

MASS VS WEIGHT
ACTIVITY
WORKSHEET

NAME Key
DATE _____
PERIOD _____

Although mass and weight reprint different physical quantities, their values are related to each other. The goal is to find the mathematical relationship between mass (in kilograms) and weight (in Newtons).

PROCEDURE:

- Use the **BALANCE** to measure and record the masses of a variety of at least 6 different-sized objects in kilograms.
- Then use a **SPRING SCALE** to measure each object's weight in Newtons.

DATA COLLECTION:

1. Use the data table below to record the data.

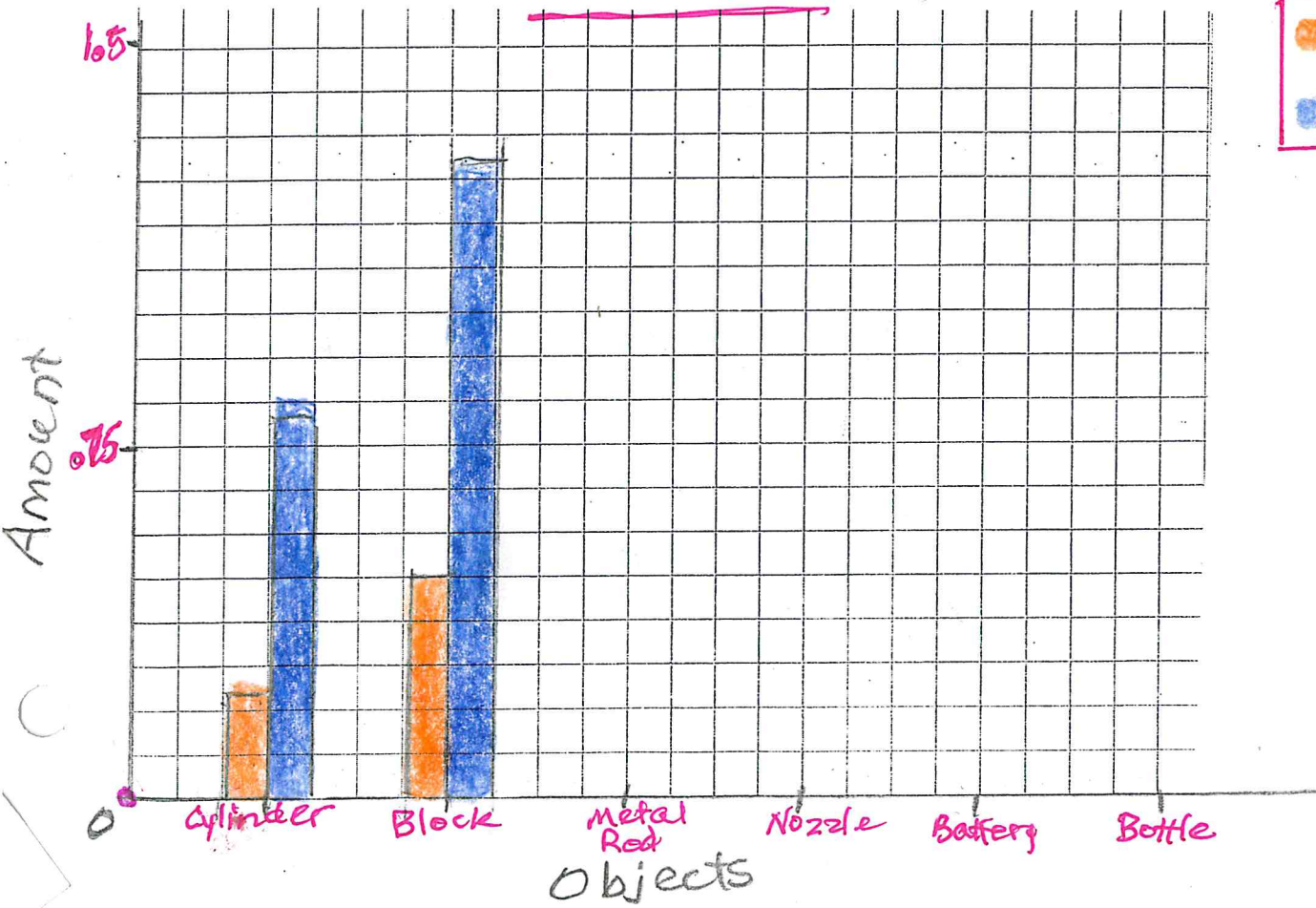
Mass & Weight of Objects

Object	Cylinder	Block	metal Rod	Nozzle	Battery	Bottle
Mass (kg)	0.08	0.13	0.05	0.06	0.14	0.12
Weight (N)	0.8	1.2	0.4	0.6	1.4	1.2

2. Create a graph of the data with weight on the vertical axis and mass on the horizontal axis.
3. Label each axis **and** use the correct unit of measure.
4. Be sure to use appropriate numbers of each axis.
5. Title the graph correctly.

Key

Orange square	Mass
Blue square	Weight



(complete sentences)

The y-intercept is at

5. What is the vertical intercept (y-intercept) on the graph?

(0,0) because there is direct relation between mass + weight.

This is because there is a direct correlation between mass and weight.

The weight is about 10 times more than the mass of each object because of the gravity pulling downward.

6. Re-tell the difference between mass and weight.

7. Why is a spring scale used to measure weight?

8. Suppose each item was re-tested on the Moon and a new graph was made to show the relationship between mass and weight. The Moon's gravity is 1.6 m/s^2 , or about $1/6$ the gravity of Earth at 9.8 m/s^2 . Would the shape of the graph from the Moon still be the same **shape**? How do you know?

9. Would the vertical intercept (y-intercept) from the Moon measurements be the same, larger, or smaller? **Why** is that?