



**DATA KIDS**

# Building Blocks Activity



# Data Kids: Building Blocks

Presented by: Tableau

## Learn about data while sorting and stacking blocks

*Bonus: put them all away when you finish!*



### Timing

Budget approximately 15 minutes for the initial setup and introductory exercise.

### Overview

Building blocks are a fun way to tap into the vast imagination of children while helping them build critical skills. Because you can collect, summarize and graph them, building blocks are also great subjects of data activity.

We designed this activity in such a way that learners ages 5 through 8 will be able to participate. Depending on age, some children will need adult supervision, while others can complete the steps independently. Family participation is encouraged.

## Learning Objectives

- Learn to categorize blocks by:
  - Color
  - Shape
  - Size
- Practice observation and curiosity.
- Learn to collect and organize data.
- Learn to make a bar chart with blocks and on paper.

## Supply List

- Blocks! Choose your favorite blocks with a mix of colors, shapes, and sizes
- Pens and paper
- (Optional) A ruler (if you care about straight lines)
- (Optional) Camera to take pics of your block bar chart
- (Optional) Print this activity sheet
- (Optional) Download additional worksheets from our [Data Kids block templates \(zip file\)](#)

## Introduction

A [study](#) conducted by the Society for Research in Child Development revealed that “block building and puzzle play can improve children’s spatial skills that in turn support complex mathematical problem-solving in middle and high school.” Block play can also develop hand-eye coordination while helping children learn about shapes, sizes, colors, and beyond.

## Warm-Up

Ready to start building? The most important part is to have fun—encourage curiosity and ask questions! Start with a conversation about building blocks.

- Which color do you think you have more of?
- Which color do you think you have fewer of?
- What would you like to build after organizing them?

## Instructions for younger audiences

1. Empty your blocks onto a flat surface



2. Sort your blocks by the characteristics of your choice

- How would you like to sort and organize your blocks? Pick between:
  - Color
  - Size
  - Shape
- We chose color:



Younger learners:

- Discuss what your kids might want to record about their blocks. Ideas include characteristics like color, size, number of pegs, etc.

- Document any observations. A printable observation log is available in our Data Kids Folder.
- Count and record each block's color with a tally mark to track how many you have of each. A printable tally sheet is available in our [Data Kids block templates \(zip file\)](#).

Older learners:

- Draw a table or use the sample template from our [Data Kids block templates \(zip file\)](#).
- Count and record each block's color with a tally mark to help track how many you have of each.

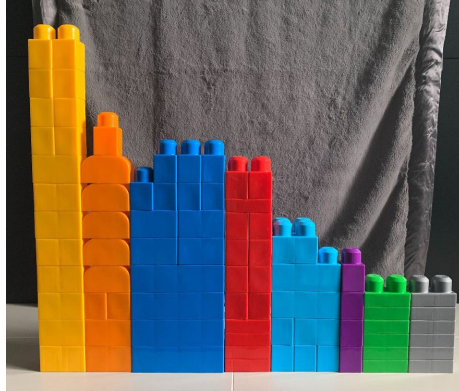
| COLOR      | # of Blocks |
|------------|-------------|
| Yellow     |             |
| Orange     |             |
| Blue       |             |
| Purple     |             |
| Red        |             |
| Green      |             |
| Silver     |             |
| light Blue |             |

Stack your blocks

- On a flat surface, stack your blocks by color, with the largest blocks on the bottom, smallest on top.



3. Sort your blocks from high to low (tall to short)



Congratulations, you just built a bar chart! Next step, let's do this on paper.

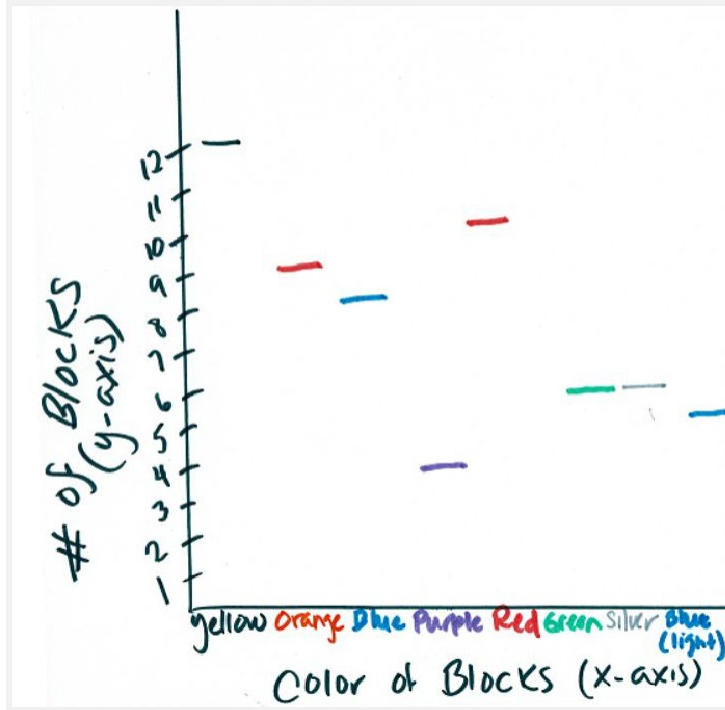
4. Summarize your data

- Draw a table with each color listed in the first column (see example below).
- From your tally sheet, **count** the total number of blocks you have of each color and record in the second column of your table.

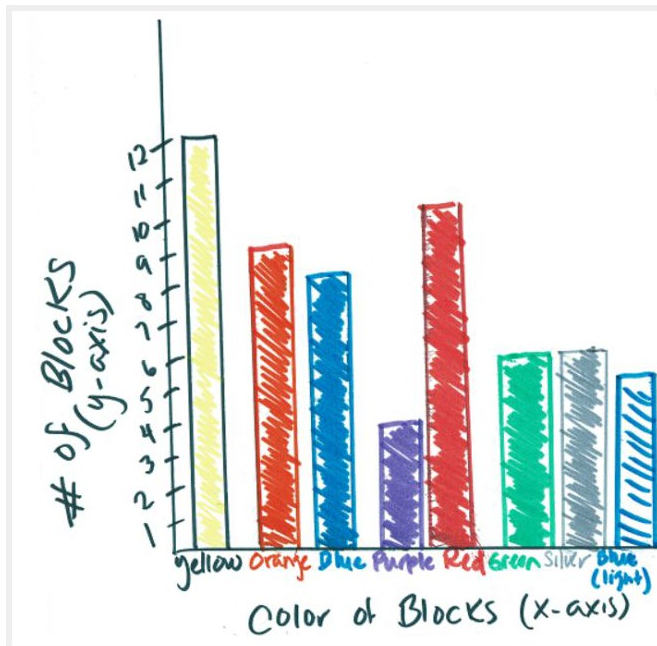
| Color      | Total # of Blocks |
|------------|-------------------|
| yellow     | 12                |
| Orange     | 9                 |
| Blue       | 8                 |
| Purple     | 4                 |
| Red        | 10                |
| Green      | 6                 |
| Silver     | 6                 |
| Light Blue | 5                 |

5. Graph your results

- Draw a table and list the total number of blocks on the left side (Y-axis).
- Write the colors on the X-axis (bottom).
- Draw a line to represent the total number of blocks for each color.



- Draw a box/rectangle and color in (we suggest using the block color for each bar in your chart).



- You have now drawn a bar chart! Which color of your blocks has more? Less?

6. Great work! Now it's time to pick up your blocks.



## Extra Credit: Family Edition

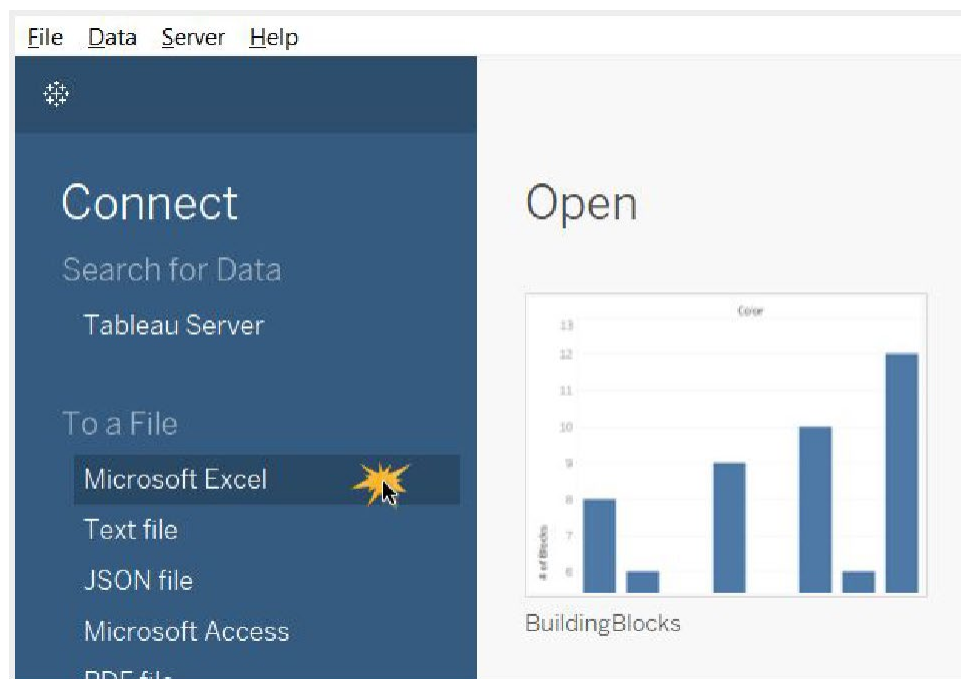
With the help of an adult, use your table, and create your viz in Tableau.

If you have it already, use Tableau Desktop. If you don't have Tableau Desktop, download [Tableau Public](#) for free today.

*Instructional Note: Checkout a sample table in [Data Kids block templates \(zip file\)](#) - it's great for all ages and learners (including adults!).*

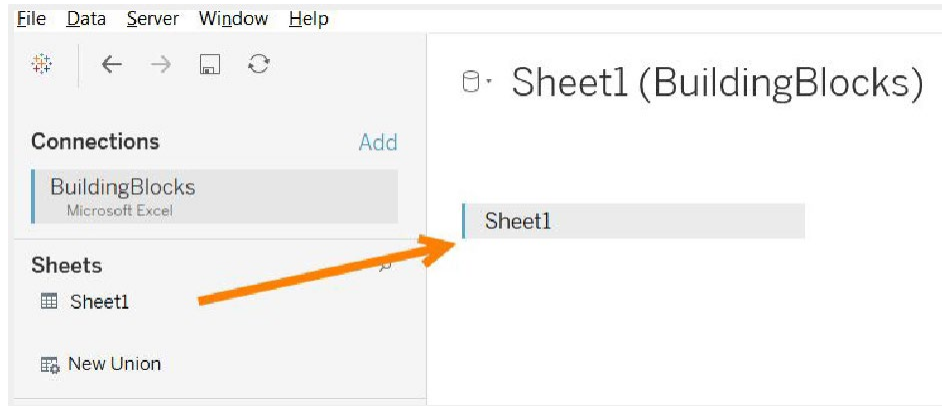
Make a Bar Graph in Tableau

1. Open Tableau.
  - Navigate to the left-hand pane, and open your saved excel file.

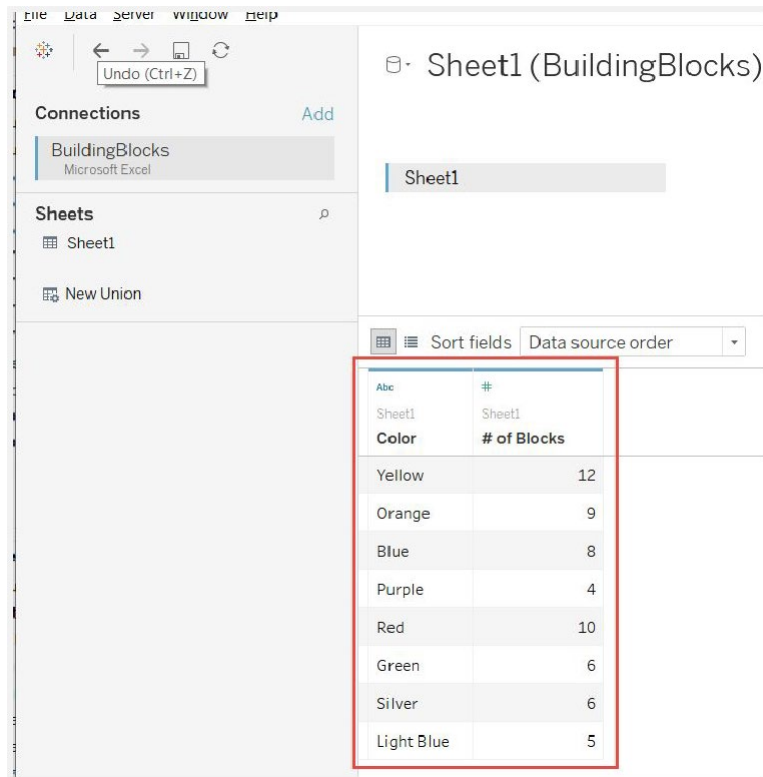




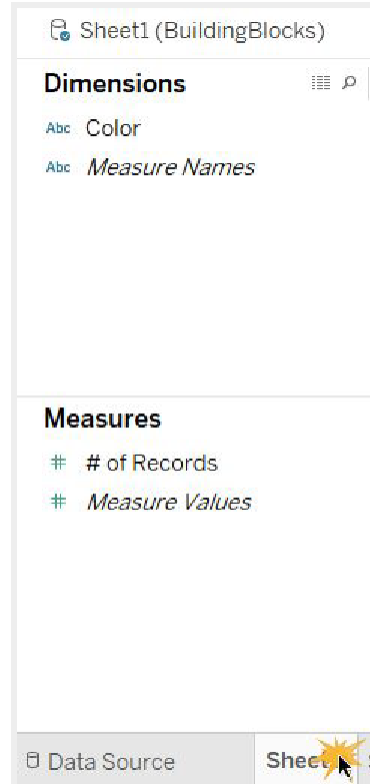
2. Drag in the sheet where you recorded your data.



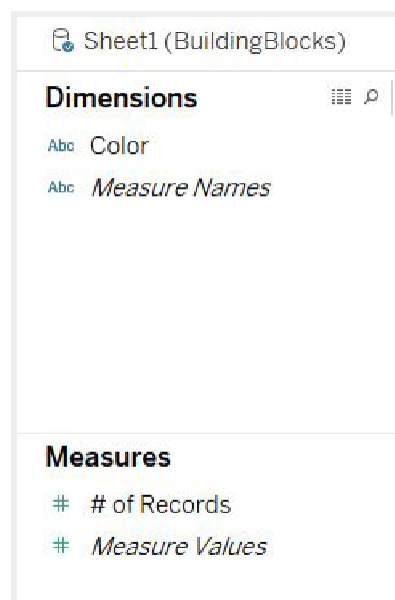
- You can see a similar sample of the data you collected.



- Open Sheet 1 to build your chart.

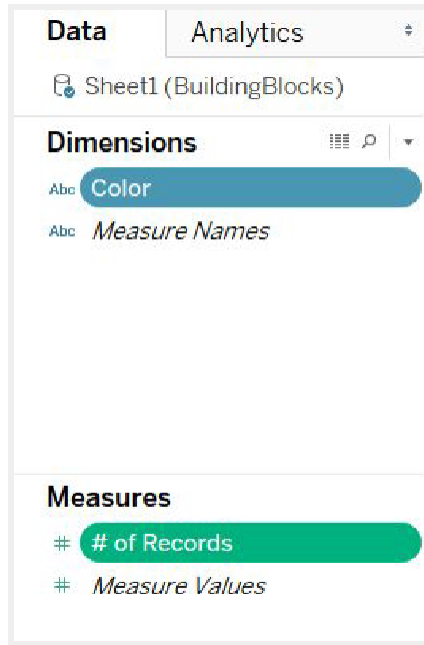


Notice that the data you had collected is now on the left-hand side of the screen. The column headers from the file are now the data types.

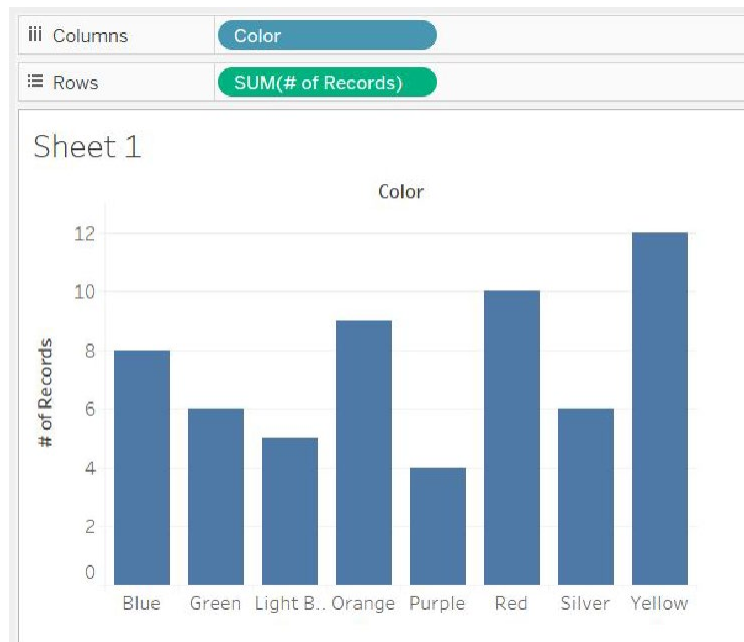


Start by asking the same question: How many blocks are yellow?

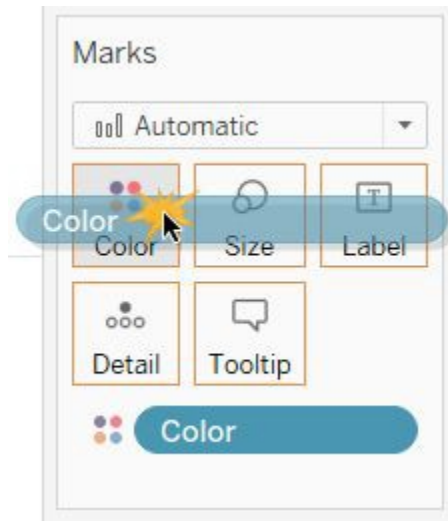
- c. “Howmany” means, we want to count the number—this is “Number of Records” in Tableau.
- d. “Yellow” is a type of color, so we want to look at “Color.”



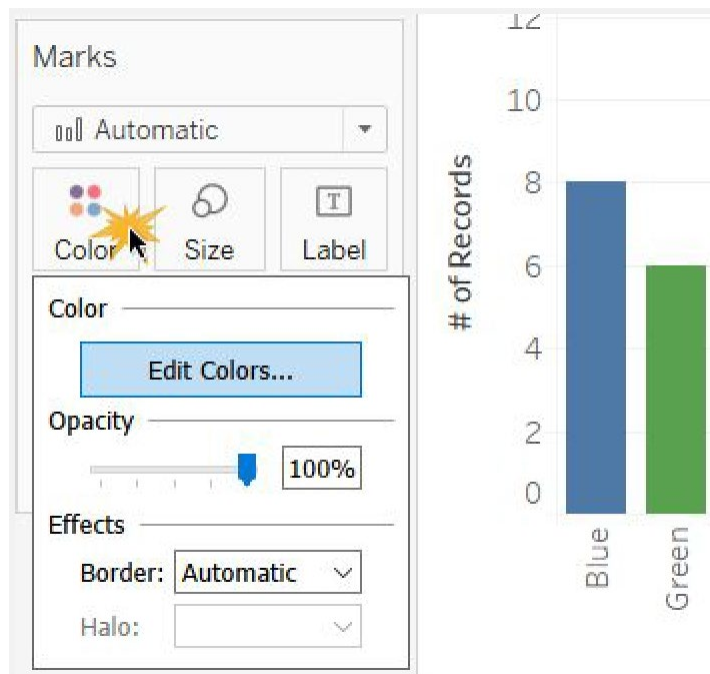
Drag “Color” and drop it on the Columns shelf and drag “# of Records” to the Rows shelf. Now, does this look like the bar chart you drew?

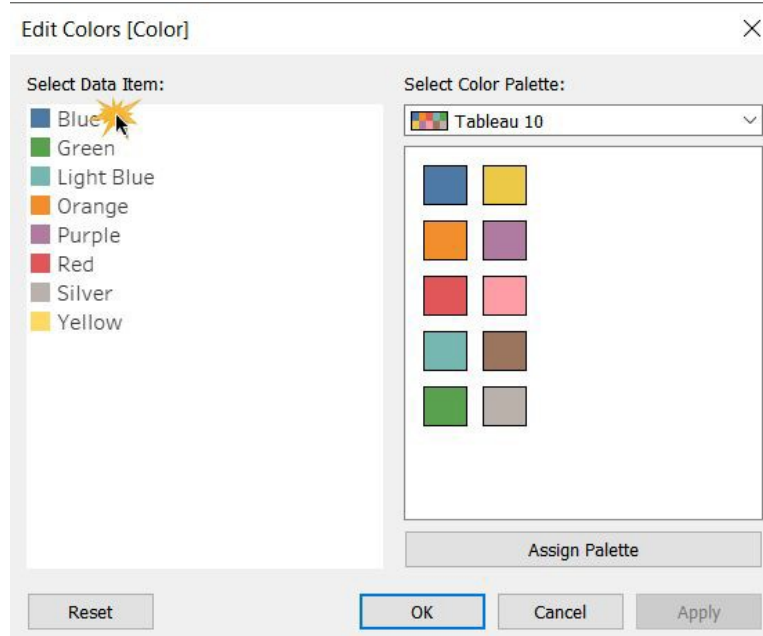


Drag out “Color” from the left-hand data pane onto the Color button on the “Marks” card.

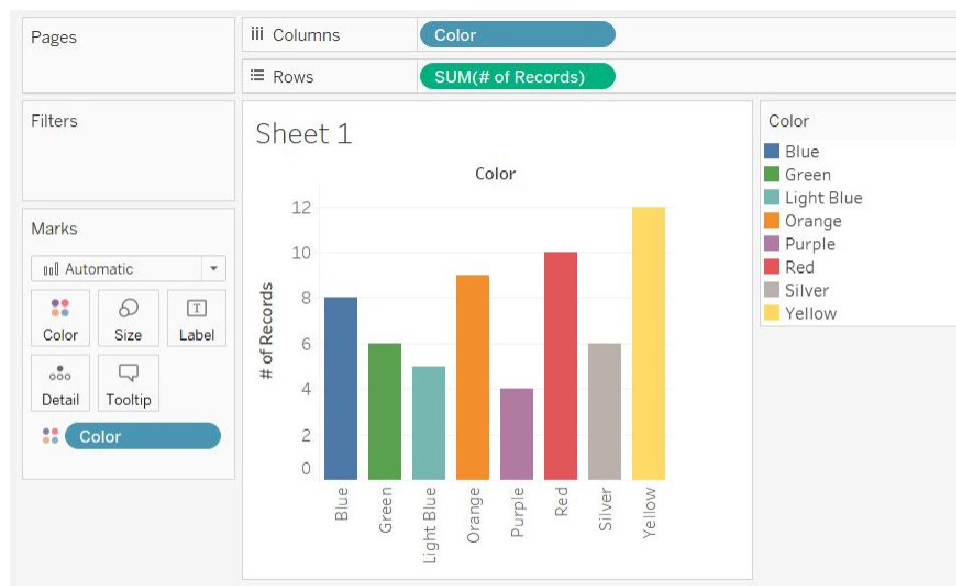


To change the colors of the bars, select the “Colors” button on the “Marks” Card, and “Edit Colors.” Choose colors that align with your block colors.





Study your graph. What is the most common block color? What other questions can you answer with graphs?



Ideas for other data you can collect:

- What shapes are your blocks?

- How many pegs do they have?

Adults—Share what your child learned and your building block creations across social media using the hashtag #DataKids. Don't forget to check back on the [Tableau Data Kids](#) website for new resources and activities!

Want to see how others are showcasing building block data? Check out these cool vizzes on Tableau Public:

[The World of Legos](#)

[Lego History](#)