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Breakfast

A Unit of Study for Grades 5-8

Subjects

- Math - data collection and analysis, statistics, and graphing
- Health/science - nutrition, benefits of a good breakfast, data collection and organization
- Technology - graphing, presentation, word processing
- Bible - relationship between health and spiritual life
- English - written expression

Description

This unit was inspired by statistics lessons in math class (found in grades curriculum material for grade 5-8) and developed with Project Based Learning parameters so that time to do the exercises during school could be incorporated from several different disciplines.

Students will research what constitutes a “good” breakfast and what the benefits of eating a good breakfast. They will then gather data from fellow students over a specified period about practices of breakfast-eating among our students.

Students will then organize the data, calculate statistical descriptions of that data, and produce appropriate graphs.

Faith Integration

When we want to live in complete harmony with God’s leading in our life, we will find that He is interested in our health. Students will study Biblical and Spirit of Prophecy references to God’s interest in our physical health.

Curriculum Benchmarks

Technology

National Educational Technology Standard

- Technology productivity tools

Students use technology tools to enhance learning, increase productivity, and promote creativity.

Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

- Technology communications tools

Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.

Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

- Technology research tools

Students use technology to locate, evaluate, and collect information from a variety of sources.

Students use technology tools to process data and report results.

Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

Math

National Teachers of Mathematics

Data Analysis and Probability Standard for grades 6-8

- Select and use appropriate statistical methods to analyze data.

Find, use, and interpret measures of center and spread, including mean and interquartile range.

Discuss and understand the correspondence between data sets and their graphical representations, especially histograms, stem-and-leaf plots, box plots, and scatterplots.

- Develop and evaluate inferences and predictions that are based on data

Use observations about differences between two or more samples to make conjectures about the populations from which the samples were taken.

Make conjectures about possible relationships between two characteristics of a sample on the basis of scatterplots of the data and approximate lines of fit.

Use conjectures to formulate new questions and plan new studies to answer them.

Materials/Hardware/Software

- Computer capable of running the software below
- Excel or other spreadsheet or graphing software
- Power Point, Corel Presentation or other presentation software
- Word Perfect, MS Word or other word processing software

Teacher Preparation

- Update the breakfast Hotlist page to be sure the links still work and/or add new finds
- Guide class to make work groups appropriate to the tasks involved
- After initial research into nutrition and the value of breakfast, guide students in establishing criteria for judging a specific breakfast to be good, or if not, what would fit the two other categories in the scale on the survey instrument.

Student Preparation

- Students must know the basics of the software to be used (spread sheet, presentation, and word processing), but will expand that knowledge as it is put to practice in this project.
- Students must know how to save their work on a local drive as well as how to get their work printed on one of the available printers.

Activities/Procedures

Assignment 1 Do research on the what the benefits of a good breakfast are. Include a contrast with the results of not eating a good breakfast. Use the Internet (see Hotlist sheet), the school or public library, and professional sources that might be available. Prepare a one page summary.

Assignment 2 Do research on what constitutes a good breakfast. Detail nutritional information including what is not considered wise choices including factors such as calories, ingredients present or missing, percent of or type of fat, etc. Sources are the same as above. Prepare a one page summary.

Assignment 3 Study the breakfast habits of students in this school. Study groups will develop criteria for judging a specific breakfast as “good,” “not quite adequate,” or “poor,” based on information learned in the last assignment.

The student body will be divided at the start of the survey so that each student will be surveyed by only one researcher. Each researcher in the study group will survey the same 8-12 students on each of five selected days, marking the scores as indicated on the survey instrument.

Assignment 4 Compile, analyze and prepare descriptive statistics on the complete data as collected. Include appropriate measures of central tendency, range, and outlying data.

Create a graph that displays the data in an appropriate format.

Assignment 5 Study the relationship between physical health and spiritual health. Why is God interested in your physical health as well as your spiritual well being?

Assignment 6 Create a presentation of the information learned from the activities so far. Plan the presentation as appropriate to be given to one of these two audiences: 1) your fellow students, 2) your parents.

Management Plan

Since my classroom has one computer work station for each student, scheduling is not an issue. However, the stations are arranged so that monitors are visible throughout the classroom so I can see that students are on task and are not engaged in questionable activities.

Because there are specific items to print regularly for this project, and because the single printer is not networked, there will be a sign-up log on the printer’s computer so students can reserve their time to bring files there for printing.

Students who have done advanced work on the various software applications will be identified as resource persons. Students who, in the process of creating documents and files, need help or ideas will be able to ask for some assistance and know who is a “specialist” on any particular application.

Ethics Plan

Because of the wide variety of sources students will be accessing, I will review at the onset of the project expectations regarding “original” work as seen in finished projects (especially referring to plagiarism issues already taught) as well as the proper methods of using and crediting sources information, graphics, or music.

Assessment/Evaluation

A rubric is included to assist in the assessment of the heart of this project, the statistics and graphing. This will be 40% of the final grade. 20% will be on the presentation which also has a rubric to guide. The remaining 40% will be 10% each from assessments of the documents generated by assignments 1, 2, 3, and a quiz for assignment 5.

Follow-up Activities

About a month after finishing this project, I will make a “surprise” survey of the students involved the original research. We will compare the sampled data with the original statistical analysis. It will be enlightening to see if having gone through this project appears to have made a difference in the breakfast eating habits of the students.

A Hotlist on Breakfast

An Internet Hotlist
created by Marshall Merklin

[Introduction](#) | [Nutrition](#) | [Weight Control](#) | [School Success](#) | [Faith and Nutrition](#)

Introduction

Links to get you started researching issues related to breakfast.

The Internet Resources

Nutrition

- http://www.nestle.ca/en/Enjoy_Food/Food_Facts/All_About_Breakfast/breakfast_nutrition_chart.htm
- <http://www.phitchick.com/temptationbreakfast.htm>
- <http://www.phitchick.com/temptationbreakfast.htm>
- <http://nutrition.about.com/od/nutrition101/a/breakfast.htm>

Weight Control

- <http://www.phitchick.com/temptationbreakfast.htm>

School Success

- <http://www.schoolnutrition.org/Index.aspx?id=982>
- <http://www.schoolnutrition.org/Index.aspx?id=894>

Faith and Nutrition

- <http://www.schoolnutrition.org/Index.aspx?id=671>

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Presentation

Power Point Presentation of Lessons Learned about Breakfast

Student _____

CATEGORY	4	3	2	1
Content - Accuracy	All content throughout the presentation is accurate. There are no factual errors.	Most of the content is accurate but there is one piece of information that might be inaccurate.	The content is generally accurate, but one piece of information is clearly flawed or inaccurate.	Content is typically confusing or contains more than one factual error.
Effectiveness	Project includes all material needed to gain a comfortable understanding of the topic. It is a highly effective study guide.	Project includes most material needed to gain a comfortable understanding of the material but is lacking one or two key elements. It is an adequate study guide.	Project is missing more than two key elements. It would make an incomplete study guide.	Project is lacking several key elements and has inaccuracies that make it a poor study guide.
Originality	Presentation shows considerable originality and inventiveness. The content and ideas are presented in a unique and interesting way.	Presentation shows some originality and inventiveness. The content and ideas are presented in an interesting way.	Presentation shows an attempt at originality and inventiveness on 1-2 cards.	Presentation is a rehash of other people's ideas and/or graphics and shows very little attempt at original thought.
Use of Graphics	All graphics are attractive (size and colors) and support the theme/content of the presentation.	A few graphics are not attractive but all support the theme/content of the presentation.	All graphics are attractive but a few do not seem to support the theme/content of the presentation.	Several graphics are unattractive AND detract from the content of the presentation.
Text - Font Choice & Formatting	Font formats (e.g., color, bold, italic) have been carefully planned to enhance readability and content.	Font formats have been carefully planned to enhance readability.	Font formatting has been carefully planned to complement the content. It may be a little hard to read.	Font formatting makes it very difficult to read the material.

Graphing: Graph for Breakfast Research Data

Student _____

CATEGORY	4	3	2	1
Accuracy of Plot	All points are plotted correctly and are easy to see. A ruler is used to neatly connect the points or make the bars, if not using a computerized graphing program.	All points are plotted correctly and are easy to see.	All points are plotted correctly.	Points are not plotted correctly OR extra points were included.
Type of Graph Chosen	Graph fits the data well and makes it easy to interpret.	Graph is adequate and does not distort the data, but interpretation of the data is somewhat difficult.	Graph distorts the data somewhat and interpretation of the data is somewhat difficult.	Graph seriously distorts the data making interpretation almost impossible.
Data Table	Data in the table is well organized, accurate, and easy to read.	Data in the table is organized, accurate, and easy to read.	Data in the table is accurate and easy to read.	Data in the table is not accurate and/or cannot be read.
Labeling of X axis	The X axis has a clear, neat label that describes the units used for the independent variable (e.g, days, months, participants' names).	The X axis has a clear label that describes the units used for the independent variable.	The X axis has a minimal label.	The X axis is not labeled.
Labeling of Y axis	The Y axis has a clear, neat label that describes the units and the dependent variable	The Y axis has a clear label that describes the units and the dependent variable	The Y axis has a minimal label.	The Y axis is not labeled.
Accuracy of Plot	All points are plotted correctly and are easy to see. A ruler is used to neatly connect the points or make the bars, if not using a computerized graphing program.	All points are plotted correctly and are easy to see.	All points are plotted correctly.	Points are not plotted correctly OR extra points were included.

How is Good Physical Health Related to Spiritual Health?

A Worksheet to Explore Scripture and Spirit of Prophecy References

Name _____

Instructions: record in your own words what each reference has to say about God's interest in your health.

Reference	Summary
Psalm 38:3	
Proverbs 4:21-23	
Proverbs 15:29-31	
III John 1:2	
Councils on Diet and Food, p. 20	
Testimonies Vol. I, p. 325; 515-6	
Councils on Health, p. 566	
Gospel Workers, p. 242	

Survey Instrument

Breakfast Research

Instructions: Survey each student, identified by the number on the left, on each day of the survey. Evaluate what the student reports he/she ate for breakfast that morning based on criteria the research team establishes after its research on breakfast nutrition. Circle a number as follows depending on the judgement you make:

- 0 - No breakfast
- 1 - Very little and/or very poor nutrition
- 2 - Short of adequate
- 3 - Good breakfast

Student	Day 1	Day 2	Day 3	Day 4	Day 5
1	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
2	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
4	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
5	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
6	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
7	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
8	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
9	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
10	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
11	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
12	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3