



Science Virtual Learning

6th Grade Science

Bar Graphs

April 29, 2020



6th Grade Science
Lesson: April 29, 2020

Objective/Learning Target:

-I can create and use bar graphs to show how gravity is affected by the mass of objects.

****You will need paper for this lesson****

Recall These Terms

Bar Graph: a visual tool that uses bars to compare data among categories

Parts of a Graph:

Title: Summarizes information being represented in ANY graph.

Independent Variable: The variable that is controlled by the experimenter, such as, time, dates, depth, and temperature. This is placed on the X axis.

Dependent Variable: The variable that is directly affected by the I.V. It is the result of what happens as time, dates, depth and temperature are changed. This is placed on the Y axis.

Scales for each Variable: In constructing a graph, one needs to know where to plot the points representing the data. In order to do this a scale must be employed to include all the data points.

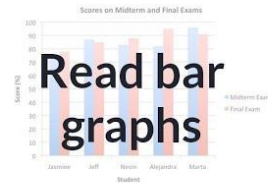
Warm up #1 - Let's Read a Bar Graph!

Pause this [video](#) 10 seconds in and write a prediction on your paper to this question:

1. Based on the data displayed in the bar graph, which student's score improved the most between the midterm and final exam?

Continue watching the video and at the end answer this question:

2. Was your prediction correct? Why?



Warm Up #2

Answer the following questions on your paper. (These questions refer to the [video](#) on the previous slide.)

3. According to the graph, what is the independent variable (IV) in the experiment? (IV="I Change")
4. According to the graph, what is the dependent variable (DV) in the experiment? (DV=Data Collected)
5. What is the title of the graph?

Warm Up #1 & #2- Answer Key

1. Based on the data displayed in the bar graph, which student's score improved the most between the midterm and final exam?

Alejandra's score improved the most between the midterm and final exam because the bars displaying her data had the greatest distance between them.

2. Was your prediction correct? Why?

My prediction was correct because Alejandra received an 82 on her midterm and a 95 on her final exam. This was the greatest increase among all the students.

3. According to the graph, what is the independent variable (IV) in the experiment? (IV="I Change")

The independent variable is the 5 different students.

4. According to the graph, what is the dependent variable (DV) in the experiment? (DV=Data Collected)

The dependent variable is test score percentages.

5. What is the title of the graph?

Scores on Midterm and Final Exams

Practice #1

Now we are going to connect our knowledge of bar graphs to more specifically discuss how mass affects gravity!

First, read this short [article](#) and fill in the blanks to the following statements:

1. The strength of _____ force between two objects depends on two factors, _____ and _____.
2. The more mass two objects have, the _____ the force of _____ the masses exert on each other.
3. Remember that every action force has an _____ and _____ reaction force.
4. Because the coin has an extremely _____ mass compared with the Earth, the coin can be easily _____. Earth's _____ due to the _____ of the coin is far too small to notice because of Earth's _____ mass.

Practice #1 - Answer Key

1. The strength of **gravitational** force between two objects depends on two factors, **mass** and **distance**.
2. The more mass two objects have, the **greater** the force of **gravity** the masses exert on each other.
3. Remember that every action force has an **equal** and **opposite** reaction force.
4. Because the coin has an extremely **small** mass compared with the Earth, the coin can be easily **accelerated**. Earth's **acceleration** due to the **force** of the coin is far too small to notice because of Earth's **large** mass.

Practice #2

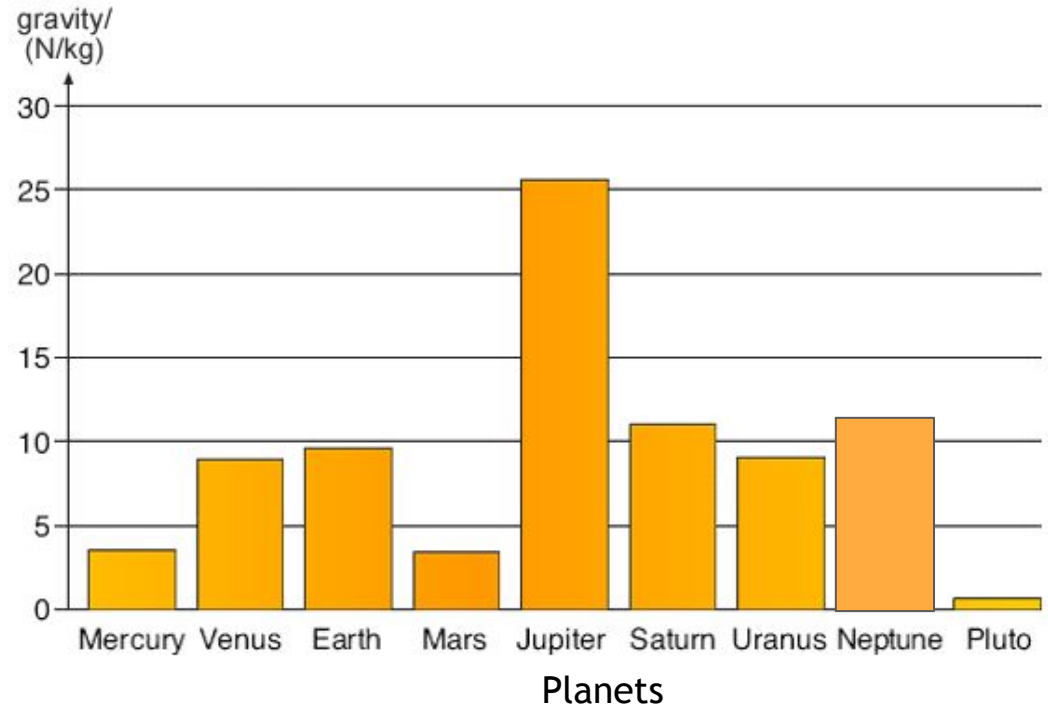
Use this data table to create a bar graph on your own piece of paper.

Don't forget your title and labels for your x-axis and y-axis

Planet	Gravity (N/Kg)
Mercury	4
Venus	9
Earth	9.8
Mars	4
Jupiter	25.5
Saturn	11
Uranus	9
Neptune	12
Pluto	1

Practice #2 - Answer Key

Gravity on Planets



Practice #2 Questions

Use your graph to answer the following questions:

1. Based on the graph, which planet has the most mass?
2. What is the gravity of Mars and Jupiter combined?
3. Which planet has the least mass?

Practice #2 - Answer Key

Use your graph to answer the following questions:

1. Based on the graph, which planet has the most mass?
Jupiter
2. What is the gravity of Mars and Jupiter combined? **29.5**
N/Kg
3. Which planet has the least mass? **Pluto**

Additional Practice

- Use this [link](#) to explore your weight on other planets. Afterwards, read the short passages at the bottom of the page explaining the relationship between gravity, mass and distance.
- Read more about Gravity on planets [here](#).

