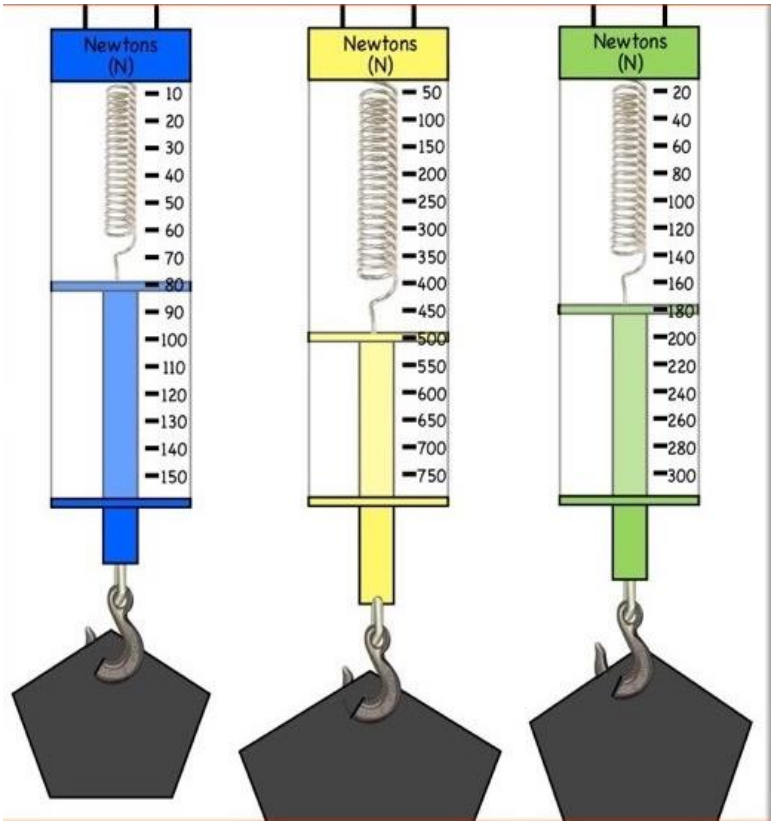
المدرسة الوطنية الأرثوذكسية الشميساني
The National Orthodox School Shmaisani

The Primary Stage of Grades (4-5)
School Year 2022- 2023

Name: __ Key _____ **Subject: Science**
Unit 7: Effects of Forces
Worksheet 2: Mass and Weight
Date: / / **Class: Grade 5 CP (All sections)**

Objective/s:
- **Calculate the weight of different objects on Earth.**
- **Understand that the mass of an object stays the same on any planet, but weight changes.**

Q1: Read the weight shown on each of the following force meters:



Read the weight measurements on each force meter :	80 N	500 N	180 N
Calculate the mass for each object:	80÷10= 8 Kg	500÷10= 50 Kg	180÷10= 18 Kg

Question 2: An astronaut has **a mass of 60 Kg**.

Answer the following questions regarding the astronaut's mass and weight:

a) What **device** did the astronaut use to measure his **mass**?

……**A Balance/ Scale**……

b) What is the astronaut **weight** on Earth?

…**Weight on Earth = Mass ×10= 60 ×10= 600 N**……

The astronaut travelled to the moon. On the moon, gravity is **weaker** than Earth.

What would be the astronaut **mass on the moon**? **60 Kg**

c) Will the astronaut **weight** be more or less on the moon? **Less**……..

d) What would be the astronaut's **mass on Jupiter**? **60 Kg** ……..

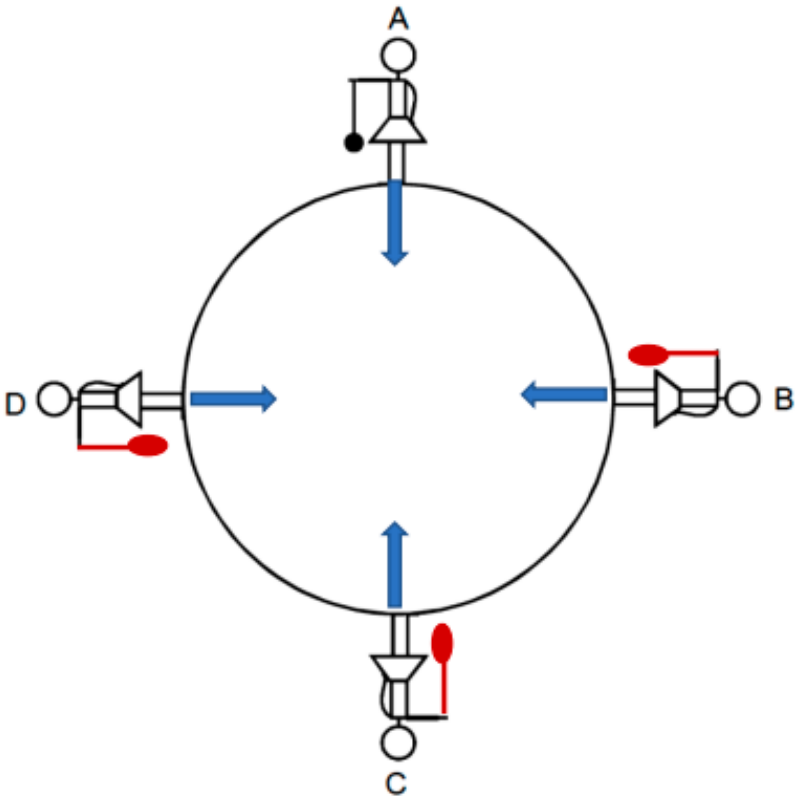
Question 3:

Complete the following table: Knowing that:

- On Earth, **each 1 Kg is pulled by a gravitational force of 10 N**.
- So: **Weight on Earth = Mass × 10**
- Gravity on the moon is **weaker** than Earth, it equals to 1/6 of gravity on Earth.

Object	Mass on Earth	Weight on Earth	Mass on the moon	Weight on the moon (not included in the exam)	Mass on Jupiter
A bag of flour	3 Kg	3×10= 30 N	3 Kg	= 1/6 × 30= 5 N	3 Kg
A Chair	6 Kg	6×10= 60 N	6 Kg	= 1/6 ×60= 10 N	6 Kg
A Brick	12 Kg	12× 10= 120 N	12 Kg	= 1/6 × 120= 20 N	12 Kg
A boy	30 Kg	30×10= 300 N	30 Kg	= 1/6 × 300= 50 N	30 Kg
A car	180 Kg	180 × 10= 1800 N	180 Kg	= 1/6 × 1800= 300N	180 Kg

Q 4: Lisa drew a picture of herself standing at four different positions on the Earth,



(a) (i) Draw an arrow at **each** of the four positions to show the direction of the force of gravity on Lisa.

(ii) The drawing at position A shows Lisa holding a ball on a string.
Draw the ball and string in positions B, C and D.

Q 5: In some Science fiction stories, there are humans living on Mars. Gravity is weaker on Mars than on Earth.

Tick (✓) True or False for the following statements.

Statement	True	False
The mass of someone would be less on Mars than on Earth.		✖
The weight of someone would be less on Mars than on Earth.	✖	
Mass and weight would be both the same on Mars and Earth.		✖
Mass is measured in Newtons.		✖
Weight is measured in Kilograms.		✖