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|  | <b>FISICA &amp; QUIMICA – 2º ESO</b><br>Ficha Tema 5 | Grupo: |
| Apellidos:  | Nombre:  | Fecha: |

- **Kinematics:** The science that studies motion is called kinematics. In order to study the motion of a body, we need to define concepts:

**Acceleration - Displacement - Motion – Position - Reference frame – Speed – Path**

A force is an interaction ( a **push** or a **pull**) that can change:

- Direction or speed of movement
- Shape

1. Match the words to their definitions:

|          |  |
|----------|--|
| FORCE    | A To move something away from you.                 |
| MOTION   | B The action of moving or changing position.       |
| PULL     | C An object pushing on another object, slowing it. |
| PUSH     | D To move something towards yourself               |
| FRICTION | E A push or a pull                                 |

2. Calculate your mass and your weight on the Earth, Moon, Mars, Jupiter and the Sun. Compare your results with your partner.  $g(\text{Jupiter})= 24,79 \text{ m/s}^2$ ;  $g(\text{Moon})= 1,62\text{m/s}^2$  ;  $g(\text{Mars})=3,71 \text{ m/s}^2$  ;  $g (\text{Sun})=274 \text{ m/s}^2$
3. Determine the gravity of a planet, knowing that 5.,3 kg weigh 23.32N.
4. You weigh a rock in Io, one of Jupiter’s moons and you obtain the value 36.2N. You bring it to Earth and it weighs 196N. What gravity does the moon have?
5. In an 800 – metre race, we observe that world champion passes the 150 m mark after 18 seconds and 75 hundredths.
  - a) How fast is he running?
  - b) What will be the final time of the race if he maintains this speed?

6. Indicate which animal runs faster:
- A wolf that runs 200 metres in 12 seconds.
  - A grey squirrel that runs 45 metres in 3,75 s.
7. A car move with a speed of 30 m/s. One second later its speed is 32 m/s. Determinate the acceleration of the car. Exp ress the result in units of the International System.
8. A body moves from  $s = + 4$  m to  $s = +20$  m in 8 s. What is its speed (suppose it is constant)? What does the negative sign means?
9. A car takes 2 hours to get to Granada, which is located 75 Km from Motril. What was its speed?
10. A train covers half the distance of its journey going a speed of 72 km/h for 2 hours. What is the distance that remains to reach the end of its journey?
11. A body is moving with a speed 72 km/h. What happens if the acceleration is zero?  
Choose the correct answer:
- a) The body keep the same velocity in the same direction.
  - b) The body will decrease its speed and finally it will stop.
  - c) The body will increase its speed.
  - d) The body change its direction.