Brick Math Lesson of the Month
March 2023

Representing Data
from
## *Data and Statistics Using LEGO® Bricks*

Teacher Lesson Guide

Part 1: Show Them How

Discuss the term *data*. Ask students, "What do you think of when you hear the word 'data'?" (*Possible answers include: numbers, information, or amount of things in a set*)

Discuss the definitions of *data* and *data set* with students. *Note*: At this point in the understanding of data sets, students are not ready for the term "axes." This lesson is the precursor to learning about the x and y axes.

Discuss the term *category* with students. Discuss that it refers to the topic for which data is being gathered. Provide examples such as colors, animal types, etc.

Have students build a data set using the category *color*. Students should choose any 10 bricks with 3 colors. Have them place the bricks with like colors in rows as in the illustrated example.
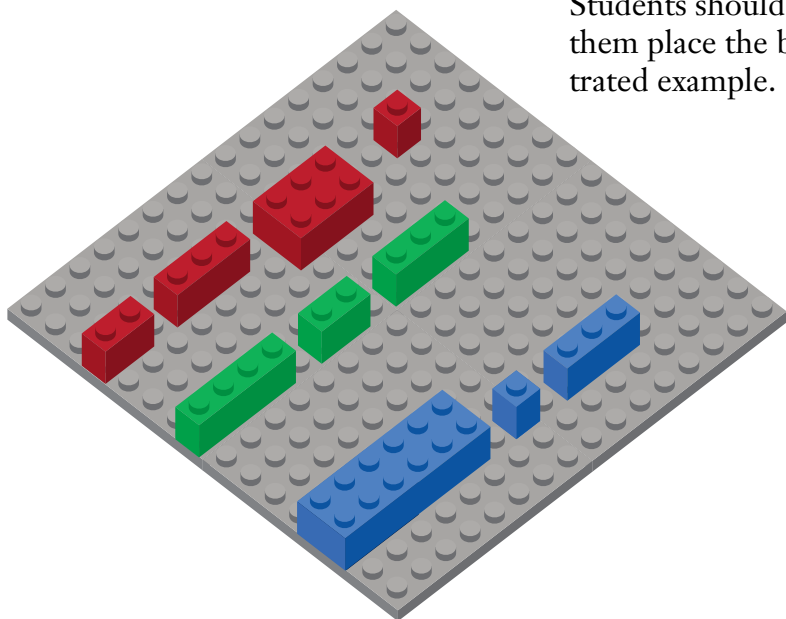
Ask students:
- Which color has the most studs? (*Answer:* in this example, blue has the most studs, with 16)
- Which color has the least number of studs? (*Answer:* in this example, green has the least studs, with 9)

Ask students what it means to analyze data. (*Answer:* to make sense of data and use it to answer questions) Tell students that when they look at data and make comparisons, they are analyzing the data set.

Introduce the terms *data point*, *data set*, and *analyze* using the brick model you have created.
- Explain that each color represents a *data set* about a specific color.
- Explain that each stud within each set represents a *data point*.
- Explain that when they compare the number of data points in each color's data set, they are *analyzing* the data.

1. Pose the following scenario: Grayson is taking a survey about the number of people that like to go to certain places for fun. He gave students three choices: mountains, beach, or amusement parks.

- Red will represent people who like amusement parks
- Blue will represent people who like the beach
- Green will represent people who like the mountains

There are 24 students in the class.

This is the data Grayson received:

8 people like amusement parks
14 people like the beach
2 people like the mountains

Build a model of the data and analyze the data using the questions below.

Note: This is a good opportunity to see if/how students create the numbers using one-to-one correspondence and various brick sizes.
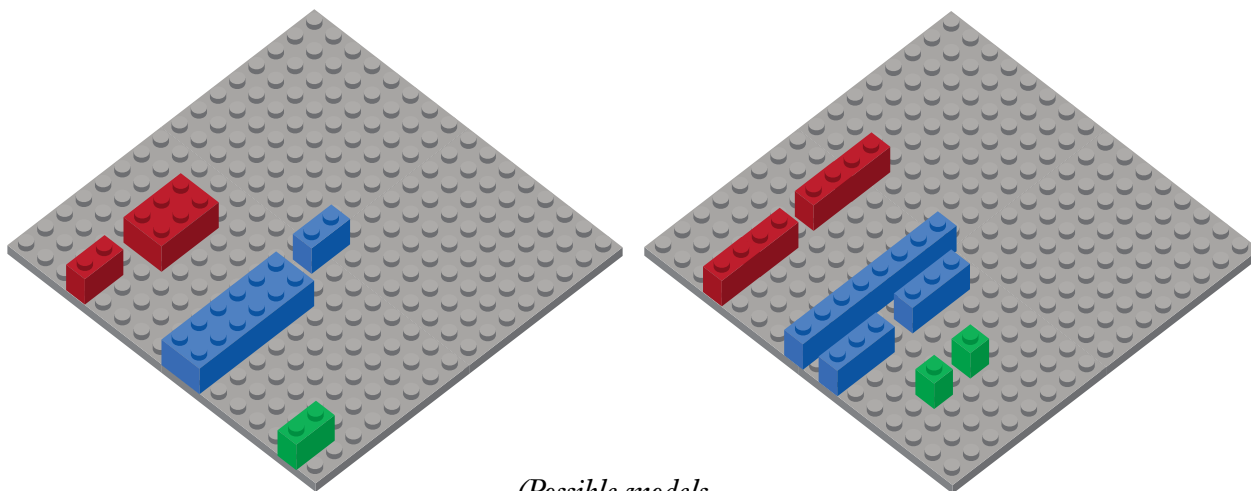
(Possible models, many solutions are appropriate.)

Ask students the following questions:
- Which data set has the most data points? (*Answer*: beach, because there are more blue studs than red or green studs)
- Which place is liked the least by the students? (*Answer:* mountains, because only 2 students like it, as shown with 2 green studs)
- How many people like to go to amusement parks? (*Answer:* 8, as shown with 8 red studs)
  How many data sets are there? (*Answer: 3*)

After students can identify data points and number of data sets, introduce the symbols <, >, and =. Show students how to use data points to write numerical sentences.

Say: Let's write a math sentence that shows that there are fewer people who like the mountains than the beach. (*Answer: 2 < 14*) *Note*: You can tell students that this can be generalized in later math to mean that for every 2 people

who like the mountains, there are 14 who like the beach. In upper grades, students will use a ratio format to analyze data.

REPRESENTING AND INTERPRETING DATA (UP TO THREE CATEGORIES)

Part 1

Choose any ten bricks and build a data set using the category *color*. Place your bricks in rows with like colors.

Which color has the most studs?_____

Which color has the least number of studs? _____

What does it mean to analyze data?

_____

_____

_____

1. Grayson is taking a survey about the number of people that like to go to certain places for fun. He gave students three choices: mountains, beach, or amusement parks.

- Red will represent people who like amusement parks
- Blue will represent people who like the beach
- Green will represent people who like the mountains

There are 24 students in the class.

This is the data Grayson received:

      8 people like amusement parks
      14 people like the beach
      2 people like the mountains

Build a model of the data, draw it, and analyze the data using the questions below.

Questions:

Which data set has the most data points? _____

Which place is liked the least by the students? _____

How many people like to go to amusement parks? _____

Using the symbols of comparison (<, >, =) write three math sentences that show comparison of your data set.

_____

_____

_____