# Instructions

## Load Data – Load the 3 CSV Files

1. Open a new Power BI file.
2. Click the Get Data dropdown and select Text/CSV.
3. Select the colors.csv file.
4. Click load.
5. Repeat these steps to load inventories.csv and inventory\_parts.csv.

## Transformations – Create a Calculated Column

1. On the Home tab, click transform data.
2. On the colors table, there is a field is\_trans that indicates the lego brick is translucent. This field is either “t” if it is translucent or “f” if it is not. Power BI reads this as a character field.
3. For this demo, we want to create a field that is 1 if it’s translucent and null if it isn’t.
4. Click the Add Column tab, select Conditional Column.
5. Give the column the name ‘Translucent’.
6. In the If statement line, change column name to is\_trans, value to t and output to 1.
7. In the else portion, type null.

Graphical user interface, text, application

Description automatically generated

Bonus:

1. Create a new column based on the rgb column on the colors table that could be used to color charts.
2. Highlight the rgb column, right click and select duplicate.
3. Click on the transform tab, while the new duplicate column is selected.
4. Click the Format drop-down and select Prefix.
5. Add a ‘#’

Graphical user interface, text, application

Description automatically generated

1. Close and Apply in Power Query Editor.

## Data Model

1. On the Home tab, click the model view on the left side of the screen.

Graphical user interface

Description automatically generated

1. Change the cross filter to both on each of the relationships. Right-click the arrow and select properties.

Graphical user interface, table

Description automatically generated

1. This will allow separate objects to filter in either direction on the report pane.
2. Click back to the report pane.

Diagram

Description automatically generated with medium confidence

## Creating Measures - DAX

1. On the report pane, in the visualizations section, click the table icon to add a table to the canvas.
2. Expand the colors table and click the check box next to name to add it to the table.
3. Expand inventory\_parts and add color\_id to the table.
4. Click the down arrow to change the column to display the count of color id’s.
5. Graphical user interface, application

   Description automatically generated
6. Click the down arrow again the show the value as the % of grand total. This shows the % of all blocks are a specific color. This is an implicit measure. Power BI is creating a measure in the background in order to calculate the count and % of grand total. In order to further customize the calculation or to use additional features, it’s generally better to create explicit measures with DAX.
7. To create a measures table to organize the measures we create, go to Model > New Table.
8. Rename the table Metrics.
9. In Table Tools, click New Measure.
10. In the formula bar, type NumInventory = COUNT(inventories[inventory\_id])
11. This is using the language DAX (Data Expression)
12. Also create the measures:
13. AverageParts equals the average of inventories[num\_parts]
14. NumParts equals the sum of inventories[num\_parts]
15. AverageColors equals the average of inventory\_parts[color\_id]
16. NumYears equals the distinct number of years in the dataset (HINT: use the function DISTINCTCOUNT).

Bonus:

1. Create the explicit measure of % color we had the implicit version of.
2. %color = DIVIDE(COUNT(inventory\_parts[color\_id]), CALCULATE(COUNT(inventory\_parts[color\_id]), ALL(colors[name])))

## Designing a Report

We’ll be looking to answer a few key questions in the data.

* How have the sets changed over time?
  + Number of colors
  + Number of parts
  + On the report pane, click the line chart icon.

1. Create a chart to show year and AverageColors measure.
2. To make the trend clearer, you can add a trend line in the analysis pane.

Graphical user interface, chart, application

Description automatically generated

1. Copy and paste the chart and modify the measure on the second chart to be AverageParts.

Graphical user interface, chart

Description automatically generated

1. Add a Card visual and the measure NumYears.

Card visual

