

Raisin the Statistical Roof Lesson Plan

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Goal: To use small boxes of raisins to gather a data set to analyze using various methods.

Grade and Course: Math 7th grade

KY Standards:

MA-7-DAP-S-DR1

Students will collect, organize, construct, analyze and interpret data and data displays in a variety of graphical methods, including circle graphs, multiple line graphs, double bar graphs and double stem-and-leaf plots.

MA-7-DAP-S-DR4

Students will relate different representations of data (e.g., tables, graphs, diagrams, plots).

MA-7-DAP-S-ES1

Students will pose questions; collect, organize and display data.

MA-7-DAP-S-DR2

Students will select an appropriate graph to represent given data and justify its use.

MA-7-DAP-S-CD1

Students will make predictions, draw conclusions and verify results from statistical data and probability experiments.

MA-7-DAP-S-CD2

Students will determine, apply and compare measures of mean, median, mode and/or range, as appropriate to the problem situation.

MA-7-DAP-S-P1

Students will make predictions, draw conclusions and verify results from statistical data and probability experiments.

MA-7-DAP-S-P3

Students will investigate and explain the role of probability in decision making.

Objectives: The students should be able to calculate mean, median, mode, five number summaries, graph a line plot and box-and-whisker plot, and make predictions based on statistical data.

Resources/materials needed:

Smart Board/White Board

One small box of raisins per student

One worksheet per student

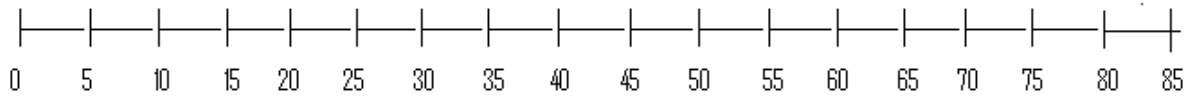
Description of Plan: Begin by handing out the worksheets. Ask the students to read over the worksheet and see if they remember any of the calculations required of them. Hand each of the students a box of raisins, be sure to remind them that they need to be mature and keep their raisins to themselves. Also, tell them not to open their box of raisins. Then as a class, ask them to estimate the number of raisins in the box without opening it. After they have made this estimation, ask them to open the box, but not to pour out the raisins, but to make a revised estimate of the number of raisins based on how many raisins they see in the box. Ask them if they understand why they are making a revision. Then have them take their raisins out of the box and count them to see how close their estimates were.

After they have completed their count, have the students tell you what their count was, and then you have formed a set of data to analyze. Ask the students to

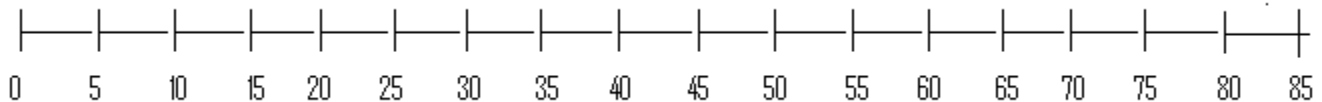
Raisin the statistical roof!

1. Without opening the box, estimate the number of raisins you will find inside.
2. Open the box, but do not take the raisins out. Now estimate the number of raisins you will find inside. Has your estimate changed? Why?
3. Now take out the raisins and count how many are in the box. Raise your hand and tell Ms. Sullivan what you total was.
4. What way should we analyze this data? What kind of graph should we use? (It doesn't have to be one that we discussed last time)
5. Sketch the graph that you think we should use.
6. Find the mean, median, and mode of the class data. Which one would best be used in this case?
7. Find the five number summary.

8. Draw a box-and-whisker plot of the data. (Mrs. Sullivan will help, pay attention because you will have to do this on your own later).



9. Draw a line plot of the data. (Mrs. Sullivan will help, pay attention because you will have to do this on your own later).



10. If we were to open five more boxes, how many raisins would we expect to be in each?
11. We are going to open five more boxes and add them to our line chart. Does this change how many raisins we would expect?
12. Based on the data, what is the probability of getting _____ raisins? Mrs. Sullivan will fill in this blank with a few numbers.

Use the following data to answer the questions:

46	25	41	42	31
51	33	39	40	57
28	24	37	54	38
51	39	47	30	53
56	45	34	27	48
49	49	26	33	35

13. Find the mean, median, and mode of the data.

14. Draw a sketch of a line graph.

15. Draw a box-and-whisker plot.

draw an appropriate graph for the data, then discuss what is the correct method of analyzing (this should be a bar graph or histogram).

Then help the class go through and calculate the mean, median, and mode of the set of data. Remind them which center to calculate in which situation, (in this situation, with no outliers, calculate the mean). Help them to also calculate the five number summary, draw a box-and-whisker plot, and line graph from the summary. Have them make an educated guess as to how many raisins would be in five more boxes, and then choose five students to open five more boxes. Then add the counts to the line plot. Explain to the students (after some discussion) that the additions will probably not change our opinion on what an average box contains. Then have them calculate the statistics for the data set provided for them on the worksheet.

Lesson Source: Used Numbers: Real Data in the Classroom

Instructional Mode: Worksheets, Smartboard/Whiteboard, Discussion

Date Given: March 17, 2008

Estimated Time: 1.5 hours

Date Submitted to Algebra ³ : August 26th, 2008

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