool Carnival". Julie randomly pulls one out of the bag. What is the probability of her pulling a "Cool Carnival" sticker?

The probability of picking a "Cool Carnival" sticker is _____.

Part B. Use what you know about probability to explain how you found your answer. Use pictures, words, or symbols in your explanation.



Extra Practice...



1. There are 15 secret prizes in a bag. Nine of the prizes are lollipops. The rest are pencils. What is the probability of picking a **pencil**?

Think: How many total prizes are there? 15 prizes

How many lollipops are there? 9 lollipops

So, there must be 6 pencils.

The probability of choosing a **pencil** would be 6/15 OR 6 out of 15 OR 2/5.

2.

- Part A. There are 16 stickers in a bag. 12 say, "Fair Fun". The rest say "Cool Carnival". Julie randomly pulls one out of the bag. What is the probability of her pulling a "Cool Carnival" sticker?

The probability of picking a "Cool Carnival" sticker is 4/12 OR 4 out of 12 OR 1/3.

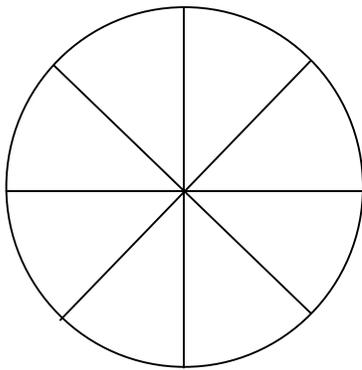
Part B. Use what you know about probability to explain how you found your answer. Use pictures, words, or symbols in your explanation.

The number of "Cool Carnival" stickers can be found by subtracting the total number of stickers and the number of "Fair Fun" stickers. $16 - 12 = 4$ "Cool Carnival" stickers. So, there are 4 chances of picking a "Cool Carnival" sticker out of 16 total chances.

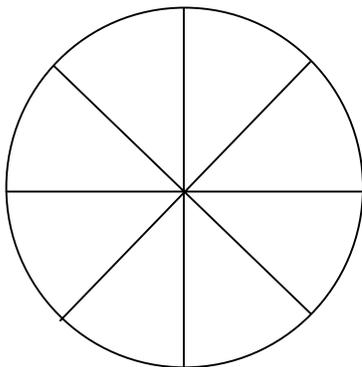


Extend your Thinking....

1. Use red, yellow, blue, and green crayons to color each spinner differently.
2. Trade with a partner.
3. Answer the questions on your partner's paper.



1. The probability of spinning blue is _____.
2. The probability of spinning green is _____.
3. The probability of spinning yellow is _____.
4. _____ The probability of spinning red is _____.



1. The probability of spinning blue is _____.
2. The probability of spinning green is _____.
3. The probability of spinning yellow is _____.
4. The probability of spinning red is _____.

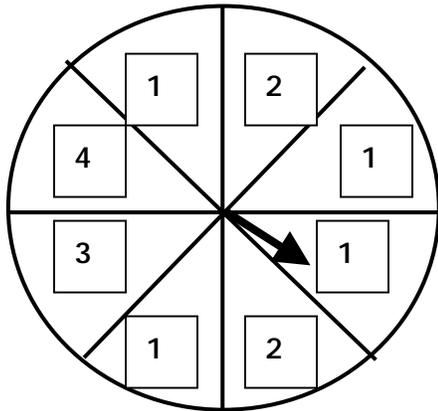
Name _____

Date _____

SR 14

Showcase Your Success

Part A. Use the spinner below to choose the best answer for questions 1 - 3.



1. What is the likelihood of spinning a ? _____
a. less likely b. more likely c. certain d. impossible
2. What is the likelihood of spinning a or a ? _____
a. certain b. impossible c. equally likely d. more likely
3. What is the likelihood of spinning a ? _____
a. certain b. impossible c. equally likely d. more likely
4. What is the likelihood that our class will go to the cafeteria today for lunch? _____
a. certain b. impossible c. less likely d. more likely
5. What is the likelihood that a huge purple elephant will fly over our school? _____
a. certain b. impossible c. less likely d. more likely

NAME _____ DATE _____

Part B. Use what you know about probability and listing possible combinations to solve the problem below.



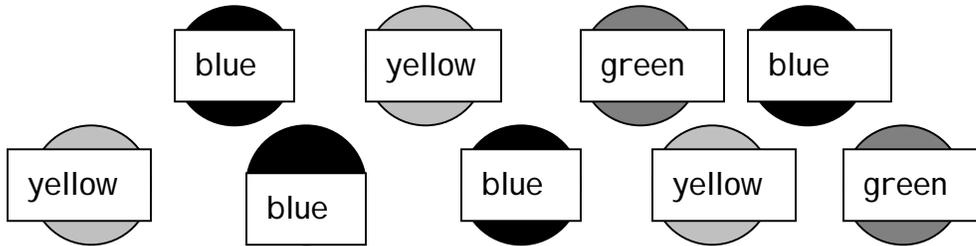
Your mom gives you money to buy one drink and one snack at the cafeteria. Look at the menu below. How many different combinations could you snack on?

|  <u>Drinks</u> |  <u>Snacks</u> |
|---|---|
| Milk Juice | Chips Pretzels Apple |

There are _____ different snack combinations.

Part B. Use what you know about probability and listing possible combinations to explain how you found your answer. Use pictures, words, numbers, or symbols in your answer.

Part C. Use the marbles to answer the questions below.



The probability of picking a blue marble can be expressed as:

_____ out of _____ OR _____
.....

The probability of picking a green marble is

_____ out of _____ OR _____
.....

The probability of picking a yellow marble is

_____ out of _____ OR _____
.....

What is the probability of picking a red marble? _____

PART D. There are 15 secret prizes in a bag. Seven of the prizes are puzzles. The rest are stickers. What is the probability of picking a sticker?

Think: How many total prizes are there? _____

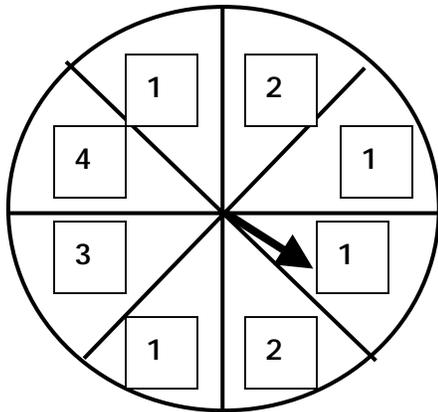
How many puzzles are there? _____

So, there must be _____ stickers.

The probability of choosing a sticker would be _____.

Showcase Your Success

Part A. Use the spinner below to choose the best answer for questions 1 - 3.



- What is the likelihood of spinning a 1? **b**
 a. less likely b. more likely c. certain d. impossible
- What is the likelihood of spinning a 3 or a 4? **c**
 a. certain b. impossible c. equally likely d. more likely
- What is the likelihood of spinning a 5? **b**
 a. certain b. impossible c. equally likely d. more likely
- What is the likelihood that our class will go to the cafeteria today for lunch? **a or d**
 a. certain b. impossible c. less likely d. more likely
- What is the likelihood that a huge purple elephant will fly over our school? **b**
 a. certain b. impossible c. less likely d. more likely

Part B. Use what you know about probability and listing possible combinations to solve the problem below.



Your mom gives you money to buy one drink and one snack at the cafeteria. Look at the menu below. How many different combinations could you snack on?

|  <u>Drinks</u> |  <u>Snacks</u> |
|---|---|
| Milk | Chips |
| Juice | Pretzels |
| | Apple |

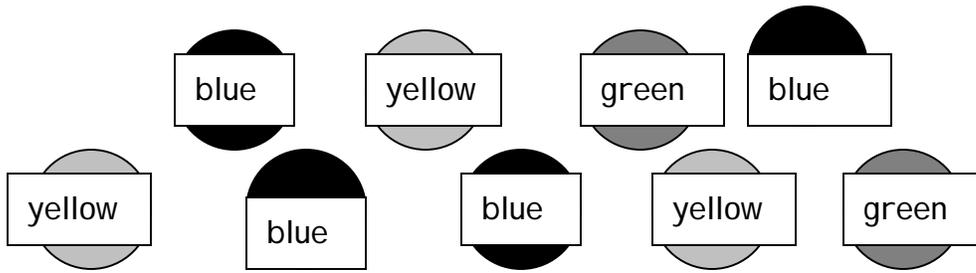
There are 6 different snack combinations.

Part B. Use what you know about probability and listing possible combinations to explain how you found your answer. Use pictures, words, numbers, or symbols in your answer.

*Example of Exemplary Response. Refer to Rubric for further guidance.

I know there are 6 combinations because I constructed a tree diagram to organize the information I matched the milk to each snack and then I matched the juice to each snack. There were three milk and snack matches and three juice and snack matches. $3 + 3 = 6$ combinations.

Part C. Use the marbles to answer the questions below.



The probability of picking a blue marble can be expressed as:

4 out of 9 OR 4/9

The probability of picking a green marble is

2 out of 9 OR 2/9

The probability of picking a yellow marble is

3 out of 9 OR 3/9 OR 1/3

What is the probability of picking a red marble? 0 or impossible

PART D. There are 15 secret prizes in a bag. Seven of the prizes are puzzles. The rest are stickers. What is the probability of picking a sticker?



Think: How many total prizes are there? 15

How many puzzles are there? 7

So, there must be 8 stickers.

The probability of choosing a sticker would be 8/15.

**MSA Brief Constructed Response “Kid
Speak” Mathematics Rubric
Grades 1 through 8**

| Score | |
|----------|---|
| 2 | <p>My answer shows I completely understood the problem and how to solve it:</p> <ul style="list-style-type: none">• I used a very good, complete strategy to correctly solve the problem.• I used my best math vocabulary to clearly explain what I did to solve the problem. My explanation was complete, well organized and logical.• I applied what I know about math to correctly solve the problem.• I used numbers, words, symbols or pictures (or a combination of them) to show how I solved the problem. |
| 1 | <p>My answer shows I understood most of the problem and how to solve it:</p> <ul style="list-style-type: none">• I used a strategy to find a solution that was partly correct.• I used some math vocabulary and most of my reasons were correct to explain how I solved the problem. My explanation needed to be more complete, well organized or logical.• I partly applied what I know about math to solve the problem.• I tried to use numbers, words, symbols or pictures (or a combination of them) to show how I got my answer, but these may not have been completely correct. |
| 0 | <p>My answer shows I didn't understand the problem and how to solve it:</p> <ul style="list-style-type: none">• I wasn't able to use a good strategy to solve the problem.• My strategy wasn't related to what was asked.• I didn't apply what I know about math to solve the problem.• I left the answer blank. |