

Dynamics and Space

VECTORS, SCALARS AND DISPLACEMENT

Websites: <http://www.bbc.co.uk/education/guides/zvt4jxs/revision/1>

I can describe a scalar quantity as a quantity that requires magnitude only.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can give examples of scalar quantities. Eg: mass, speed, distance, time and energy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe a vector quantity as a quantity that requires magnitude and direction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can give examples of vector quantities. Eg: Velocity, Force, Acceleration and Displacement.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can add 2 vector quantities together to calculate the resultant vector using either a scale diagram or calculation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can determine the final displacement of a body given directions using either a scale diagram or calculation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

To achieve my targets I will have to...

SPEED AND VELOCITY

Websites: <http://www.bbc.co.uk/education/guides/zbpk7ty/revision>

I can describe methods to measure average speed over a known distance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can do calculations involving average speed, distance and time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe a method to measure the instantaneous speed of a body.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can explain the difference between average and instantaneous speeds.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state the difference between speed and velocity and give examples of each.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

ACCELERATION

Websites: <http://www.bbc.co.uk/education/guides/zbpk7ty/revision/2>

I understand that acceleration is the change in velocity per second in a known direction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe how to measure acceleration using a computer, interface, light gates and appropriate software.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can calculate acceleration given a change in speed and change in time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use the relationship: $a = (v-u)/t$ to calculate any of the variables.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

To achieve my targets I will have to...

VELOCITY / TIME GRAPHS AND ACCELERATION / TIME GRAPHS

Websites: <http://www.bbc.co.uk/education/guides/z3h9q6f/revision>

I can construct a v/t graph from relevant data, fictional or recorded under laboratory conditions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe the motion of a body from its v/t graph, stating areas of acceleration and constant velocity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can calculate the acceleration of a body at any point in a v/t graph.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can calculate the displacement of a body from a v/t graph.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can calculate the displacement of a body from a v/t graph when a body may reverse its direction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

To achieve my targets I will have to...

NEWTONS LAWS 1

Websites: <http://www.bbc.co.uk/education/guides/zgn82hv/revision/1>

I understand that a force is required to change: the shape, the speed, the direction of travel of an object.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use a Newton balance to measure a force.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand that weight is the Earth's pull on an object and can be calculated using the relationship $\text{Weight} = mg$ where $g = 9.8 \text{ N/kg}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state what happens to a person's weight as they move further away from a planetary body and why this happens.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand that friction is a force that opposes motion and can suggest ways to increase or decrease this force.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state and explain Newton's First Law of motion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand what is meant by balanced and unbalanced forces.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can explain the motion of an object in terms of Newton's 1 st law when a body is at terminal velocity. (either in freefall or with a sufficient frictional force)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe an experiment to find out a relationship between unbalanced force and acceleration. I can describe a further experiment to find a relationship between mass and acceleration when the unbalanced force is constant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

To achieve my targets I will have to...

NEWTONS LAWS 2

Websites: <http://www.bbc.co.uk/education/guides/zgn82hv/revision/1>

I can do calculations involving unbalanced force, mass and acceleration involving a body that has more than one force acting on it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state and use Newtons Second law of motion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe the motion of a body when the forces on an object are balanced.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand that weight is the Earths pull on an object and can be calculated using the relationship $Weight = mg$ where $g =$ may not be equal to $9.8N/kg$.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can calculate the acceleration of a rocket taking into account all the forces acting vertically on the rocket (may or may not be on Earth)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

To achieve my targets I will have to...

NEWTONS 3RD LAW

Websites: <http://www.bbc.co.uk/education/guides/zgn82hv/revision/1>

	1 st Attempt	2 nd Attempt	3 rd Attempt
I can explain that there are pairs of forces in action when a force acts on a body and can explain this through Newtons 3 rd Law.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state Newton pairs from a situation or diagram.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state how Newtons 3 rd Law is used in terms of propulsion and thrust.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

To achieve my targets I will have to...

PROJECTILE MOTION

Websites:

<http://www.bbc.co.uk/education/guides/zrsdmp3/revision/1>

	1 st Attempt	2 nd Attempt	3 rd Attempt
I can describe the path of a projectile while in a gravitational field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can explain the path of a projectile in terms of the forces acting on the projectile.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe the motion of the projectile in terms of horizontal and vertical components.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can calculate the horizontal displacement of a projectile with a horizontal launch.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can calculate acceleration and final velocities of a projectile with a horizontal launch.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can draw v/t graphs for both horizontal motion and vertical motion of a horizontally launched projectile.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can take projectile motion and extrapolate it to explain satellite motion around a large mass (eg: a planet)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have researched an artificial satellite with a specific purpose and can explain its: Use, How it got there, Altitude, Period and Life Span.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

To achieve my targets I will have to...

RE-ENTRY

Websites: <http://www.bbc.co.uk/education/guides/zcfwxnb/revision/4>

	1 st Attempt	2 nd Attempt	3 rd Attempt
I can describe what happens to a body upon entering the Earths atmosphere from space.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe the energy transformations relating to a body entering the Earths atmosphere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can carry out calculations relating the conservation of energy to the kinetic energy transfer of a body entering the atmosphere to the Heat Energy gained by the body.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can apply the relationship $E_{WB} = F \times d$ to the above situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state the factors which are related to the design of a heat shield for a spacecraft to enter the Earths atmosphere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can describe an experiment to test the design of a heat shield used to protect a spacecraft from the heat of re-entry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use the relationship $E_H = Cm\Delta T$ to determine the change in temperature while entering the Earths atmosphere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use the relationship $E_H = mL$ in terms of the amount of energy required to vaporise a mass.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

SPACE EXPLORATION

Websites: <http://www.bbc.co.uk/education/guides/zcfwxnb/revision/1>

	1 st Attempt	2 nd Attempt	3 rd Attempt
I have an understanding of how space exploration has increased our knowledge of the universe to the model we understand today.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can provide evidence to support the model of the universe that we have today.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state that space exploration has increased our knowledge of our own planet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state that using satellites for monitoring purposes has increased our understanding of the planets systems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can explain and give examples where satellites have been used for monitoring (Eg: GOAA, NOAH, other environmental / field monitoring platforms)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can give examples of technologies that have been developed for space exploration, now have applications in everyday life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state a reasoned argument regarding the benefits and risks associated with space exploration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....

COSMOLOGY

Websites: <http://www.bbc.co.uk/education/guides/zcfwxnb/revision/1>

I know that astronomical distances are stated in light years and I can explain the definition of a light year.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can convert a light year into a distance in metres.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state the approximate age of the universe and can explain how we arrived at this time period.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state a brief description of the observable universe and how these observations can lead to an understanding of the creation of the universe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use parts of the EM spectrum to tell us more information about astronomical bodies (X-ray, Line and Absorption Spectra, IR).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can identify known elements from a line spectra given the relevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can state the 3 main groups of radiations received from space as EM radiation, Cosmic Rays and Neutrinos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Evaluation of Progress

My Targets are.....