Accelerations

Forces 7

Task 1 – Acceleration

Use the words in the box to complete the sentences below.

force	***acceleration***	***resultant***	***speed***	***direction***

We know that if a resultant _____ acts on an object, then that object will move in the _____ of the force. In fact, as long as the _____ force continues to act on the object, its _____ will increase in that direction. This increase in speed is called an _____.

e.g.

The car will accelerate in the direction of the 3000N force

Task 2

Describe what will happen in each of the situations below. Use the term 'accelerate', as well as mentioning the names and directions of the forces involved.

Example: ***A stone is released over a cliff.***

Answer: ***The weight of the stone will cause it to accelerate downwards.***

a. The fuse of a firework rocket is lit _____

_____

b. A ping-pong ball is released under water _____

_____

c. The throttle of a motorbike is opened up _____

_____

d. A helicopters rotor blades stop in mid-air _____

_____

e. A ball is thrown in the air _____

_____

f. A skydiver opens a parachute _____

_____

Accelerations Answers

Task 1 – Acceleration

We know that if a resultant ***force*** acts on an object, then that object will move in the ***direction*** of the force. In fact, as long as the ***resultant*** force continues to act on the object, its ***speed*** will increase in that direction. This increase in speed is called an ***acceleration***.

Task 2

a. The rocket will accelerate upwards because the thrust created is bigger than its weight.

b. The ping-pong ball will accelerate upwards because the upthrust is bigger than its weight.

c. The motorbike will accelerate forward because of the thrust created by the engine.

d. The helicopter will come down because its weight is bigger than the uplift.

e. The ball will accelerate downwards as its weight is the only major force acting (its speed is always changing in a downward direction, even whilst it is moving upward).

f. The skydiver will accelerate upwards, as the air resistance is bigger than the weight (note that the movement is always in a downwards direction, but it is **changing** in an upward direction i.e. the skydiver decelerates).