

Comparing Double Line Graphs and Box Plots

By – Ellery Palma

Activity overview

Students will look at trend data for both a double line graph and a box plot. Students will begin to understand the difference in regards to the data that is presented and when to use either graphical representation.

Concepts

Double Line Graph, Table of Values, Box plot, Central Tendency; (Range)

Teacher preparation

I would recommend that the activity is completed before presenting the lesson to the class in order to calculate the range of the given data and to understand the trends that are presented in the data table.

Copies of extension/summary packet- Homework Assignment.

Classroom management tips

The students can sit in pairs or groups of four so that they can ask questions easily with completing the investigation; however each student can use their own calculator in order to complete the task.

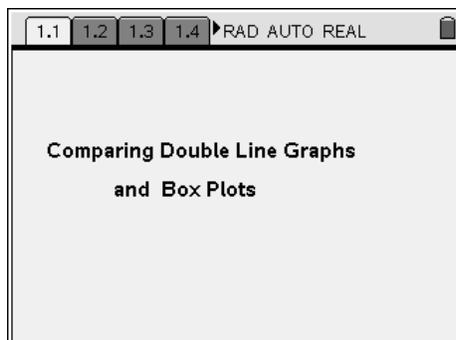
The summary/extension packet can be assigned and completed for homework.

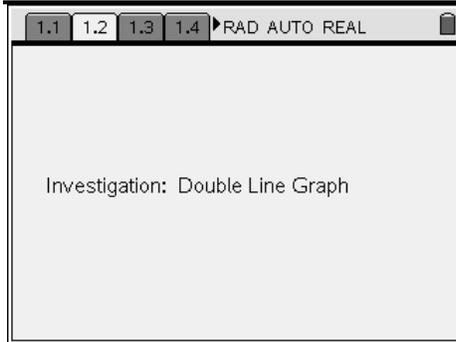
TI-Nspire Applications

DoubleLine_Graph.tns

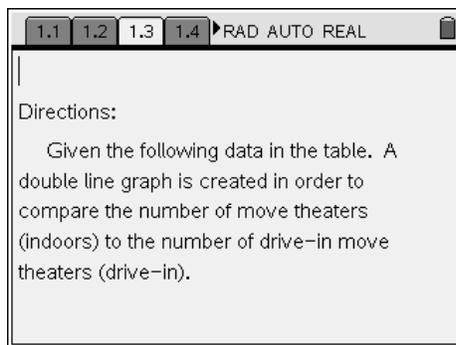
Step-by-step directions

(1.1): Title Page

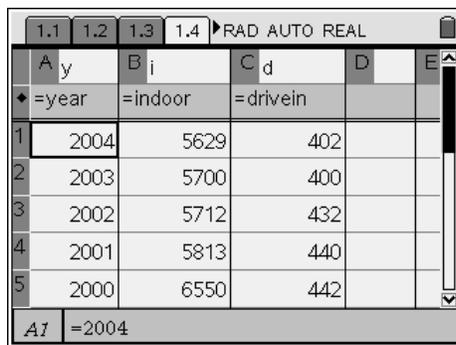




(1.2): Students will investigate the trends in a table of data and how this is presented in a double line graph.

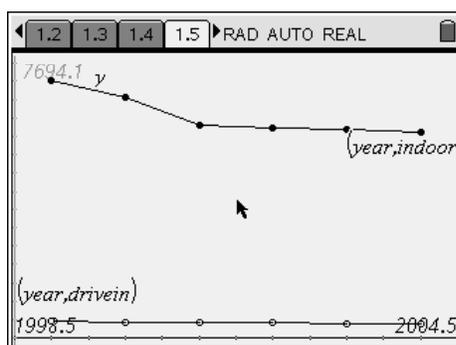


(1.3): Directions page: Read aloud to the class.



| A | y | B | i | C | d | D | E |
|----|-------|---------|----------|---|---|---|---|
| ◆ | =year | =indoor | =drivein | | | | |
| 1 | 2004 | 5629 | 402 | | | | |
| 2 | 2003 | 5700 | 400 | | | | |
| 3 | 2002 | 5712 | 432 | | | | |
| 4 | 2001 | 5813 | 440 | | | | |
| 5 | 2000 | 6550 | 442 | | | | |
| A1 | =2004 | | | | | | |

(1.4): Data Table: Comparing Indoor Movie Theaters and drive-in theaters. Students can be asked if they can see the trend in the data.



(1.5): Double Line Graph: Student should now be able to recognize the trend in the data that is given.

1.3 1.4 1.5 1.6 RAD AUTO REAL

Question

How do you interpret the data that is graphically represented? What are the trends in the given data?

Answer ▾

(1.6): Students are then asked to explain the trends in the data. What do each of them observe in the data that is given to them?

1.4 1.5 1.6 1.7 RAD AUTO REAL

Investigation: Box Plot

(1.7): Investigation #2: Looking at the given data as a box plot.

1.5 1.6 1.7 1.8 RAD AUTO REAL

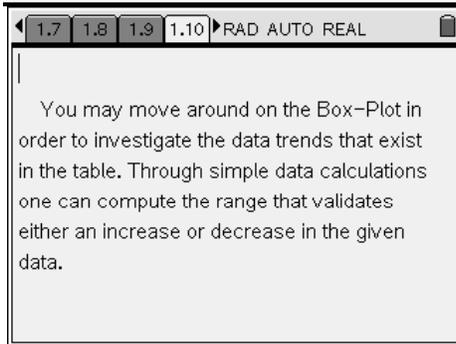
When comparing the given data, it is imperative that one understands the importance of knowing when to use a particular graphs and how to interpret the specific data trends that present themselves. When looking at the data in the table on the next page; one may interpret specific data trends in regards to range and median as well as least and greatest number of theaters both

(1.8): Students can read what a box plot can be used for on their own.

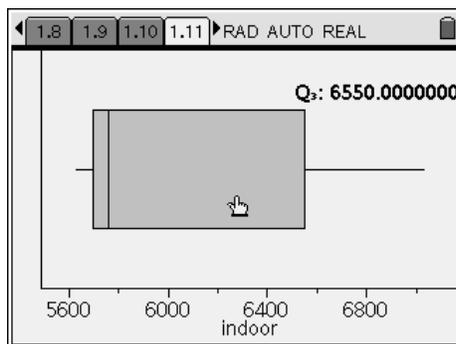
1.6 1.7 1.8 1.9 RAD AUTO REAL

| A y | B i | C d | D | E |
|----------|---------|----------|---|---|
| =year | =indoor | =drivein | | |
| 1 2004 | 5629 | 402 | | |
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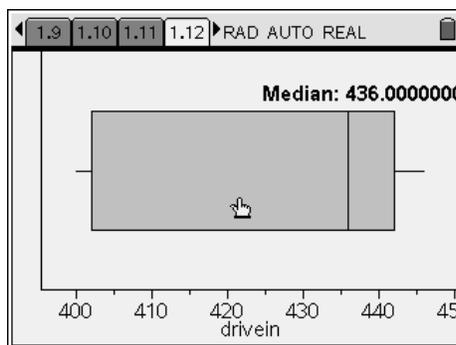
(1.9): Data Table: Comparing Indoor Movie Theaters and drive-in theaters. Students can be asked if they can see the trend in the data. This is the same exact data that was presented.



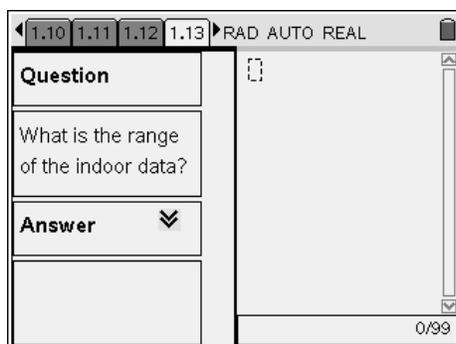
(1.10): Direction on how to use the box plot on the TI-nspire



(1.11): Box Plot of the indoor theater data. Students can investigate the central tendency data that is given to them in the table.

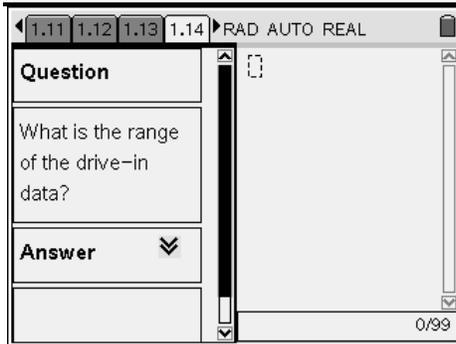


(1.12): Box Plot of the drive-in theater data. Students can investigate the central tendency data that is given to them in the table.



(1.13): Students are then asked to compute the change in the data for indoor theater data. Students can use the calculation page to the right. Students can write what they observe with the range or the change in the data in the answer space as well.

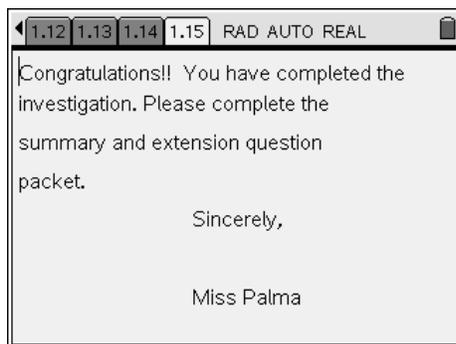
$$7031 - 5629 = 1402$$



(1.14) Students are then asked to compute the range for the drive-in data. Students can explain which has the greater change in regards to the indoor and drive-in theaters.

$$446 - 400 = 46$$

(1.15): Final page: Change the name in for your class or delete the page if preferred.



Assessment and evaluation

Students will complete the word document of summary and extension problems

Summary Extension_DoubLineBoxPlot.doc

Activity extensions

Students will investigate when to use a double line graph or box plot when given certain data situations; they will also create a double line graph for money in a checking account for two people then they will explain/describe that data trends that have been presented to them in the graph.