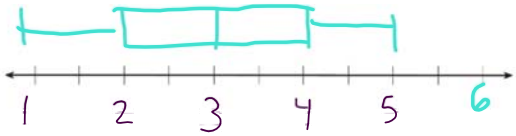
Robin collected data on the number of hours she watched television on Sunday through Thursday nights for a period of 3 weeks. The data are shown in the table below.

	Sun	Mon	Tues	Wed	Thurs
Week 1	4	3	3.5	2	2
Week 2	4.5	5	2.5	3	1.5
Week 3	4	3	1	1.5	2.5

Using an appropriate scale on the number line below, construct a box plot for the 15 values.



minX=1
Q_1=2
Med=3
Q_3=4
maxX=5

Name _____ Period ____
Date _____ **Two Way Frequency Tables**

What you will learn... how to summarize and interpret categorical data for two categories in two way frequency tables and how to recognize possible associations and trends in the data.

CATEGORICAL DATA AND FREQUENCIES:

Data that can be expressed with ***numerical*** measurements is ***quantitative*** data. In this lesson you will examine *qualitative data*, or ***categorical data***, which cannot be expressed using numbers. Data describing animal type, model of car, or favorite song are examples of categorical data.

For example:

1) Circle the categorical data variable. Justify your choice(s).

temperature **weight** **height** **color**

Color cannot be represented with numbers.

2) Identify whether the given data is categorical or quantitative.

a) large, medium, small categorical b) 120 ft², 130 ft², 140 ft² quantitative

3) A frequency table show how often each item occurs in a set of categorical data. Use the categorical data listed on the left to complete the frequency table.

Ways students get to school
bus car walk car car car bus walk walk walk bus bus car bus bus walk bus car bus car

Way	Frequency
bus	8
car	7
walk	5

What must be true about the sum of the frequencies in a frequency table? The sum of the data values. How many total values!

CONSTRUCTING A TWO WAY FREQUENCY TABLE:

If a data set has two categorical variables, you can list the frequencies of the paired values in a two way frequency table.

4) Alexandra asked 40 randomly selected students whether they preferred dogs, cats, or other pets. She also recorded the gender of each student. The results are shown in the two way table. Complete the table.

	Preferred Pet			
Gender	**Dog**	**Cat**	**Other**	**Total**
Female	8	7	1	16
Male	10	5	9	24
Total	18	12	10	40

a) Look at the totals for each row. Was Alexandra's survey evenly distributed among females and males?

No. More M than F.

b) Look at the totals for each column. Which pet is preferred most? Justify your answer.

Dogs

5) One hundred students were surveyed about which beverage they chose at lunch. The results are shown in the two way table below. Fill in the missing information.

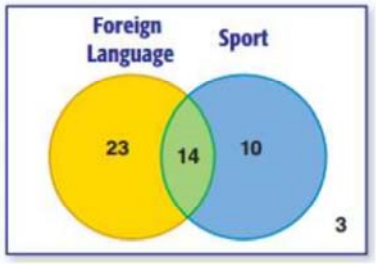
	Lunch Beverage			
Gender	Juice	Ice tea	Water	Total
Female	10	13	17	40
Male	15	24	21	60
Total	25	37	38	100

6) One hundred students were surveyed about whether they played video games. The results are shown in the table. Complete the table with the missing information.

	Play Video Games		
Gender	yes	no	Total
Female	34	19	53
Male	38	9	47
Total	72	28	100

A two way table is similar to a Venn diagram. See the example below.

7) The data from a survey of 50 students is shown in the Venn diagram. Students were asked whether or not they were taking a foreign language and whether or not they played a sport.



a) How many students are taking a foreign language?

b) How many students play a sport?

c) How many students do both?

d) How many students do not play a sport and do not take a foreign language?

e) How many students play a sport but do not take a foreign language?

f) Represent this information in the two way table.

	Play a Sport	Do Not Play a Sport	Total
Take a Foreign Language			
Do Not Take a Foreign Language			
Total			

A survey of 100 students was taken. It was found that 60 students watched sports, and 34 of these students did not like pop music. Of the students who did *not* watch sports, 70% liked pop music. Complete the two-way frequency table.

	Watch Sports	Don't Watch Sports	Total
Like Pop	26	28	54
Don't Like Pop	34	12	46
Total	60	40	100

$40(.7) = 28$