

Math 9A LG 17

Data Analysis



INTRODUCTION:

One of the most important concepts in mathematics is Statistics. Constructing surveys to display information about a topic of interest is what many companies call market research. Knowing what the consumer wants is the quest of any company in order to provide a service or product that will make them money.



LEARNING GUIDE EXPECTATIONS:

On the completion of this learning guide you will be able to:

- 1) Using your own words, explain the factors that can have an effect on a survey. Such as: **bias, use of language, cost, time, timing, privacy, and cultural sensitivity.**
- 2) Describe the difference between a **sample** and a **population**, and include a brief description of all 5 different sampling techniques.
- 3) Develop a **rubric** and then create an unbiased survey about a topic of interest to you, and write some general conclusions about the survey.



EVALUATION:

You are ready to progress to the next learning guide when you can demonstrate your understanding of the above expectations. Please refer to your Mathematics 9A Marks Record Sheet to determine the assessment.



RESOURCES NEEDED:



Math Links 9 Text



Math 9A Learning Guides

LEARNING ACTIVITIES:



Expectation #1: Using your own words, explain the factors that can have an effect on a survey. Such as: **bias, use of language, cost, time, timing, privacy, and cultural sensitivity.**



1. In the Math Links 9 text, take notes on Section 11.1. Anything written in italics, inside a purple or blue box should be included in your notes.
2. In the Math Links 9 text, work through Examples 1 & 2 on pages 416-417. Now complete #2, 4, 6, 9 on pages 418-420.



3. Read Key Ideas on page 418. In your math journal, condense all of the material you have gathered on **influencing factors**.



Expectation #2: Describe the difference between a **sample** and a **population**, and include a brief description of all 5 different sampling techniques.



1. In the Math Links 9 text, take notes on Section 11.2. Anything written in italics, inside a purple or blue box should be included in your notes.
2. In the Math Links 9 text, work through Examples 1 & 2 on pages 423-425. Now complete #2, 4, 6 on pages 426-428.



3. Read Key Ideas on page 426. In your math journal, condense all of the material you have gathered on **selecting appropriate samples**.



Expectation #3: Develop a **rubric** and then create an unbiased survey about a topic of interest to you, and write some general conclusions about the survey.



1. In the Math Links 9 text, take notes on Sections 11.3 & 11.4. Anything written in italics, inside a purple or blue box should be included in your notes.
2. In the Math Links 9 text, complete the following questions #5, 7, 9 on pages 435-437.



3. Keeping the steps in Section 11.4 in mind, develop a rubric with your teacher. Then construct an unbiased survey of students as instructed in the example attached.

Survey

Instructions:

First of all, you need to develop a single question that can explore a topic you are interested in knowing people's opinions about. The question cannot be too vague, and the responses gathered should take the form of a running tally, a tick in a column for the selected choice. When you have developed your question, **see your marker** to discuss whether it is appropriate, and what considerations need to be made to conduct a good survey.

Example:

Question: What type of music do you like?

Rock	Punk	Rap	R&B	Jazz	...
					...

This example has many perils though. There are many different types of music, how many different types can a person pick, and who am I going to survey?

Once you have made up your question, you need to develop your sampling technique. Who are you going to ask the question? How can you create a survey that will provide an unbiased view of people's opinions? Describe in a **detailed paragraph** how you plan to conduct your survey in order to get an appropriate sample. (Note: I plan to ask my friends will not be accepted). Present your detailed paragraph on the sampling technique you will use to your marker prior to conducting the survey.

Conduct the survey according to guidelines you set out in your sampling technique, and record the data similar to what you see above.

After you have completed your survey, analyze the data that you have collected. In a short **conclusion**, outline any trends that you see occurring, and explain any abnormalities or limitations that your survey may have encountered. Try to generalize and predict what might be the future outcomes of a survey similar to the one you have just conducted. A **graph** could help in your interpretation.

Example: (from the data above)

Conclusion: From the data that I have collected, I noticed a trend that more people like Rap music than any other type. Of the 20 people surveyed 40% replied that they like Rap music. The closest groups to this were the people who liked Rock music, and there only 20% said this was their favourite type of music. One of the limitations of my survey was I only talked to people in the Science Lab. Another ...etc. In the future I could see that an equal distribution of what people like for music because of how close these survey values were. I also see that ...etc.

Good luck with your survey! Remember to **turn in all your work** for this survey when you are finished.

Evaluation:

See your marker with all of your work, and your marker will assign a mark based on the rubric for the project.