

Statistics Project Grade 8

Build a Survey

Math Outcomes:

- F1** Demonstrate an understanding of the variability of repeated samples of the same population
- F2** Develop and apply the concept of randomness
- F3** Construct and interpret circle graphs
- F6** Extrapolate and interpolate information from graphs
- F8** Develop and conduct statistics projects to solve problems
- F9** Evaluate data interpretations that are based on graphs and tables

ICT Outcomes:

- SEHI 9.4** demonstrate an understanding of, and a commitment to, accuracy, and ethical behaviour, and personal privacy and safety as they create and distribute information about themselves, others, and curriculum topics under study
- PTS 9.2** explore curriculum concepts under study using specialized software; measuring, sampling and recording equipment; and computer-based simulations, with teacher assistance
- PTS 9.3** explore the curriculum through a wide range of print and electronic forms; accessing and processing information by means of the specialized techniques associated with the technology they select
- PTS 9.6** use information and communication technology to explore increasingly complex numerical and spatial situations for the purpose of developing and testing conjectures
- RPSD 9.1** select appropriate measuring and recording devices and/or software to collect data, discover patterns of change over time, solve problems and make logical decisions based on their investigations; with teacher assistance
- RPSD 9.2** create and use electronic charts, maps, tables, graphs, spread sheets and databases to collect, analyse and display data independently

Components of the Project:

- Task 1:** Design and create a survey to address changes in our school or community.
Possible ideas: *New cafeteria menu suggestions*
New school name, mascot and colors
Evaluation of my teaching practices
What sports equipment is needed at school?
Extra curricular activities we should offer at school
- Task 2:** Create a website using FrontPage where the survey can be posted and upload it to the school website.
- Task 3:** Collect data from other students at the school and community members over the period of a week. All students in the class are responsible for visiting the surveys of all other groups and completing their surveys.
- Task 4:** Retrieve survey data, and use MS Excel to create one or more frequency distribution chart(s) of the data.
- Task 5:** Use the frequency distribution charts to create a bar graph and a circle graph of the data.
- Task 6:** Create a typed report, which includes:
- 1) Title Page
 - 2) Description of survey topic
 - 3) Survey questions
 - 4) Frequency distribution chart
 - 5) Bar graph
 - 6) Circle Graph
 - 7) Reflection/Questions

Tips for writing your survey:

Survey Planning:

1. Define specific goals for the survey.
2. Only include questions that directly address those goals.
3. Use question types that support the analysis that you will be performing and the kind of results that you wish to report
4. Select question types considering the effect on the time involved in the analysis stage, such as when coding and evaluating open-ended questions.
5. Select a sample representative of the population and with the knowledge to respond to the questions.
6. Pilot-test the survey with a small number of people who fit your sample criteria to identify problems with questions and instructions; remedy the problems before administering the survey.

Survey Design:

Introduction

- Explain the purpose of the survey and how the results will be used.
- State the terms of confidentiality and/or anonymity.
- Explain how the survey is to be completed.
- For short answer or essay questions, explain the desired length and detail of responses.

Example:

This online survey is designed to assess my teaching methods and course satisfaction. Your responses will be used to improve and guide my lesson planning in the future. Responses will be kept anonymous and will not affect your grade in the course.

Survey Questions

- Use simple language.
- Shorter questions are better.
- Avoid using universal words (all, always, more, never).
- Write neutral questions.
- Questions should be relevant to respondents.
- Present only one question per line.
- Make the survey visually inviting.
- Avoid tiny font sizes or fonts that are distracting or difficult to read.
- Use white space to keep the survey from appearing cluttered.
- Group similar survey questions to provide coherence and organization, preventing respondent confusion.
- Ask interesting questions first and place sensitive questions in the middle or last half.
- Interesting questions grab respondents' attention up front so that they will want to complete the survey.
- Avoid asking several long-answer questions at the start of the survey.
- Placing threatening and/or sensitive questions first may result in respondents' refusal to participate.
- Ask demographic questions last, saving routine questions until the end, after you have gathered the most important information.

End Instructions

- Tell the respondents how to return the completed survey.
- Tell respondents how, where, and to whom to submit the survey.
- Tell respondents whom to contact if they want further information.
- Tell respondents how they will know when they successfully submitted an electronic survey.
- Tell respondents how to view results (when applicable).
- Thank the respondents for their participation.

Tasks 2&3 - Creating your online survey and getting results:

Saving your file:

1. Open FrontPage
2. Immediately click on: **File → Save as...**
3. Then in the “Save in” drop down menu, select your space on the network.
4. Name your file using the format “last name_first name_class”, and click on **Save**.
5. Now you’re ready to start your page! Remember to save your work periodically.

Creating your page:

1. Your page should have the following components:
 - a. A title
 - b. An introduction
 - c. The survey
 - d. A conclusion
2. Make sure your title is centered and written in a larger, bold font. Pick a font that is clear and easy to read.
3. Write a brief introductory paragraph to explain the purpose of the survey and the guidelines for completion.
4. Write your first survey question, leave a space and then click on **Insert → Form → Drop-Down Menu**.
5. Then double-click on the drop down box to open the Drop-Down menu properties box.
6. Name your drop-down box according to the question you asked.
7. Click on “Add” to add choices to your drop down box.
8. Repeat this process (steps 4-7) for your other survey questions.
9. Remember to include questions to find out your survey population (age/gender etc..)
10. Remember to save your work!
11. Write a brief thank you and conclusion to the survey participants thanking them for their participation.

Getting your page online:

1. Send the file as an email attachment to your teacher at **email address here**. You will receive a reply from your teacher to let you know the project has been received. If you do not, your project has not been submitted!
2. Your teacher will upload your site to the school website and send you an email to let you know the URL.

Gathering Results:

1. Your surveys will be online for a period of 1 week.
2. During this time, it is your responsibility to visit the surveys of your class members and complete them.
3. It would also be a good idea to try to get others to complete your survey. Speak to other classes and request they complete your survey as well.
4. At the end of the week, you will receive a printout or file of your results.

Task 4 – Create Frequency Distribution Diagrams:

1. Open MS Excel.
2. Open the file “survey_template.xls”. Rename this file following the protocol, “firstname_lastname_class.xls”, and save it in your student directory.
3. For each question, you will need to make one frequency distribution table.
4. Give your table a title.
5. Name the categories.
6. Input your survey data.
7. To calculate the relative frequency, divide the frequency by the total.
8. To calculate the percent frequency, multiply the frequency by 100.
9. To calculate the number of degrees, multiply the relative frequency by 360.
10. SAVE YOUR WORK!!

Task 5a: Create a Bar Graph of the data

1. In Excel, select the category column and the frequency data from your frequency distribution table, but do not highlight the titles.
2. While the data is highlighted, click on **Insert→Chart**. This will open the Chart Wizard.
3. At step 1, select **CHART** from the chart type menu, and either the first option or the one below it from the chart sub-type menu, and then click **NEXT**.
4. At step 2, click **NEXT** to proceed.
5. At Step 3, click on the **TITLES** tab, and give your chart a title, and label the axes. Click on the **LEGEND** tab, and turn off the legend.
6. At step 4, click **AS NEW SHEET** to create the sheet as a new page in Excel.
7. Go to **Format→Sheet→Rename** to rename that sheet of your excel workbook.
8. Save your work.

Task 5b: Create a circle graph of the data

1. In MS Excel, go back to your sheet with your frequency distribution diagram (there are tabs on the bottom of the page).
2. Select the values in the category and frequency columns, but not the titles.
3. While the data is highlighted, click on **Insert→Chart**. This will open the Chart Wizard.
4. At step 1, select **CHART** from the chart type menu, and **PIE** from the chart sub-type menu. Choose any of the options from the first two columns to display your data, and then click **NEXT**.
5. At step 2, click **NEXT** to proceed.
6. At step 3, click on the **TITLES** tab to give your graph a title. Click on the **DATA LABELS** tab to decide what labels to put on your graph. Please include the category name and either percentage or value. Then click **NEXT** to proceed.
7. At step 4, click **AS NEW SHEET** to create the sheet as a new page in Excel.
8. Go to **Format→Sheet→Rename** to rename that sheet of your excel workbook.
9. Save your work.

Task 6: Create a typed report of your presentation

1. Title page
 - a. the title of your survey
 - b. your names and class
 - c. the date
 - d. visuals related to your survey topic

2. Survey Questions
 - a. Describe your survey topic. (not the specific survey questions)
 - b. Describe the survey population. (age, sex)
 - c. State the population size. (minimum 50)
 - d. Describe how and where you conducted the survey. (online)
 - e. State the specific survey question(s). Include introduction/conclusion
 - f. Include any materials used to conduct the survey.

3. Frequency Distribution Tables
 - Include frequency distribution tables for all survey questions
 - These can be printed from MS Excel

4. Bar Graphs
 - Include Bar Graphs for the results of each question
 - These can be printed from MS Excel

5. Circle Graphs
 - Include the circle graphs of the results of all questions
 - These can be printed from MS Excel

6. Conclusion/Reflection

Please include the answers to the following questions as the conclusion to your survey project:

- a. Summarize your survey findings.
- b. Were the findings as you originally expected? Why or why not?
- c. Which graph do you feel best represents your data? Why?
- d. Have you used the data in the way you stated in your introduction? Why or why not?
- e. If you had to conduct another similar survey:
 - (a) What would you do differently? Why?
 - (b) What would you keep the same? Why?

Evaluation:

Group Members: _____

	Not Yet	In Progress	Outcome has been met
F1 Demonstrate an understanding of the variability of repeated samples of the same population			
F2 Develop and apply the concept of randomness			
F3 Construct and interpret circle graphs			
F6 Extrapolate and interpolate information from graphs			
F8 Develop and conduct statistics projects to solve problems			
F9 Evaluate data interpretations that are based on graphs and tables			

Task		4	3	2	1
Survey Questions	Topic				
	Appropriate questions				
	Question writing				
Web Page	Title				
	Introduction				
	Questions				
	Conclusion				
Frequency Distribution Tables	Title				
	Headings				
	Data				
	Formulas				
Bar Graph	Title				
	Graph				
	Labels				
Circle Graph	Title				
	Graph				
	Labels				
	Legend				
Report	Title Page				
	Survey Questions				
	Frequency Distribution Tables				
	Bar Graph				
	Circle Graph				
	Conclusion				