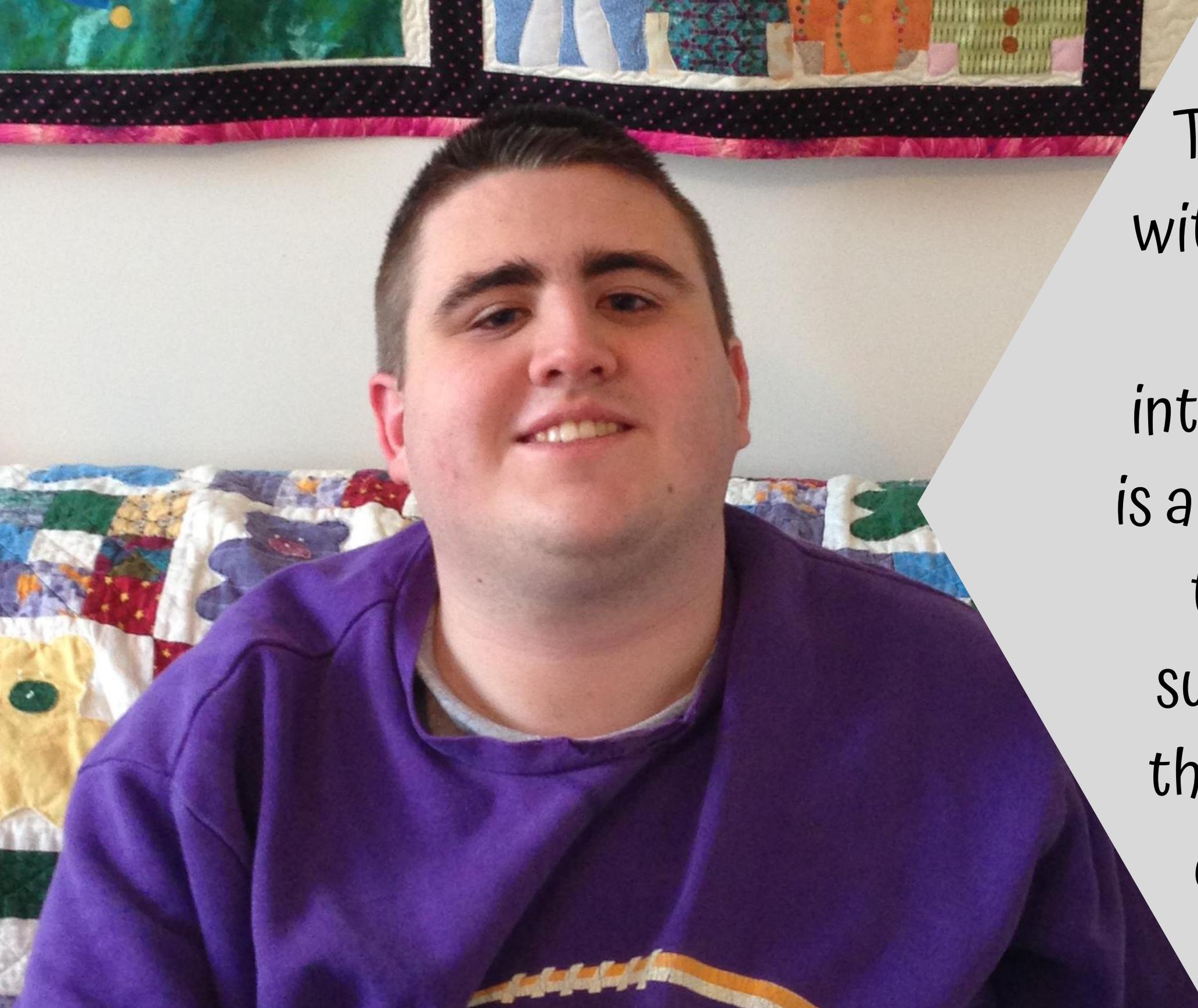


# Probability for middle/high school

**For  
Special  
Ed**



Special Needs for Special Kids



*This unit was created with this guy in mind. He has autism and an intellectual disability. He is a non-reader and counts to 20, but with some support he is able to do this unit, and enjoys the challenge. He is my tester!!*

# Table of Contents

Pages	Activity
4-48	Probability
49-51	Vocabulary board
52-58	Vocabulary cards
59-72	Vocabulary cards cut and paste
73-78	Probability circle map
79-86	Label a probability line
87-90	Sorting certain and impossible events
91-95	Identifying dependent and independent events
96-104	List all the possible outcomes
105-115	Labeling and reading a Venn diagram
116-128	Determine probability from Venn diagram
129-141	Sudoku puzzles
142-147	Close worksheets
148-165	Assessment
166-167	Terms of Use

This unit contains over 170 pages of material. But, don't worry!! I have included a **16 day lesson plan** to help you make the most of everything packed in this unit.

# Probability Lesson Plan

## Preparation

- Print out a vocabulary board for each student to use throughout unit
  - Laminate or place in page protector
- Book
  - Print out, laminate, and bind
  - OR your students can listen to the pre-recorded version
- Vocabulary cards
  - Print out a set of cards onto cardstock and laminate
  - Make one set for each student and also one for the teacher to use in I Spy games

## Preassessment (do day 1 before starting lesson)

- Choose the form of the assessment that best fits the learning level of your students
- Give the assessment to assess what your students may already know
- I cannot emphasize enough how important this step is. If you want to see growth, this preassessment is so important!!

## Teaching Tips

1. *Color Coding:* this is a really easy way to add more structure to a matching activity. Outline or color in an empty box or sorting label. Outline or color in the corresponding picture symbols the same colors. Becomes a color matching task.
  - a. For more info, read more here:  
<https://specialneedsforspecialkids.org/2015/09/05/using-color-coding-for-differentiation/>
  - b. I also have a blog post on differentiating one activity 3 ways:  
<https://specialneedsforspecialkids.org/2018/10/22/differentiating-1-activity-3-ways-easily-and-effectively/>
2. *Make your own copies of the activities:* Every day I review the activity we did yesterday. For that reason:
  - a. I often complete the activity myself and often laminated it for easy review that I could use year after year.
  - b. My copies were also helpful as either a model for students who needed more support or as a way for more advanced students to self-check their

The lesson plans contain:

Overall tips for teaching  
students with significant  
needs

## Quick Look

Day	Activity	Day	Activity
1	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• Circle map</li></ul>	9	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• Labeling and reading a Venn diagram</li></ul>
2	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• Label a probability line</li></ul>	10	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• Labeling and reading a Venn diagram</li></ul>
3	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• Label a probability line</li></ul>	11	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary cut and paste</li><li>• Determine probability from a Venn diagram</li></ul>
4	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• Sorting impossible and certain</li></ul>	12	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary cut and paste</li><li>• Determine probability from a Venn diagram</li></ul>
5	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• ID dependent and independent events</li></ul>	13	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary cut and paste</li><li>• Determine probability from a Venn diagram</li></ul>
6	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• List all possible outcomes</li></ul>	14	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary cut and paste</li><li>• Sudoku puzzle</li></ul>
7	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• List all possible outcomes</li></ul>	15	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary cut and paste</li><li>• Close worksheets</li></ul>
8	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary activity</li><li>• Labeling and reading a Venn diagram</li></ul>	16	<ul style="list-style-type: none"><li>• Review if needed</li><li>• Assessment</li></ul>

*The lesson plans contain:*

*A quick look at what you will do each day*

## Day 2

Activity	Notes	Materials
Read or listen to a recording of the book (10 minutes)	<ul style="list-style-type: none"><li>• Read through the story, asking lots of questions</li><li>• Continue to make connections between book and vocabulary board</li></ul>	<ul style="list-style-type: none"><li>• Book</li><li>• Vocabulary board</li></ul>
Vocabulary cards I Spy Game (10 minutes)	<ul style="list-style-type: none"><li>• I play this game, or variations of it the first few days<ul style="list-style-type: none"><li>◦ Determine how many cards your students can handle in front of them. This can vary, some students may be able to have all the cards, so may only be able to handle a field of 3-5</li></ul></li><li>• Since this is the first time playing this game, I make it easy. Hold up a card, and have students find the matching one and hold it up</li><li>• Discuss relevant points on the card<ul style="list-style-type: none"><li>◦ You can also play this game in this manner having them find the symbol on their vocabulary board</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Vocabulary cards (student set and teacher set)</li><li>• Vocabulary board</li></ul>
Circle map review (5 minutes)	<ul style="list-style-type: none"><li>• Review the worksheet completed yesterday</li></ul>	<ul style="list-style-type: none"><li>• worksheet from yesterday</li></ul>
Label a probability line (10 minutes)	<ul style="list-style-type: none"><li>• Students will label a probability line.</li><li>• Do 1-2 worksheets.</li><li>• Add color coding if needed</li></ul>	<ul style="list-style-type: none"><li>• Worksheet</li><li>• Scissors</li><li>• glue</li></ul>
Sharing (10 minutes)	<ul style="list-style-type: none"><li>• Each student shares one of their finished probability line with the group using the communication method of their choice</li></ul>	<ul style="list-style-type: none"><li>• Completed objectives/templates</li><li>• Communication devices</li></ul>

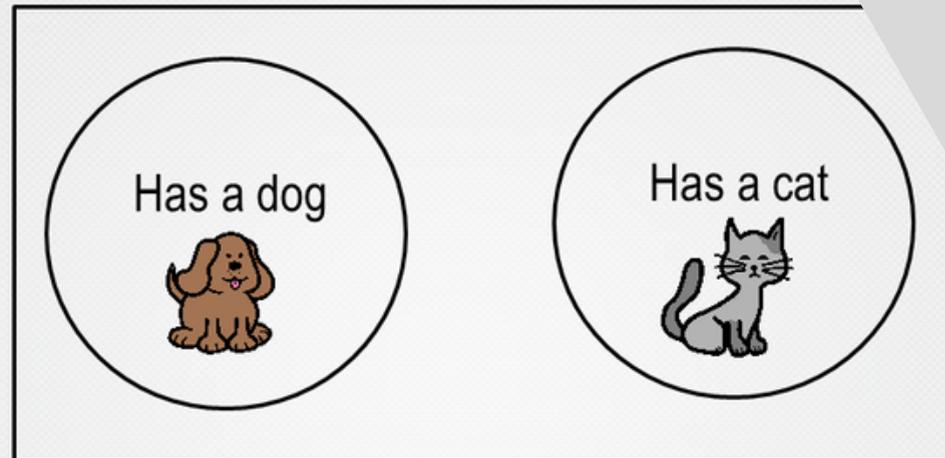
The lesson plans contain:

Detailed instructions on how that day's lesson should run

But what about things that are not that easy to figure out, like the weather? If you hear thunder and there are dark clouds in the sky, you know it is **likely** it will rain.



Now, we want to know how many people have a dog or how many people have a cat. These are each called an event or possible **outcome**. We draw each event as a circle.



*This unit contains a book that is 45 pages to introduce the topic.*

*It comes in a pdf version as well as a voice recorded powerpoint (so you don't have to print it out.)*

$P(A)$ probability	✓ certain	✗ impossible	😊👍 likely	😐👎 unlikely
= 50/50 chance	👤👉👉 experiment	🗑️🎲🎲 outcome	🎲🎲🎲 sample space	🎲🎲🎲 sample space
👤 independent	👤👤 dependent	👤👉👉 chance	⬇️⬇️⬇️ ways it can happen	🎲 flip a coin
↩️↩️ repeat that	😊 I like that	😐 I don't like that	🙄 I don't know	😫 I need a break

Also in black and white

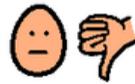
This unit comes with a vocabulary board.

Vocabulary boards are great for ALL students to assist with participation and engagement in group discussions.

Tips on how to use in the unit!!

### unlikely

Will probably not happen; less than 50/50 but more than impossible.



### 50/50 chance

Even chance that either of 2 outcomes will happen.



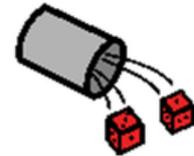
### sample space

All the possible outcomes in an experiment.



### outcome

Possible result of an experiment.



### conditional probability

Any time you have dependent events.



### dependent

One event is affected by another event.



### independent

When the outcome of one event has no effect on future outcomes.



This unit comes with 12 vocabulary cards.

Every day students will do a group activity using these cards to get more familiar with words that are likely new to them.

Also in black and white

# probability

How likely something will happen.

# impossible

Cannot happen.

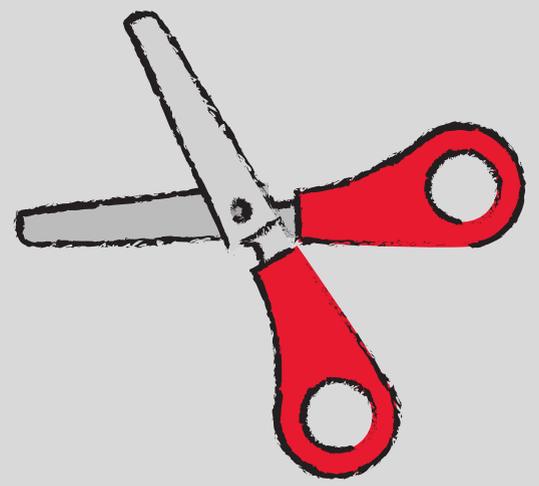
ce

Will definitely

ely

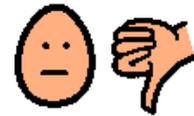
ly happen; mo  
but less than certai

Students will also test their knowledge of these new words and symbols with a cut and paste activity on days 14 & 15.

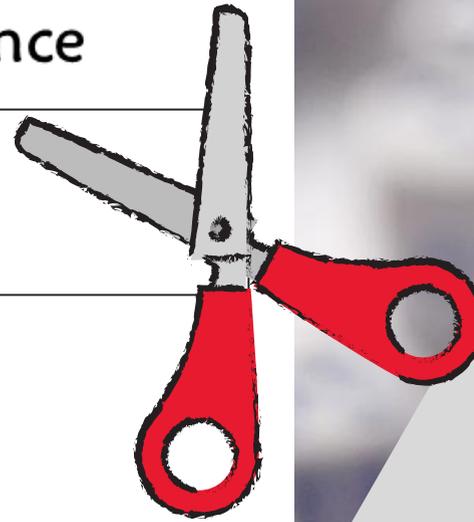


Also in black and white

unlikely



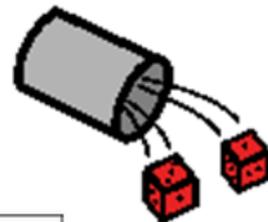
50/50 chance



sample space



outcome



How likely something will happen.	Something you do over and over that has a certain set of possible results.
One event is affected by another event.	Possible result of an experiment.
Will probably happen; more than 50/50 but less than certain.	Will definitely happen.

- You have **2 choices**:
1. Students match the picture to the definition (easier).
  2. Students match the definition to the picture (harder).

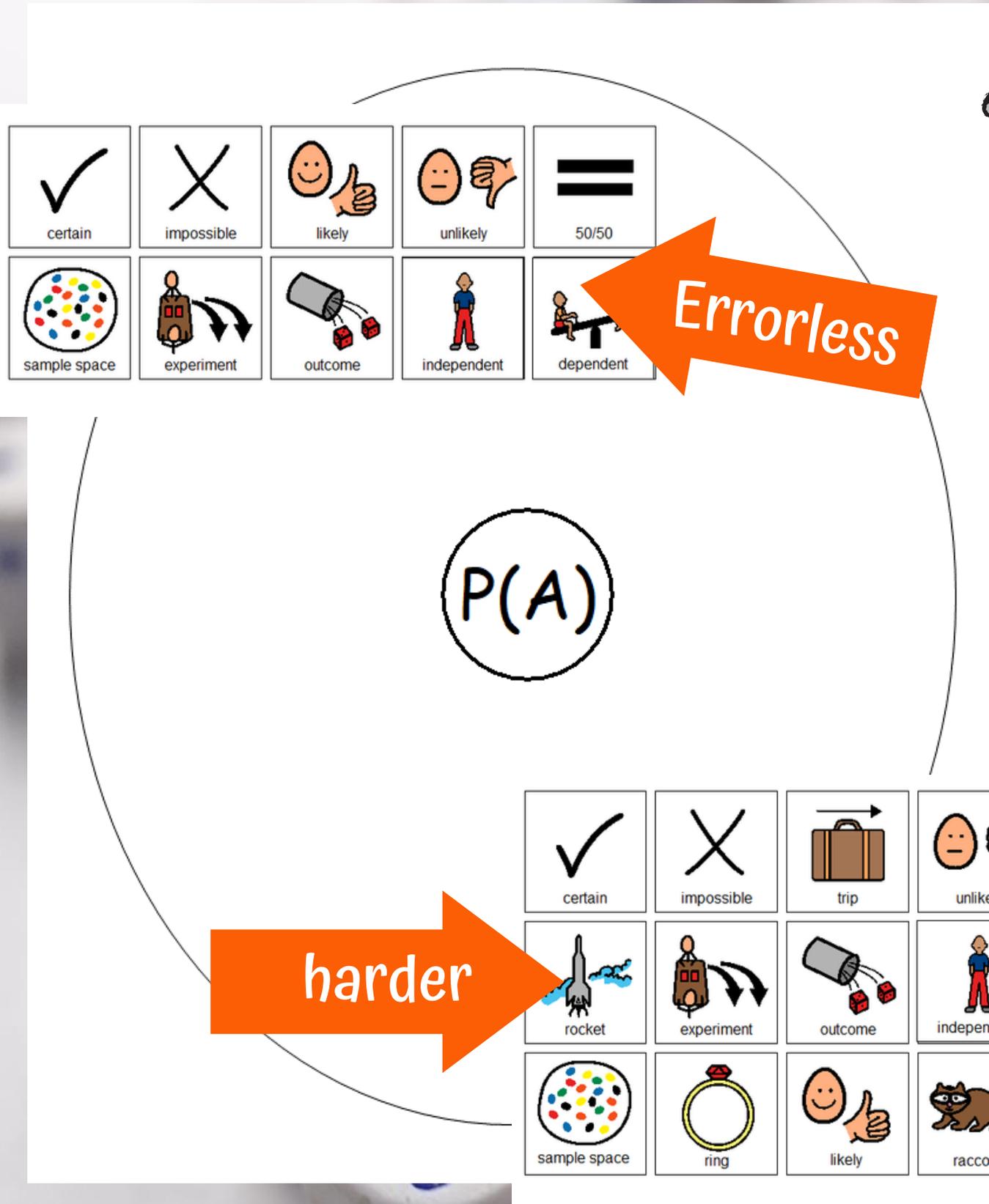
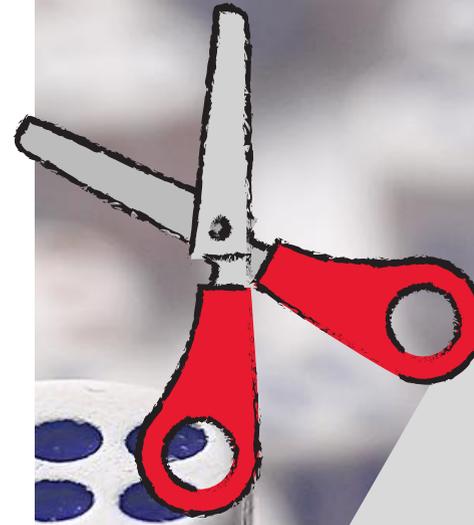
Also in black and white

# Circle map

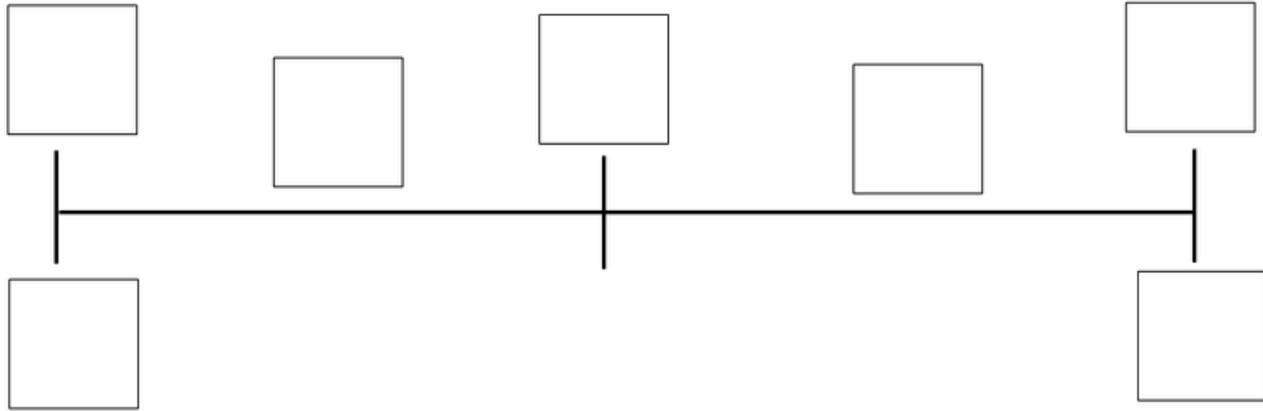
This circle map is a great way for students to see a the concept at a glance.

There are 2 versions:

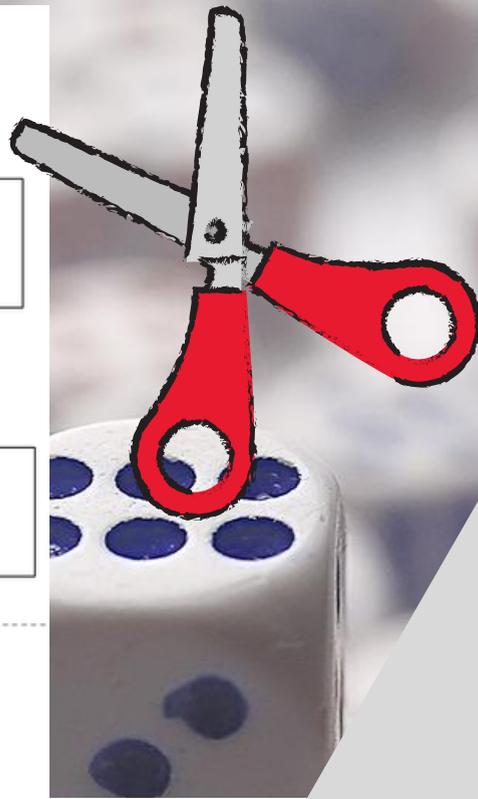
- One is errorless
- One has wrong answers mixed in students will have to set aside



Place the labels below on the probability line.



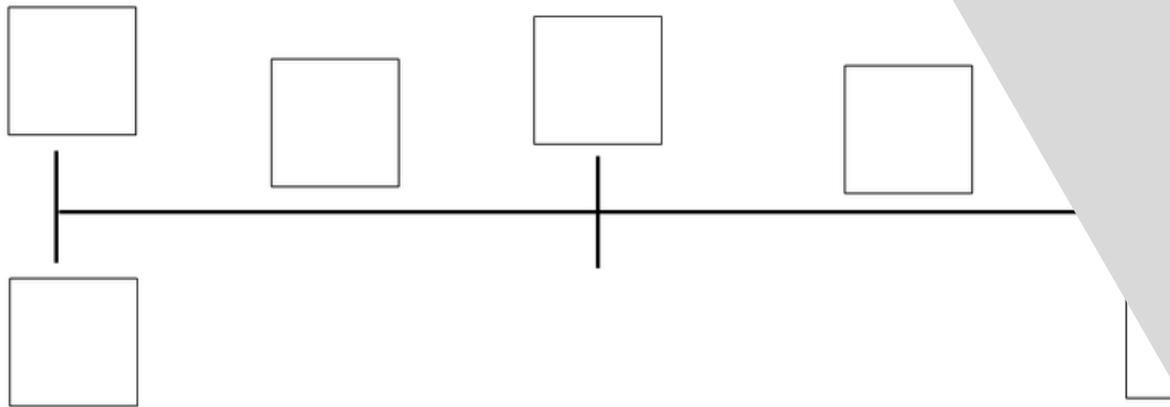
0 1 ✕ ✓ = 🙌 🙄  
impossible certain 50/50 chance likely unlikely



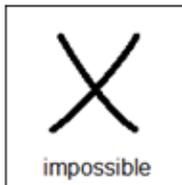
This unit contains **a lot** of worksheets.

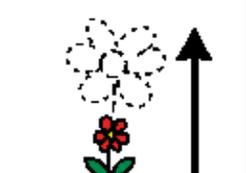
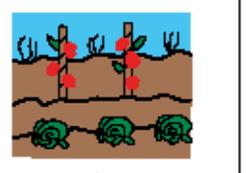
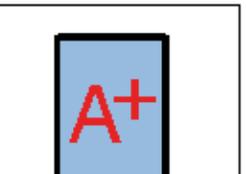
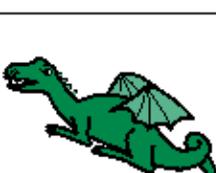
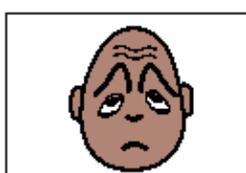
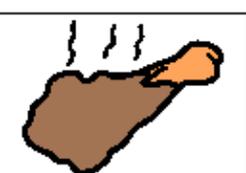
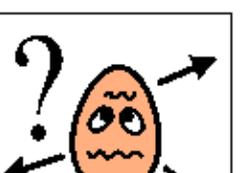
Here, students will label a probability line. First with standard labels and then with specific examples.

Place the labels below on the probability line.



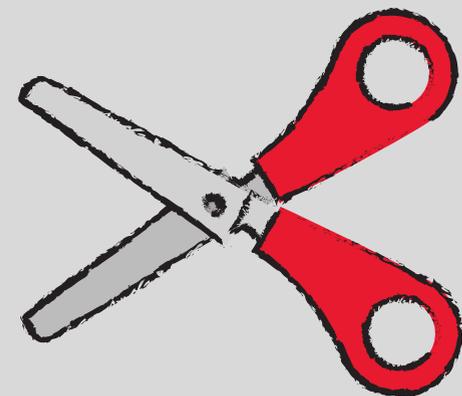
0 1 🎲 🐉 🏆 🏆 A+ 🌞  
get heads when flip a coin monster in pool win a gold medal do well on test sun rises



 snowing in summer	 dinosaur in the forest	 flower grows	 get food from garden	 worm attacks you
 ice freezes in fire	 play piano	 hike up a mountain	 sun falls out of sky	 swim
 storm	 pigs fly	 you get mail	 get an A on test	 monster in lake
 dragon flies by	 stay awake for 10 days	 have chicken for dinner	 pumpkin walks away	 get lost

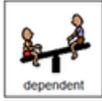
In this activity, students sort events that are certain and those that are impossible.

Directions on how to differentiate with color is included.

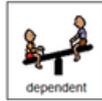
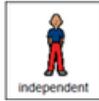


Listen to each example below and decide if the outcome is dependent or independent.

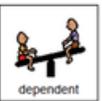
1. Joe does a magic trick and tells you to draw a card from a regular deck of cards. What is the probability you will draw the 7 of hearts?



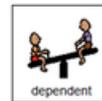
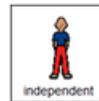
2. Chocolate chip is the most popular type of cookie at the bakery. What is the probability you will get a chocolate chip cookie if you wait until later in the day?



3. What is the probability your teacher will bring an umbrella to school if it is cloudy outside?



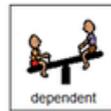
4. What is the probability you will do well on the test if you study an extra 2 hours the night before?



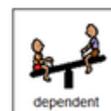
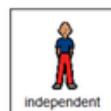
## 2 worksheets

Listen to each example below and decide if the outcome is dependent or independent.

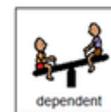
What is the probability you will roll a 3 on a standard die?



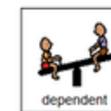
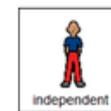
What is the probability they would have pizza at the cafeteria for lunch if they had pizza yesterday?



7. What is the probability the coin will land on tails?



8. What is the probability of wearing red shorts on Friday?



This set has students identify whether events are dependent or independent. There are 8 questions.

Draw all of the possible outcomes if you roll this classic die one time.



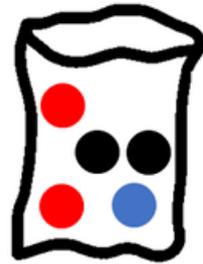

Circle all of the possible outcomes if you roll this classic die one time.



•••••	••••	••	♥
•••••	•	••••	•••
••	😊		••

## 4 experiments

Circle all of the possible outcomes if you draw 2 marble out of the bag. There are 2 red, 1 blue, and 2 black marbles.



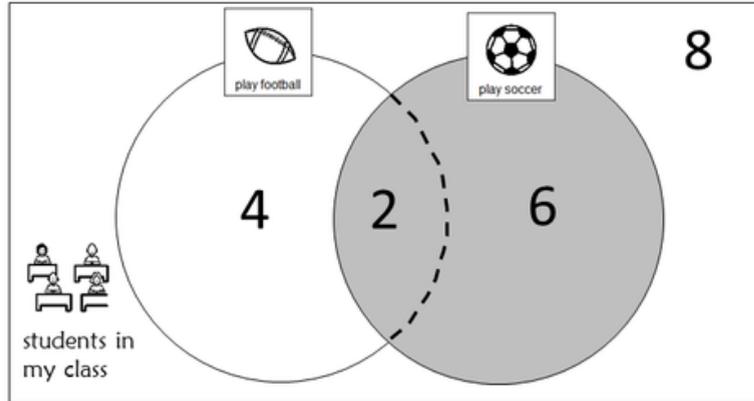
••	••	••	••
••	••	••	••

differentiated

This set has students evaluate several experiments and determine all of the possible outcomes.

Each one comes with a differentiated version where students circle the possible outcomes.

Answer the following questions about this Venn diagram



1. What does the shaded part of this Venn diagram mean?



2. How many students play soccer?



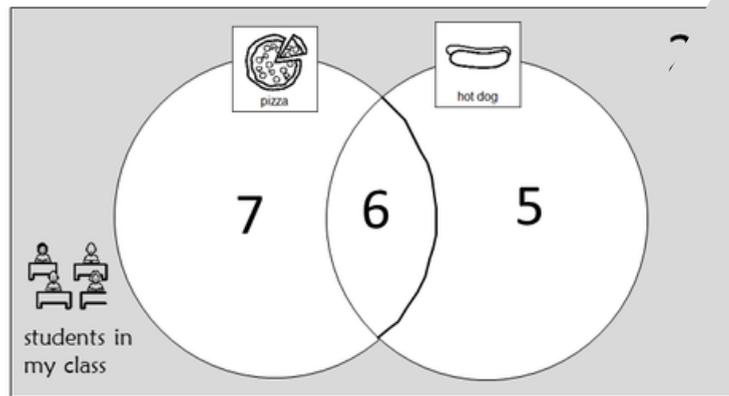
3. How many students don't play soccer?



Christa Joy, Special Needs for Special Kids  
The Picture Communication Symbols ©1981–2020 by Tobii Dynavox. All Rights Reserved  
Worldwide. Used with permission. Boardmaker® is a trademark of Tobii Dynavox

# 10 worksheets

Answer the following questions about this Venn diagram



1. What does the shaded part of this Venn diagram mean?



2. How many students don't like hot dogs OR pizza?



3. How many students are in the sample space?

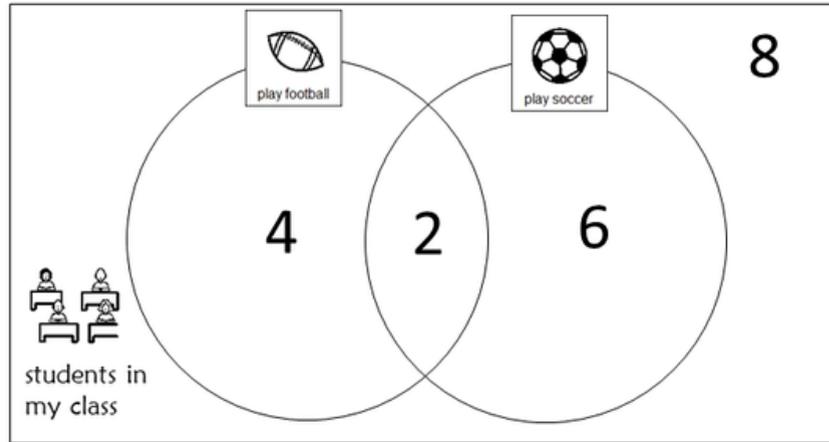


Christa Joy, Special Needs for Special Kids  
The Picture Communication Symbols ©1981–2020 by Tobii Dynavox. All Rights Reserved  
Worldwide. Used with permission. Boardmaker® is a trademark of Tobii Dynavox

This unit has students learning how to use a Venn diagram when it comes to probability.

First, they will practice reading the diagrams.

Calculate the probabilities using the information in the Venn diagram. This is assuming events are **independent**.



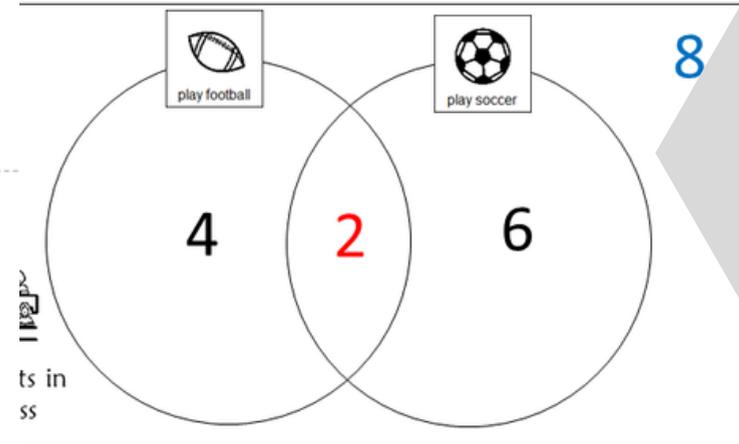
1. What is the probability someone in a similar class will play football?

$$P = \frac{\square}{\square}$$

2. What is the probability someone in a similar class will play **ONLY** soccer?

$$P = \frac{\square}{\square}$$

Calculate the probabilities using the information in the Venn diagram. This is assuming events are **independent**.



1. What is the probability someone in a similar class will play football **AND** soccer?

$$P = \frac{\square}{\square}$$

2. What is the probability someone in a similar class will play **neither** soccer or football?

$$P = \frac{\square}{\square}$$

This set has students calculating probability from a Venn diagram. These are simple calculations.

Each worksheet comes in a differentiated version using color.

differentiated

Probability



	✓ certain	●●●●● sample space	✗ impossible
		✓ certain	🎲 outcome
	🎲 outcome		●●●●● sample space
✗ impossible			

✗ impossible	✗ impossible	✓ certain	✓ certain
🎲 outcome	🎲 outcome	●●●●● sample space	●●●●● sample space

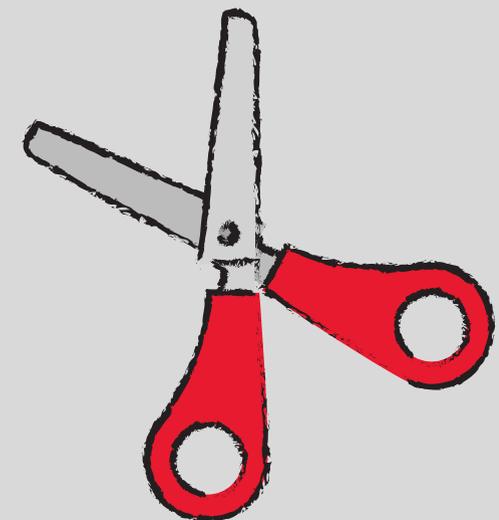
Probability

	= 50/50				🎲 outcome
✗ impossible	😊👍 likely	🎲 outcome	✓ certain		
😞👎 unlikely	✓ certain		🎲 outcome	✗ impossible	😊👍 likely
🎲 outcome		😊👍 likely	😞👎 unlikely	✓ certain	= 50/50
	🎲 outcome	✗ impossible		😞👎 unlikely	
	😞👎 unlikely	✓ certain	😊👍 likely	🎲 outcome	✗ impossible



There is a Sudoku puzzle in this unit as well. This is a great way to work with the new vocabulary!!

There are 2 versions plus answer keys.



## Probability

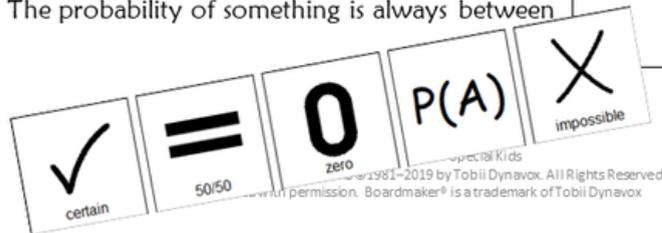
1. How likely something is to happen is called .

2. Some things are  like a pig flying.

3. Some things are  like the sun rising tomorrow.

4. When you flip a coin, we say the chances are  it will land on heads.

5. The probability of something is always between  and 1.



## Probability

6. It is  you will meet the president.

7. You can also show probability using a .

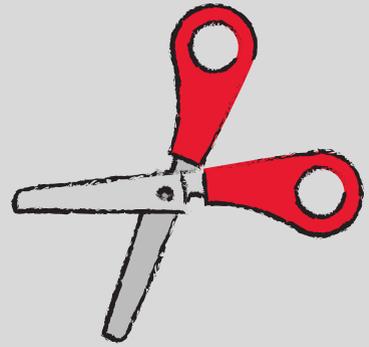
8. The sample space shows all the possible .

9. Events that are  do NOT affect one another.

10. It is  there will be more people at the pool on a sunny day.



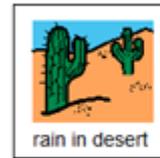
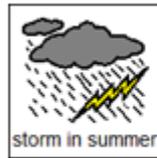
Christa Joy, Special Needs for Special Kids  
The Picture Communication Symbols ©1981-2019 by Tobii Dynavox. All Rights Reserved  
Worldwide. Used with permission. Boardmaker® is a trademark of Tobii Dynavox



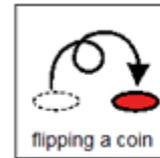
Close worksheet are a great informal assessment. This unit has 2 of them, for a total of 10 fill-in-the-blank questions.

Answer key included.

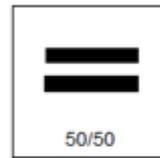
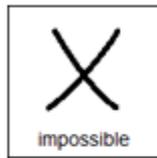
1. An example of something that is likely to happen is:



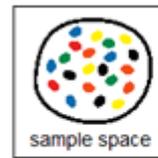
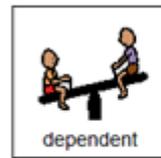
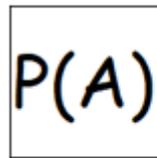
2. An example of an independent event is:



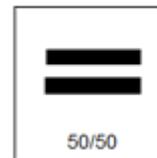
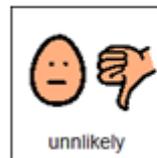
3. If the probability =1, then it is:



4. This is all the possible outcomes in your experiment:



5. The probability your puppy will get bigger as it grows is:



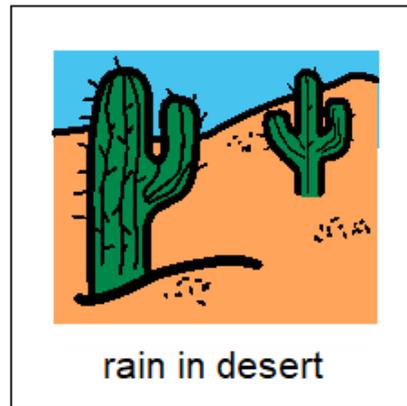
FINALLY the assessment!! There are 3 versions. This version has 10 questions with 3 picture choices for each question.

Answer key included.

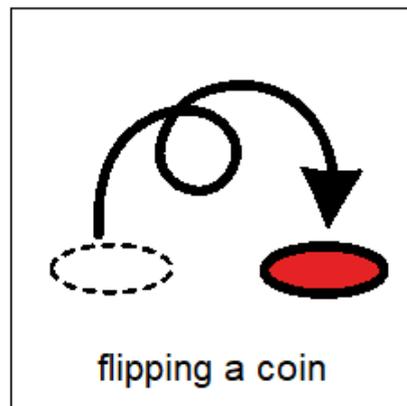
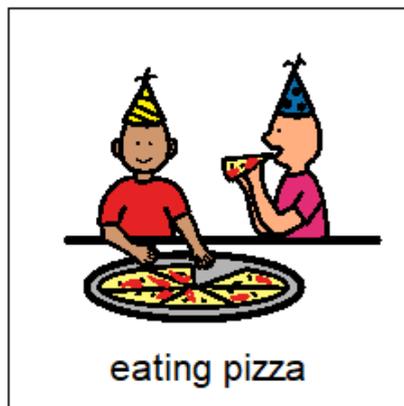
Version 2

Print onto cardstock or mount on index cards. Cut pictures apart and show student answer choices for each question.

Q 1



Q 2



With this version, you cut out the answer choices and glue them on index cards. Ask the student the question, and they point to the correct answer.

1. An example of something that is likely to happen is:
  - A. storm in summer
  - B. rain in desert
  - C. see a ufo
2. An example of an independent event is:
  - A. eating pizza
  - B. flipping a coin
  - C. bring an umbrella
3. If the probability =1, then it is:
  - A. impossible
  - B. 50/50
  - C. certain
4. This is all the possible outcomes in your experiment:
  - A. P(A)
  - B. dependent
  - C. sample space
5. The probability your puppy will get bigger as it grows is:
  - A. unlikely
  - B. certain
  - C. 50/50
6. If you remove a card from the deck each time you do the experiment, then the events will be:
  - A. 50/50
  - B. independent
  - C. dependent

*This is your traditional multiple choice version. It can also be used as a recording sheet if your students are using the version with index cards.*



I realize there will be some students out there unable to do cutting activities. I have a blog post with ways to complete activities without a pair of scissors!!

**[Click Here to read more!!](#)**

*All of the activities (except the book) comes in color and black and white.*