Year 12: Half Term 3 – Forces and Newton's Law of motion

Forces

1

Key Forces

W : weight (mg = mass x 9.8)

R : reaction (normal reaction – at right angles to the point of contact)

F : friction (acts in a direction opposite to that in which the object is moving or is on the point

T : Tension

2

Assumption

- Motion is in a straight line
- Air Resistance can be ignored
- Objects are modelled as masses concentrated at a single point – no rotation
- Strings and rods are inextensible and are 'light'
- Pullets are smooth – no friction

Newton's Laws

1

1st LAW

Every object remains at rest or moves with contact velocity unless an external force is applied.

2

2nd LAW

A force acting on an object is equal to the acceleration of that body times its mass.

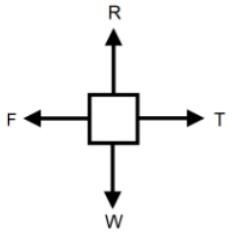
F = ma

3

3rd LAW

Every object remains at rest or If an object A exerts a force on object B, then object B must exert a force of equal magnitude and opposite direct back on object A.

The system is in **EQUILIBRIUM**



T = F

R = W

How do we use Knowledge Organisers in Mathematics?

How can you use knowledge organisers at home to help us?

- **Retrieval Practice:** Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards:** Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps:** Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it:** Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it:** Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

How will we use knowledge organisers in Mathematics?

Knowledge organisers will be used before I complete a Learning Check or Common Assessment. I will spend part of the lesson looking over each of the key topics of the half term before completing the Learning Check or Common Assessment.

I will also use these at home to complete my own independent learning and revision of these key topics.

GLUE HERE