

Burger Data-

Analyzing calories, fat and sodium in popular fast-food chain hamburgers

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Activity overview

Students will explore nutritional information for several fast food hamburgers using statistical applications. This exploration involves analyzing calories, fat, and sodium content of several popular fast food hamburgers. The data will be used to general box-and-whisker plots, which help students comprehend the data. Students will be asked questions relating to consumption and choices regarding fast food hamburgers. This activity could easily be extended.

Concepts

Box-and-Whisker Plots

Median

Teacher preparation

Load the burgers.tns file onto all student calculators.

The burger.tns file is for the teacher to be able to view the results the students should obtain as they work through this activity.

A worksheet file, burgerws.doc is also available with this activity.

Classroom management tips

The instructor should direct students to open the burgers.tns file. Once students have opened the file, the teacher should monitor students, assisting them as they work through the steps provided. Students may answer the questions in the burgers.tns file or a worksheet may be created to provide a place for students to give written responses. This activity should be followed with discussion regarding the nutritional aspects of fast food and eating within dietary limits. The caloric content of fresh fruits and vegetables should be shared as a comparison to help students see that they get more for their calories out of fruits and veggies.

TI-Nspire Applications

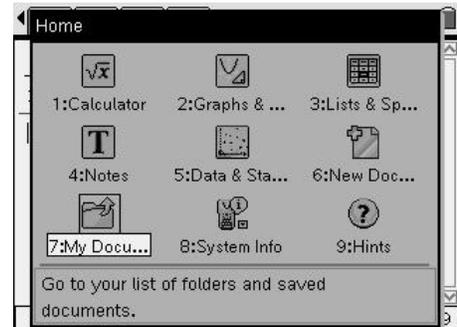
Spreadsheets

Statistics

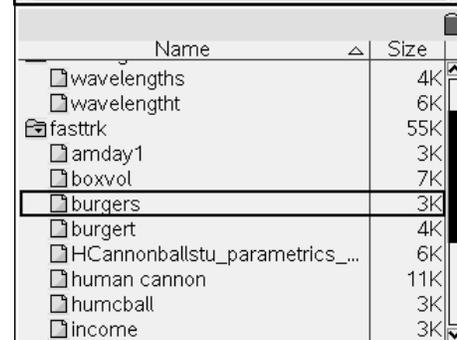
Box-and-Whisker plots

Step-by-step directions

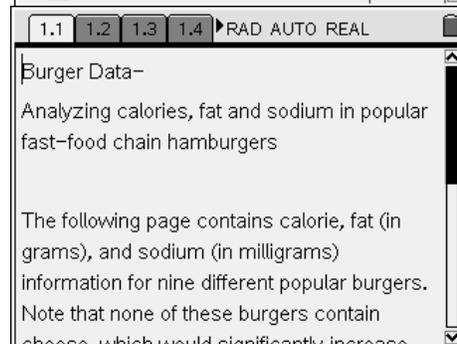
1. At the home screen, select My Documents.



2. Browse to the folder titled burgers.



3. The first page of the document should appear as shown. Read this page to familiarize yourself with what this activity is about.



4. Move to the next page of the document by using . On this page, you will find a spreadsheet with calorie, fat, and sodium data for various fast food burgers.

The screenshot shows a spreadsheet with the following data:

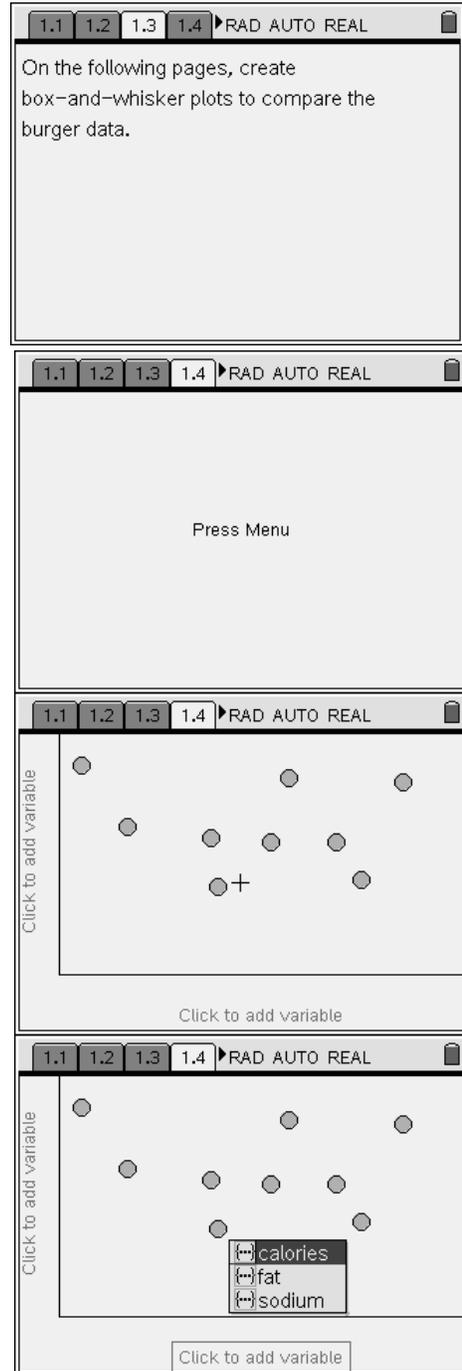
	A	B calories	C fat	D sodium
1	whopper	680	39	940
2	carl's star	590	32	910
3	DQ ultim...	670	43	1210
4	jumbo jack	560	33	800
5	big'n tasty	540	32	970

5. Move to the next page of the document by using  . Read this page to get an overview of what you are to do on the next few document pages.

6. Move to the next page of the document by using  . On this page, you will first need to select the page type. To do this, press  and select choice 5, Add Data & Statistics.

7. You will then view a scattered plot. You need to first select the variable for the x-axis. Using the Nav Pad, move the cursor to the bottom to the “click to add variable” label. Click here and you will be given options for the x-variable.

8. For the first plot, we will select calories. For the 2nd and 3rd plots, you will use fat and sodium respectively.

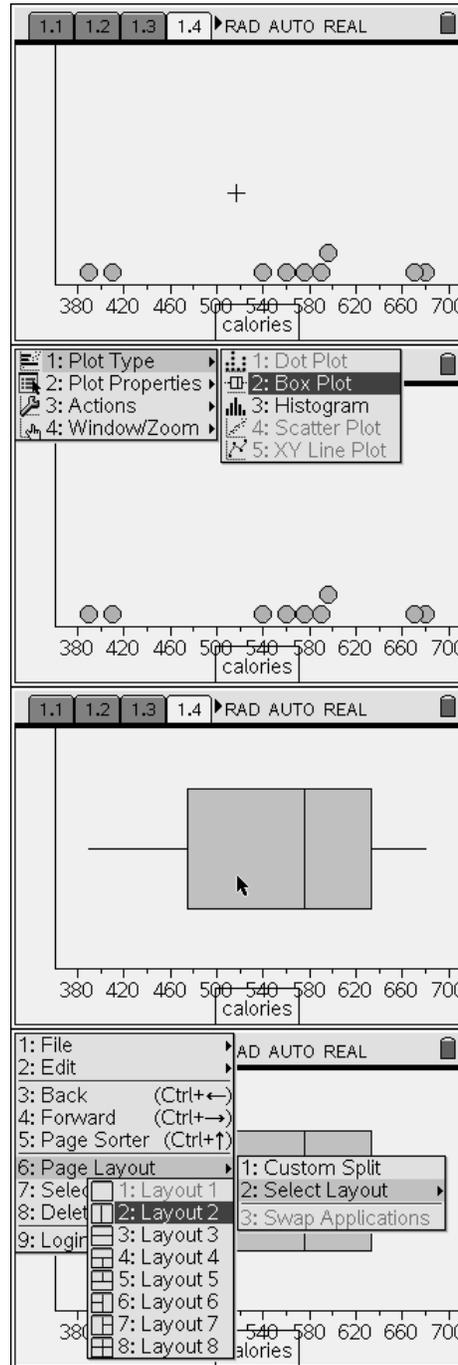


9. A dot plot for calories should now appear. This is one way to represent the data, but we will go one step further with this plot.

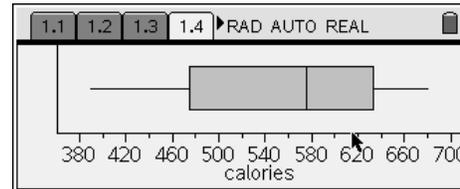
10. Press $\text{\textcircled{m}}$, select 1:Plot Type, followed by 2:Box Plot

11. Your box plot will then appear.

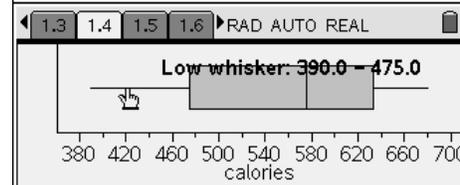
12. To view two graphs on one screen, we will next split the screen. Press $\text{\textcircled{c}}$ followed by $\text{\textcircled{f}}$ and select 6: Page Layout, followed by 2: Select Layout, followed by 3: Layout 3.



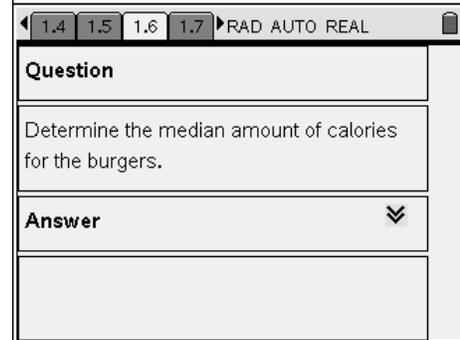
13. Now you can move your cursor down to the bottom portion of the screen, press , and proceed to create a box plot for fat. On the next page of the document, you will similarly set up a single box plot for the sodium data.



14. On each plot, you can access key values by moving the cursor over the box plot. As you move the cursor, the  symbol will appear and the key interval values will be displayed on the screen.



15. The remaining pages have questions with answer spaces. Students may answer the questions on the screen and save their answers with their completed file on the Nspire, or they may answer questions on the associated worksheet.



A question and answer form on a calculator screen. The question is: 'Determine the median amount of calories for the burgers.' The answer field is currently empty. The form is titled 'Question' and 'Answer'.

Assessment and evaluation

- Collect the student questions and/or .tns files from the handhelds and assess them for understanding.
- Follow up with a similar activity, providing somewhat decreased instruction to check for understanding of the process and concepts involved. A good way to do this might involve having the students choose another favorite fast food item and make similar comparisons. There are many great sources of data available through internet sources, which make the possibilities for this type of exploration virtually endless.

Activity extensions

- This activity provides an excellent opportunity for math and health teachers to work cooperatively in the study of nutrition and decision making regarding eating habits.

Student TI-Nspire Document
burgers.tns

1.1 1.2 1.3 1.4 ▸RAD AUTO REAL

Burger Data-

Analyzing calories, fat and sodium in popular fast-food chain hamburgers

The following page contains calorie, fat (in grams), and sodium (in milligrams) information for nine different popular burgers. Note that none of these burgers contain cheese, which would significantly increase

1.1 1.2 1.3 1.4 ▸RAD AUTO REAL

A	B calories	C fat	D sodium
1 whopper	680	39	940
2 carl's star	590	32	910
3 DQ ultim...	670	43	1210
4 jumbo jack	560	33	800
5 big'n tasty	540	32	970

A7 |

1.1 1.2 1.3 1.4 ▸RAD AUTO REAL

On the following pages, create box-and-whisker plots to compare the burger data.

1.1 1.2 1.3 1.4 ▸RAD AUTO REAL

Press Menu

1.2 1.3 1.4 1.5 ▸RAD AUTO REAL

Press Menu

1.3 1.4 1.5 1.6 ▸RAD AUTO REAL

Question

Determine the median amount of calories for the burgers.

Answer ▾

1.4 1.5 1.6 1.7 ▸RAD AUTO REAL

Question

How many of these burgers of median caloric content you eat in a day to reach the suggested calorie consumption for a typical adult male or female between the ages of 25 and 50?

The energy (calorie) intake suggested by the Food and Nutrition Board of the National

1.5 1.6 1.7 1.8 ▸RAD AUTO REAL

Question

What is the median number of grams of fat for the burgers?

Answer ▾

1.6 1.7 1.8 1.9 ▸RAD AUTO REAL

Question

netrition.com recommends 65 grams of fat for adults and children 4 or more years of age. How many burgers with this median amount of fat would fit into a diet that limits fat to 65 grams per day?

Answer ▾

1.7 1.8 1.9 1.10 ▸RAD AUTO REAL

Question

What was the median amount of sodium for the given burgers?

Answer ▾

1.8 1.9 1.10 1.11 ▸RAD AUTO REAL

Question

netrition.com recommends 2400 mg of sodium per day for ages 4 and over. How many burgers with the median level of sodium could you eat in a day and not exceed 2400 mg?

Answer ▾