# Graph Your Data

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NDSU NORTH DAKOTA STATE UNIVERSITY

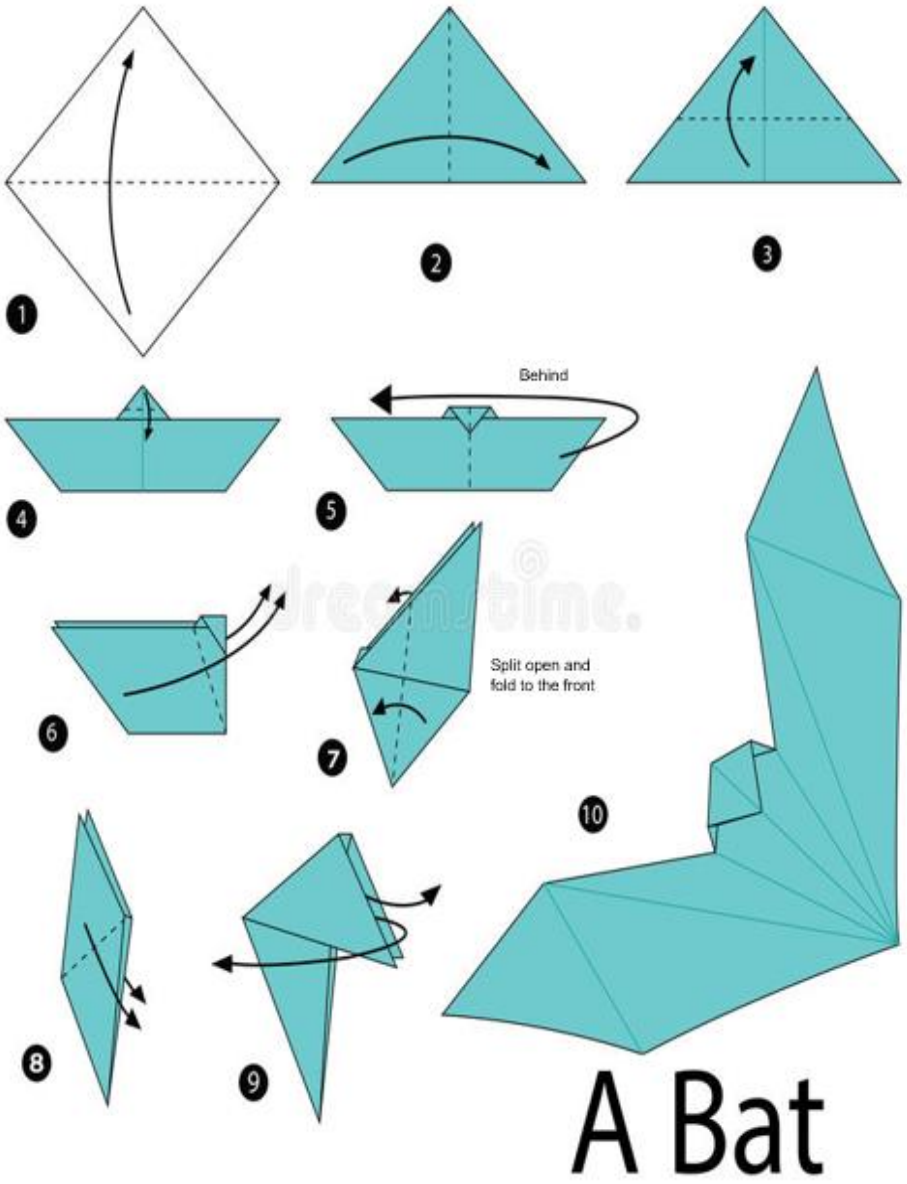
NORTH CENTRAL SARE Sustainable Agriculture Research & Education

# RESEARCH NOTEBOOK

"BAT RESEARCHER FOR A DAY"

**NAME:** _____

# Origami Bat:






# Graph Your Data

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# Graph Your Data

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# Field Notes:

*This is where you take note of date, time, field location, weather conditions, etc.

# Data Collection:

| ID | Bat Species | Age (A or J) | Mass (g) | Forearm Length (mm) |
|---|---|---|---|---|
| *A* | *MYLU* | *A* | *7.5* | *36* |
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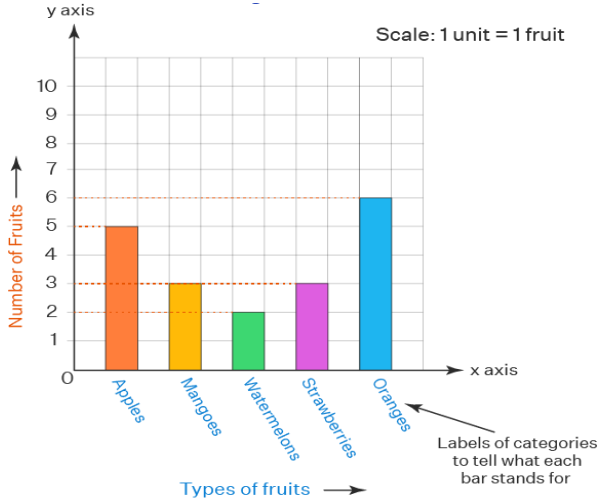
# Data Visualization:

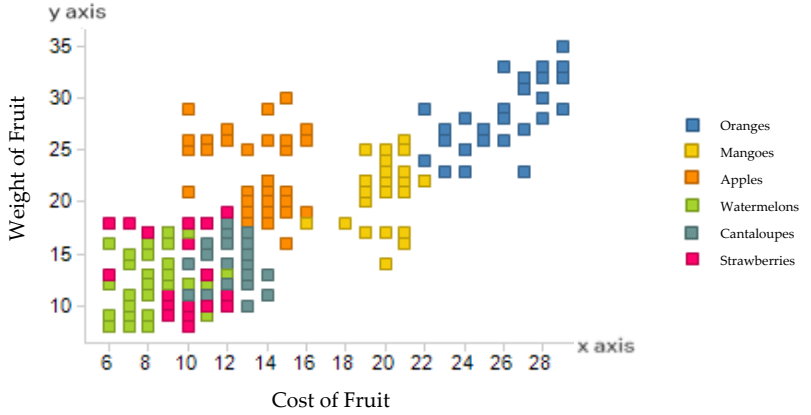
## BAR GRAPH

A **bar graph** visualizes categorical data (e.g., fruit or species). Each categorical variable is represented as a bar. The height of each bar gives you count information about the categorical data.




## SCATTER PLOT

A **scatter plot** visualizes continuous data (e.g., cost or weight). Each "item" is represented by a point that is orientated based on two different continuous variables. A scatter plot attempts to show how much effect one continuous variable has on another.




**Colors and/or shapes can be used to represent the categorical variable.*

# Statistical Analysis:

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| ID | Bat Species | Age (A or J) | Mass (g) | Forearm Length (cm) |
|---|---|---|---|---|
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# Statistical Tests:

## MEAN

To find the **mean** you add all data points together and then divided by the total number of data points represented.

Here's an example:
You caught and weighed 7 bats, and their masses (weights) are: 6, 7, 5, 7, 6, 5, and 5 grams (g).

**Step 1**: Add all data points together

$6 + 7 + 5 + 7 + 6 + 5 + 5 = 41$

**Step 2**: Divide by the total number of data points

$41 \div 7 = 5.9$

**5.9 is the mean mass of captured bats!**

## MEDIAN

To find the **median**, list all the data points in order (lowest to highest) and find the middle number.

Here's an example:
You caught and weighed 7 bats, and their masses (weights) are: 6, 7, 5, 7, 6, 5, and 5 grams (g).

**Step 1**: Put them in order ⟶ 5, 5, 5, 6, 6, 7, 7

**Step 2**: Find the middle number ⟶ ~~5, 5, 5,~~ 6, ~~6, 7, 7~~

**6 is the median!**

***If you have an even number of data point, take the two middle numbers add them together and divide by 2 to get the median.***

## MODE

To find the **mode** you count how many times each number appears in your dataset and find the one that appears the most.

Here's an example:
You caught and weighed 7 bats, and their masses (weights) are: 6, 7, 5, 7, 6, 5, and 5 grams (g).

**Step 1**: Put them in order ⟶ 5, 5, 5, 6, 6, 7, 7

**Step 2**: Find the number represented the most ⟶ 5, 5, 5, 6, 6, 7, 7

**5 is the mode!**



# Statistical Analysis:

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