Valentine Hearts Investigation

How similar and different are boxes of valentine heart candy?

In this investigation, we will study boxes of valentine heart candy to find out if this product is predictable. By examining boxes of candy, can you make reliable predictions about an unopened box of the same brand? Let's find out!

Developed by Laura Candler ~ Teaching Resources ~ www.lauracandler.com

Valentine Hearts Investigation

Materials Needed: 11 boxes of valentines heart candy

Procedure:

As a class, we will weigh 10 boxes of valentine heart candies and then make a prediction about the weight of an unopened box. Then we will count the candies in those 10 boxes and make a prediction about the total number in the unopened box. Finally, we will chart and graph the number of candies of each color and look for patterns in the data.

Valentine Hearts Investigation

Part 1 - Weight

Guiding Questions

- How much do you think a box of candy weighs?
- How can we find out?
- Do all boxes weigh the same amount?
- How can we chart or graph this data?

Valentine Hearts Investigation

Part 1 - Weight - Results

Box 7 - 35 g

Box 2 - 28 g

Box 10 - 35 g

Box 3 - 37

Box 5 - 33 g

Box 6 - 32 g

Box 4 - 35 g

Box #1 = 34 grams

Box 8 - 33 g

Box 9 - 38 g

Valentine Hearts Investigation

Part 1 - Weight - Results

Box #1 = 34 grams

Box 2 - 28 g

Box 3 - 37

Box 4 - 35 g

Box 5 - 33 g

Box 6 - 32 g

Box 7 - 35 g

Box 8 - 33 g

Box 9 - 38 g

Box 10 - 35 g

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Part 1 - Weight - Results

outlier

Box Number	Weight (g)
Box 1	34 ✓
Box 2	28 ✓
Box 3	37 ✓
Box 4	35 ✓
Box 5	33 ✓
Box 6	37 ✓
Box 7	35 ✓
Box 8	33 ✓
Box 9	38 ✓
Box 10	35 ✓

28, 33, 33, 34, 35, 35, 37, 37, 38

Range 10

Mode 35

Median 35

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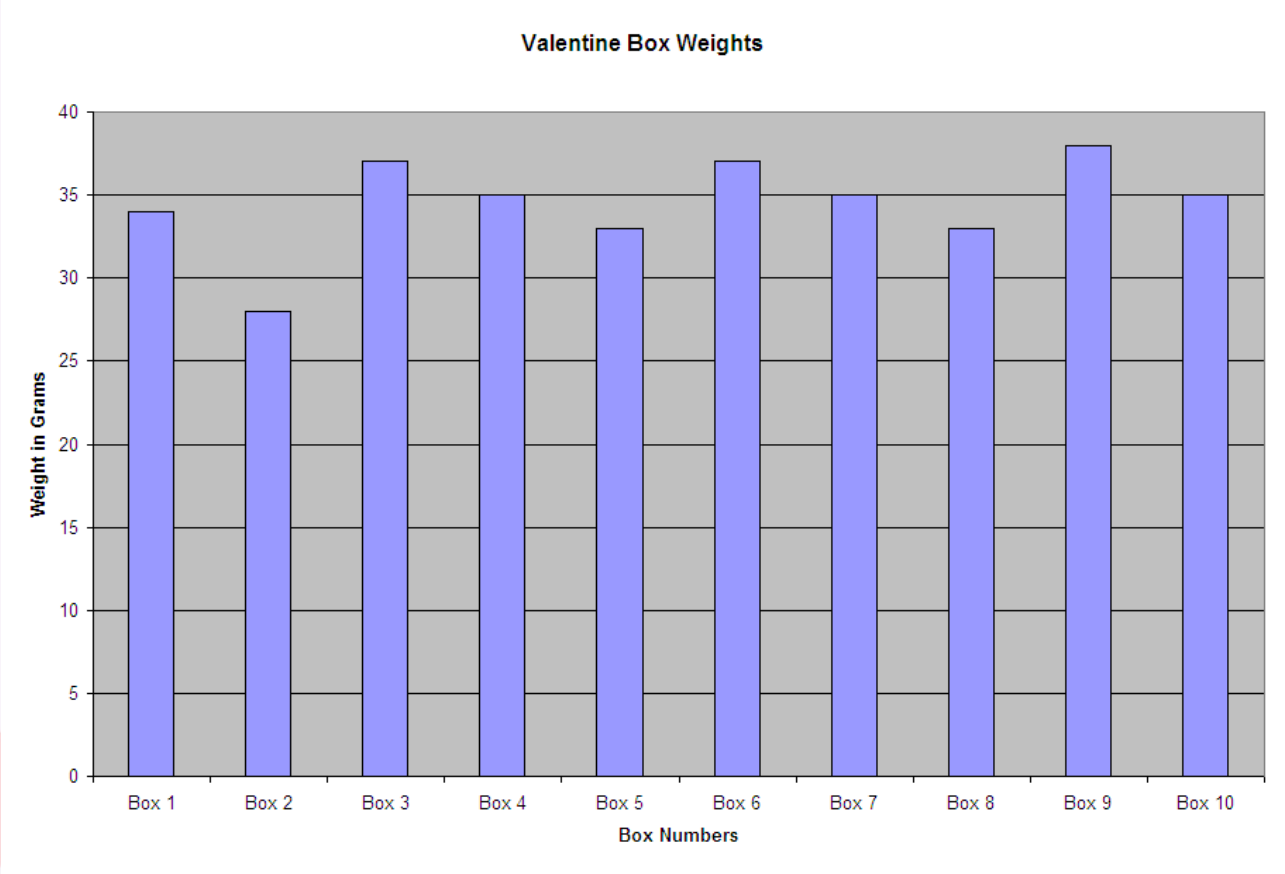
Part 1 - Weight - Graph



Valentine Hearts Investigation

Part 1 - Weight - Predictions

- Predict the weight of an unopened box of candy hearts of the same brand. Use range, mode, median, and/or mean to justify your prediction.

"I predict that the box will weigh _____ grams. The reason I make this prediction is . . . "

- Now weigh the unopened box. How close was your prediction?

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Part 2 - Total Candies

Guiding Questions

- Do all boxes have the same number of candies?
- If they don't, how can we use statistics (range, mode, median, mean) to describe those differences?
- How could we chart or graph the data?

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Part 2 - Total Candies - Results

Box 1 29

Box 2 23

Box 332

Box 428

Box 525

Box 632

Box 727

Box 828

Box 932

Box 1028

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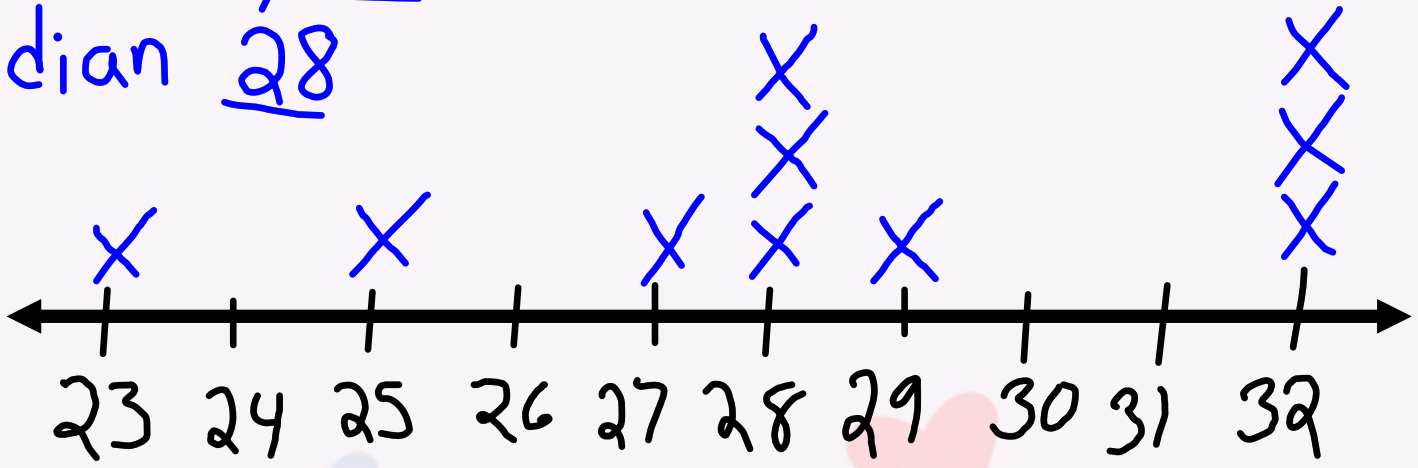
Part 2 - Total Candies - Results

Range 9

Mode 28, 32

Median 28

Line Plot



bi-modal

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Part 2 - Total Candies - Predictions

- Predict the total number of candies in an unopened box of candy hearts of the same brand. Use range, mode, median, and/or mean to justify your prediction.

"I predict that the box will have _____ candies. The reason I make this prediction is . . . "

- Now open the box and count the candies. How close was your prediction?

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Part 3 - Color Variations

Guiding Questions

- Do all boxes have the same number of each color?
- If not, which color occurs more frequently than the others?
- How can we chart this data?
- How can we use statistics to describe the differences between those numbers?

Valentine Hearts Investigation

Part 3 - Color Variations - Results

	Pink	White	Green	Orange	Yellow	Purple	Totals
Box 1							
Box 2							
Box 3							
Box 4							
Box 5							
Box 6							
Box 7							
Box 8							
Box 9							
Box 10							
Totals							

Valentine Hearts Investigation

Part 3 - Color Variations - Results

Box Number	White	Pink	Orange	Yellow	Green	Purple
Box 1	5	12	1	5	2	4
Box 2	5	11	2	1	8	4
Box 3	4	5	4	4	16	5
Box 4	1	3	4	3	9	8
Box 5	7	6	3	3	5	3
Box 6	3	4	4	2	4	10
Box 7	6	2	6	5	5	5
Box 8	6	5	4	5	4	4
Box 9	5	7	7	4	5	4
Box 10	5	4	3	6	5	5

Range

W - 6

P - 10

O - 8

Y - 5

G - 10

Pu - 7

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Part 3 - Color Variations - Analysis

Data Analysis Questions

- Which color occurs most frequently in each box?
- Is this color the same color in all boxes?
- What is the range of orange hearts?
- What is the median number of white hearts?
- What is the mode of green hearts?
- What is the mean number of pink hearts in each box?
- Is the total number of hearts related to the weight of the box?