

2-Way Frequency Tables

Preview

	like fruit	don't like fruit	total
like vegetables	10	8	18
don't like vegetables	3	12	15
total	13	20	



2-way Frequency Tables 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 growth, this preassessment is so important!!

Teaching Tips

1. **Color Coding:** this is a really easy way to add more structure to a activity. Outline or color in an empty box or sorting label. Outline the corresponding picture symbols the same colors. Becomes a colc task.
 - a. For more info, read more here: <https://specialneedsforspecialkids.org/2015/09/05/using-color-differentiation/>
 - b. I also have a blog post on differentiating one activity 3 ways <https://specialneedsforspecialkids.org/2018/10/22/differentiating-3-ways-easily-and-effectively/>

Lesson Plans

14 days

Quick Look

Day	Activity	Day	Activity
1	<ul style="list-style-type: none"> • Book • Vocabulary activity • Finding most and least on a 2-way table 	8	<ul style="list-style-type: none"> • Book • Vocabulary activity • Reading a Venn Diagram
2	<ul style="list-style-type: none"> • Book • Vocabulary activity • Finding most and least on a 2-way table 	9	<ul style="list-style-type: none"> • Book • Vocabulary activity • Creating a 2-way table from a Venn Diagram
3	<ul style="list-style-type: none"> • Book • Vocabulary activity • Label parts and values on a 2-way table 	10	<ul style="list-style-type: none"> • Book • Vocabulary activity • Creating a 2-way table from a Venn Diagram
4	<ul style="list-style-type: none"> • Book • Vocabulary activity • Label parts and values on a 2-way table 	11	<ul style="list-style-type: none"> • Book • Vocabulary activity • Creating a 2-way table from a Venn Diagram
5	<ul style="list-style-type: none"> • Book • Vocabulary activity • Reading a 2-way table 	12	<ul style="list-style-type: none"> • Book • Vocabulary cut and paste • Sudoku puzzle
6	<ul style="list-style-type: none"> • Book • Vocabulary activity • Reading a 2-way table 	13	<ul style="list-style-type: none"> • Book • Vocabulary cut and paste • Close worksheets
7	<ul style="list-style-type: none"> • Book • Vocabulary activity • Reading a Venn Diagram 	14	<ul style="list-style-type: none"> • Review if needed (plenty of extra worksheets) • Assessment

Day 4

Activity	Notes	Materials
Read or listen to a recording of the book (10 minutes)	<ul style="list-style-type: none"> • Read through the story, asking lots of questions • Continue to make connections between book and vocabulary board 	<ul style="list-style-type: none"> • Book • Vocabulary board
Vocabulary cards Scavenger Hunt (10 minutes)	<ul style="list-style-type: none"> • Place one set of the vocabulary cards around the room before lesson <ul style="list-style-type: none"> ◦ Students walk around and find them, bring them back and matching them to their own set of cards • You can do this same activity with the vocabulary board. Just cut the individual symbols apart and place around the room. 	<ul style="list-style-type: none"> • Vocabulary cards (extra sets)
Labeling parts of table review (5 minutes)	Review the worksheet completed yesterday	<ul style="list-style-type: none"> • worksheet from yesterday
Label parts and numbers on a 2-way table (10 minutes)	<ul style="list-style-type: none"> • Students will answer the questions about the 2-way frequency table. • Choose worksheet where students are cutting and pasting actual labels as answers to question • Differentiated version included 	<ul style="list-style-type: none"> • Worksheet • Scissors • Glue
Sharing (10 minutes)	<ul style="list-style-type: none"> • Each student shares one of their finished worksheets with the group using the communication method of their choice 	<ul style="list-style-type: none"> • Completed worksheets • Communication devices

But there is another type of frequency table. It is called a **2-way frequency table**. A 2-way frequency table tells you a lot more than just how many.



23 page book

Here is a typical 2-way frequency table. There are **categories** and there are **numbers**.

	like football	don't like football
like soccer	10	8
don't like soccer	3	12

What else can we learn from this table? We can also find totals.

	like football	don't like football	total
like soccer	10	8	18
don't like soccer	3	12	15
total	13	20	

A total of 18 people liked soccer.
A total of 15 people did not like soccer.

Now, let's see how we *read* this Venn Diagram using our table.

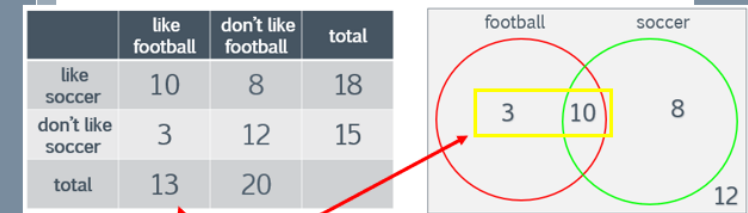


This number tells us there are 3 people who like football, but do not like soccer.


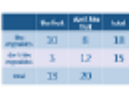












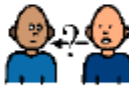



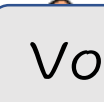
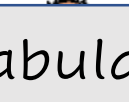
Guess what. A Venn Diagram is really just a 2-way frequency table in the form of a drawing.





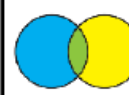



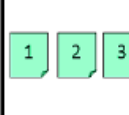

We can also know:

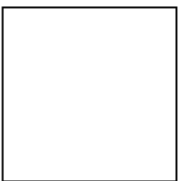
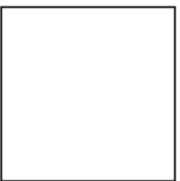
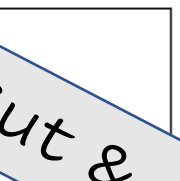



This number tells us there are 13 people who like football.




 statistics	 frequency table	 Venn Diagram	 categories	 numbers
 how many	 related	 I like that	 I don't like that	 total
 more	 less	 the same	 survey	 question
 repeat that	 yes	 no	 I don't know	 I need a break

Vocabulary board


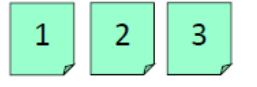

			
			

<h3>Venn Diagram</h3> <p>Drawing using circles that shows how groups are related.</p> 	<h3>numerical data</h3> <p>Data that is reported using numbers.</p> 
<h3>categorical data</h3> <p>Data that is descriptive, like color or favorite sport.</p> 	<h3>statistics</h3> <p>Collecting and analyzing data looking for common characteristics.</p> 

Cut & paste





<h3>frequency</h3> <p>How often something occurs.</p> 	<h3>2-way frequency table</h3> <p>Table that shows the relationship between 2 sets of data.</p> <table border="1"> <thead> <tr> <th></th> <th>like fruit</th> <th>don't like fruit</th> <th>total</th> </tr> </thead> <tbody> <tr> <td>like vegetables</td> <td>10</td> <td>8</td> <td>18</td> </tr> <tr> <td>don't like vegetables</td> <td>3</td> <td>12</td> <td>15</td> </tr> <tr> <td>total</td> <td>13</td> <td>20</td> <td></td> </tr> </tbody> </table>		like fruit	don't like fruit	total	like vegetables	10	8	18	don't like vegetables	3	12	15	total	13	20	
	like fruit	don't like fruit	total														
like vegetables	10	8	18														
don't like vegetables	3	12	15														
total	13	20															
<h3>variable</h3> <p>Something that can be counted.</p> 	<h3>category</h3> <p>Group that has something in common.</p> 																

8 vocab cards

<h3>frequency</h3> <p>How often something occurs.</p> 	<h3>2-way frequency table</h3> <p>Table that shows the relationship between 2 sets of data.</p> <table border="1"> <thead> <tr> <th></th> <th>like fruit</th> <th>don't like fruit</th> <th>total</th> </tr> </thead> <tbody> <tr> <td>like vegetables</td> <td>10</td> <td>8</td> <td>18</td> </tr> <tr> <td>don't like vegetables</td> <td>3</td> <td>12</td> <td>15</td> </tr> <tr> <td>total</td> <td>13</td> <td>20</td> <td></td> </tr> </tbody> </table>		like fruit	don't like fruit	total	like vegetables	10	8	18	don't like vegetables	3	12	15	total	13	20	
	like fruit	don't like fruit	total														
like vegetables	10	8	18														
don't like vegetables	3	12	15														
total	13	20															
<h3>variable</h3> <p>Something that can be counted.</p> 	<h3>category</h3> <p>Group that has something in common.</p> 																

Id most and least

Circle the answer to each question about the 2-way frequency table.

	 likes pizza	 does not like pizza	TOTALS
 likes hot dogs	5	3	8
 does not like hot dogs	2	1	3
TOTALS	7	4	





Most people like:



Less people like:



Circle the answer to each question about the 2-way frequency table.

	 has a dog	 does not have a dog	TOTALS
 has a cat	3	4	7
 does not have a cat	5	1	6
TOTALS	8	5	

Most people have a:







Less people have a:



Id labels and values

Look at the 2-way frequency table below and follow the instructions.





	 likes pizza	 does not like pizza	TOTALS
 likes hot dogs	5	3	8
 does not like hot dogs	2	1	3
TOTALS	7	4	

The categories are: (circle the right answers)

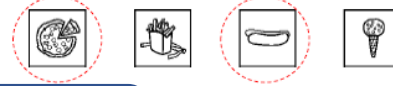


Circle the numerical data

Look at the 2-way frequency table below and follow the instructions. Color in the totals

	 likes pizza	 does not like pizza	TOTALS
 likes hot dogs	5	3	8
 does not like hot dogs	2	1	3
TOTALS	7	4	

The categories are: (circle the right answers)



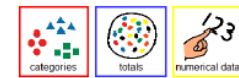
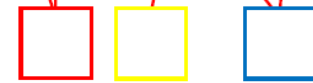
Look at the 2-way frequency table below and label the parts.

	has a brother	does not have a brother	TOTALS
has a sister	10	3	13
does not have a sister	5	2	7
TOTALS	15	5	



Look at the 2-way frequency table below and label the parts.

	has a brother	does not have a brother	TOTALS
has a sister	10	3	13
does not have a sister	5	2	7
TOTALS	15	5	



differentiated

Reading a table

Look at the 2-way frequency table below and follow the instructions.

	likes pizza	does not like pizza	TOTALS
likes hot dogs	5	3	8
does not like hot dogs	2	1	3
TOTALS	7	4	

Color in the box **red** that shows the number who liked pizza and hotdogs.

Color in the box **yellow** that shows the number of people who did not like pizza or hot dog.

Color in the box **blue** that shows the total number of people who liked pizza and hotdogs.

Color in the box **green** that shows the total number of people who liked pizza.

Look at the 2-way frequency table below and follow the instructions.

	likes pizza	does not like pizza	TOTALS
likes hot dogs	5	3	8
does not like hot dogs	2	1	3
TOTALS	7	4	

Color in the box **red** that shows the number of people who liked pizza and hotdogs.

Color in the box **yellow** that shows the number of people who did not like pizza or hot dogs.

Color in the box **blue** that shows the total number of people who liked hotdogs.

Color in the box **green** that shows the total number of people who liked pizza.

Look at the 2-way frequency table below and follow the instructions.

	has a dog	does not have a dog	TOTALS
has a cat	3	4	7
does not have a cat	5	1	6
TOTALS	8	5	

How many people have a dog but not a cat?

How many people have a cat but not a dog?

How many total people do not have a cat?

How many total people do not have a dog?

graph 2 (dogs and cats)

4	5	5	6
4	5	5	6

Look at the 2-way frequency table below and follow the instructions.

	has a dog	does not have a dog	TOTALS
has a cat	3	4	7
does not have a cat	5	1	6
TOTALS	8	5	

How many people have a dog but not a cat?

How many people have a cat but not a dog?

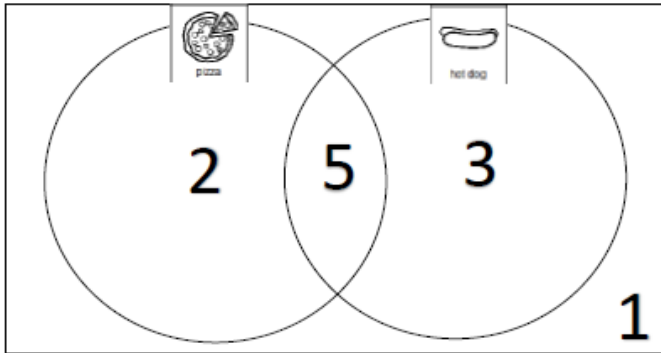
How many total people do not have a cat?

How many total people do not have a dog?

differentiated

Reading a Venn-Diagram

Look at the Venn Diagram below and follow the instructions.



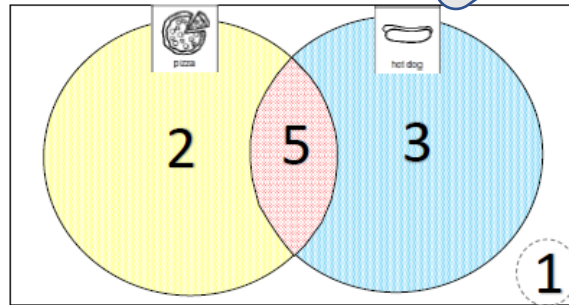
Color in the area **red** that shows the number of people who liked pizza and hotdogs.

Color in the area **yellow** that shows the number of people who like pizza but not hotdogs.

Color in the area **blue** that shows the total number of people who liked hotdogs but not pizza.

Circle the number that shows the people who like pizza or hotdogs.

Look at the Venn Diagram below and follow the instructions.



Color in the area **red** that shows the number of people who liked pizza and hotdogs.

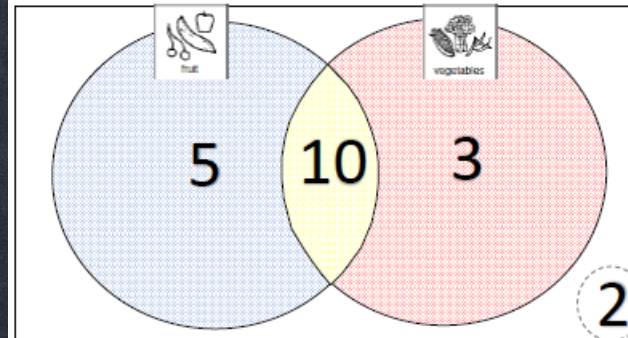
Color in the area **yellow** that shows the number of people who like pizza but not hotdogs.

Color in the area **blue** that shows the total number of people who liked hotdogs but not pizza.

Circle the number that shows the people who did not like pizza or hotdogs.

differentiated

Look at the Venn Diagram below and follow the instructions.



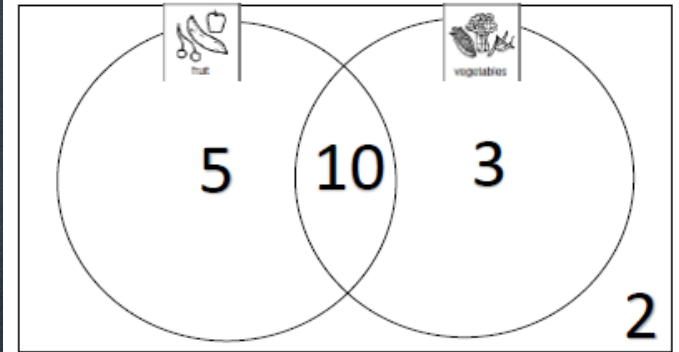
How many people like fruit but not vegetables?

How many people who like fruit and vegetables?

How many people like vegetables but not fruit?

How many people don't like fruit or vegetables?

Look at the Venn Diagram below and follow the instructions.



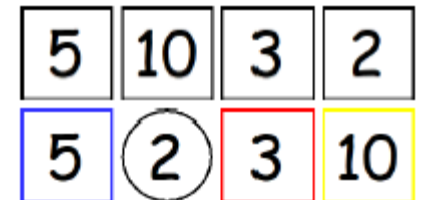
How many people like fruit but not vegetables?

How many people who like fruit and vegetables?

How many people like vegetables but not fruit?

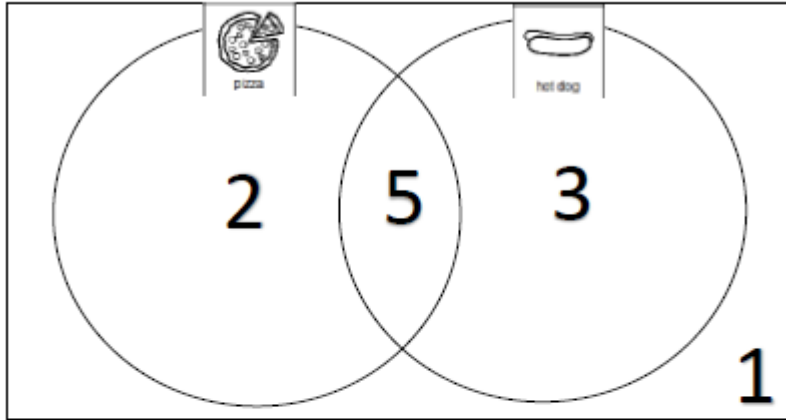
How many people like fruit but not vegetables?





graph 3 (fruits and vegetables)



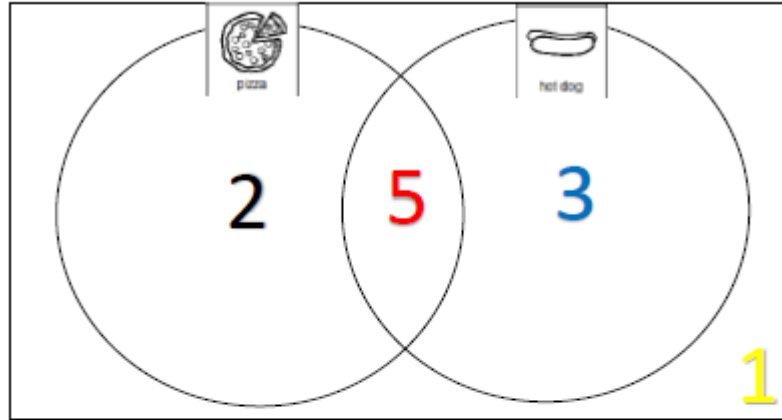
Creating tables





Look at the Venn Diagram below and use the data to fill in the missing numbers in the frequency table.



	 likes pizza	 does not like pizza	TOTALS
 likes hot dogs			8
 does not like hot dogs	2		3
TOTALS	7	4	

Look at the Venn Diagram below and use the data to fill in the missing numbers in the frequency table.




















	 likes pizza	 does not like pizza	TOTALS
 likes hot dogs			8
 does not like hot dogs	2		3
TOTALS	7	4	

















differentiated



















Sudoku Puzzles

2-way frequency tables











 Venn diagram		 numerical data		 frequency	
 variable	 category	 frequency	 Venn diagram		
	 numerical data	 Venn diagram	 category		
		 statistics		 Venn diagram	 numerical data
	 Venn diagram		 statistics		
	 frequency	 variable			




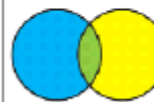
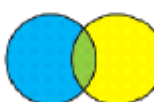

Answer key

 category	 Venn diagram	 frequency	 numerical data
 frequency	 numerical data	 Venn diagram	 category
 numerical data	 frequency	 category	 Venn diagram
 Venn diagram	 category	 numerical data	 frequency

 frequency	 frequency	 frequency	 category	 category	 category
 category	 numerical data	 numerical data	 numerical data	 variable	 variable
 variable	 variable	 statistics	 statistics	 statistics	 statistics

2-way frequency table

 category			 numerical data
		 Venn diagram	
 numerical data	 frequency	 category	 Venn diagram
	 category	 numerical data	 frequency

 frequency	 frequency	 category
 Venn diagram	 Venn diagram	 numerical data

Close worksheets

2-Way Frequency Tables

1. The frequency tells you times something occurs.

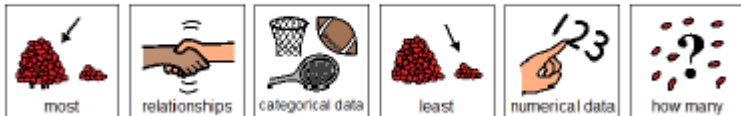
2. A 2-way frequency table shows you the between variables.

3. Every 2-way frequency table has and .

4. You can tell which was the popular answer.

5. You can tell which was the popular answer.

2-way Frequency tables (page 1)



1. What is a good way to display the relationship between 2 sets of data?



2. This is the count or number of times something happens:



3. A 2-way frequency table in drawing form is a:



4. What type of pet people have is an example of:



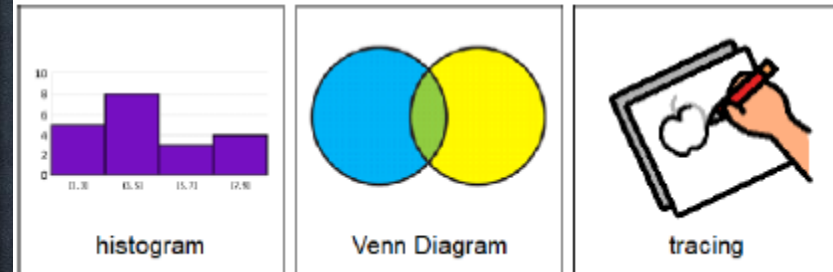
5. How many people have a dog is an example of:



Assessments

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

Q 3



7. In a Venn Diagram, the number NOT in a circle tells you how many people liked:
 - A. both choices
 - B. neither choice
 - C. hot dogs
8. In a Venn Diagram, the number where the circle overlap tells you how many people liked:
 - A. both choices
 - B. neither choice
 - C. pizza
9. True or False. You can tell the total number of people who like a particular choice using a Venn Diagram.
 - A. true
 - B. false
 - C. I don't know
10. True or False. You can make a 2-way frequency table to make a Venn Diagram.
 - A. true
 - B. false
 - C. I don't know