



DATA KIDS

Coloring Activity



Data Kids: Sets

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Learning Objectives

Set theory is at the heart of data storage and data analysis. This activity introduces the idea of sets, subsets, and intersecting sets in a practical way that kids ages 5-8 can understand.

In this activity, you will find sets by grouping items together by common characteristics, find subsets by looking for groups within a group, and find overlapping groups by looking for things that belong in both groups.

Supplies

- Different types of writing utensils: markers, crayons, colored pencils, etc.
- Paper
- (Optional) Print out blank Venn diagram
- Extra credit—Tableau

Warm-Up

Introduce the idea of collections—sets of things that have something in common. Your clothing is one example. They're all items you wear—shoes, pants, coats, hats, etc. Ask some questions and have a conversation about collections in your life.

-What other collections do you have?

-Why do you group those items together?

-Are all of those items the same?

Instructions

1) Sets

Place all of your markers, crayons, and pencils on a flat surface.

-What do these items have in common?



They're all used for coloring or drawing on paper. This is a set of coloring utensils.

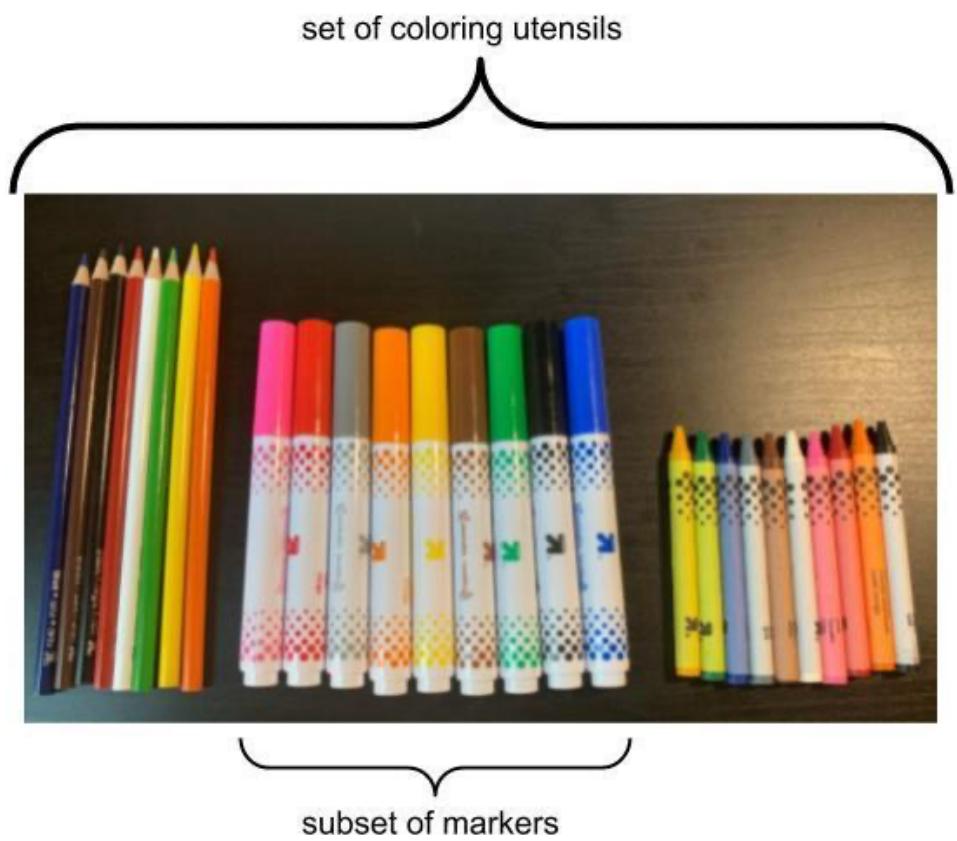
2) Subsets

Are these items all the same? No, there are some differences within this set.

-What differences do you notice?

Some of the differences are the type of utensil (pencil, marker, crayon) or the utensil's color. Organize your coloring utensils based on their differences.

Looking at these differences, we can find *subsets* within the collection. Markers are a subset of all the coloring utensils and can be grouped together (felt tip, liquid ink), but they're still part of the bigger set of coloring utensils.



-What other subsets can you find?

3) Intersecting Sets

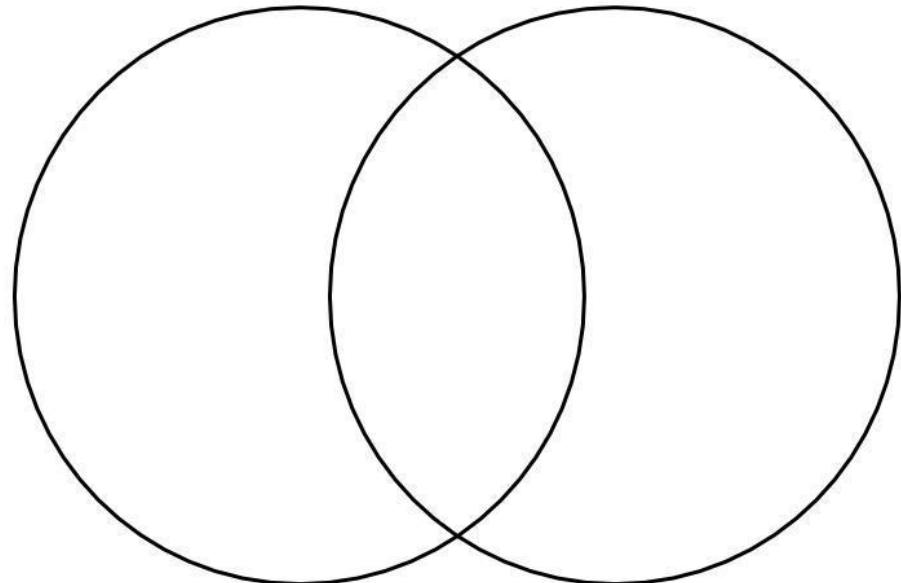
Sometimes it's helpful to find which items belong to two sets—where they *intersect* or overlap. There's the set of all pencils and the set of **orange** coloring utensils.

-Which item(s) belong to both sets?



What are other examples of two sets intersecting or overlapping?

Pick your favorite example and draw it out on the blank Venn diagram.



Extra Credit: Tableau

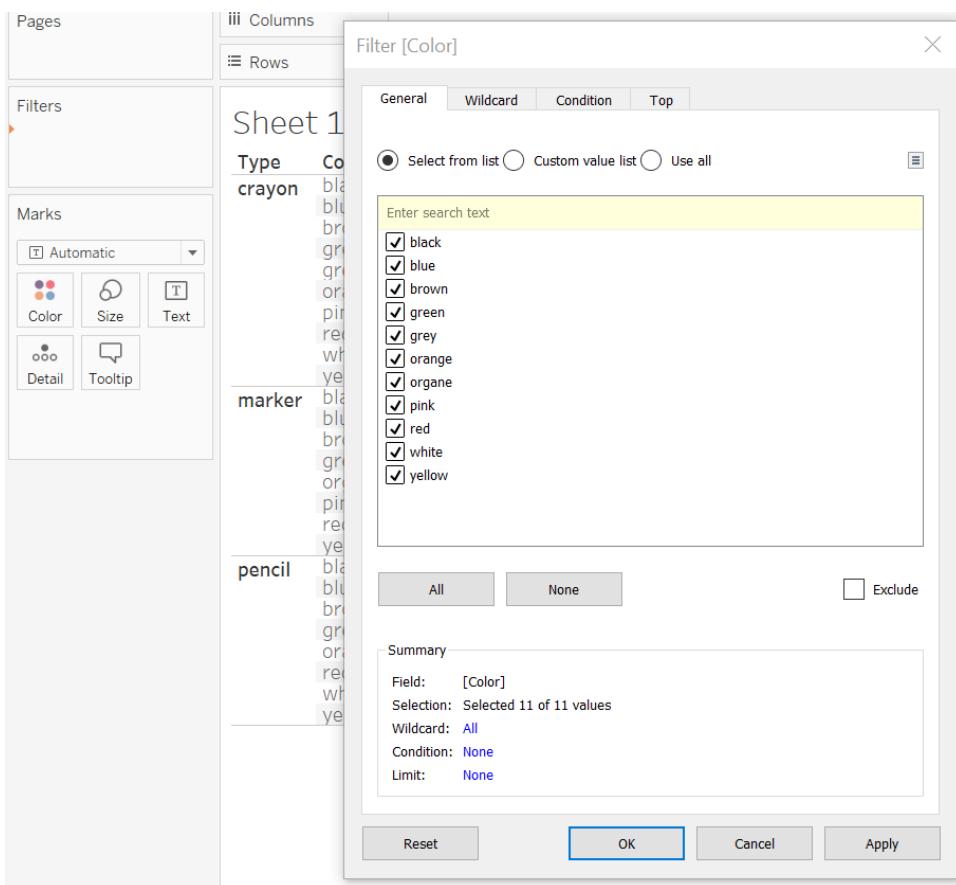
1. Open Tableau.

Navigate to the left-hand pane and open your saved excel file.

2. Add color and type to rows.



3. Add color to filters and press okay.



4. Right-click the color pill in Filters and select Show Filter.

5. Repeat steps 3-4 with type.

6. Play around with the filters. Select a type and color to find where the sets intersect or overlap.

-What happens when you add more types? What happens when you add more colors? Why?

-What happens when you don't select any types? Why?

Sheet 1

Type	Color
marker	orange

Type

- (All)
- crayon
- marker
- pencil

Color

- (All)
- black
- blue
- brown
- green
- grey
- orange
- pink
- red
- white
- yellow

7. For extra, extra credit, edit the colors so they match.

Drag color to the color marks card.

Data Analytics Pages

Example (Coloring Utensils)

Search

Tables

Abc Color

Abc Type

Abc *Measure Names*

Example (Count)

Measure Values

Filters

Color

Type

Marks

Automatic

Color Size Label

Detail Tooltip

Color

This screenshot shows a user interface for a data visualization tool. The left side features a 'Data' pane with a search bar and a list of tables: 'Color', 'Type', 'Measure Names', 'Example (Count)', and 'Measure Values'. The 'Measure Names' table is currently selected. The right side has three main sections: 'Analytics' (top), 'Pages' (top right), 'Filters' (middle right), and 'Marks' (bottom right). The 'Filters' section contains buttons for 'Color' and 'Type', both of which are highlighted with blue bars. The 'Marks' section includes a dropdown for 'Automatic' and four icons for 'Color', 'Size', 'Label', 'Detail', 'Tooltip', and 'Color' again (which is also highlighted with a blue bar).

Click on the color marks card and select edit colors.

Select the data item you want to change, then choose the color you'd like to change it to.

Which color is the best match?

