S2 Physics

Forces and Motion

Study Guide

Skills

At the end of the topic I will be able to:

- ❑ 1 Demonstrate that I can carry out practical investigations in a safe and logical manner.
- ❑ 2 Work as part of a team to successfully complete tasks that we are set.
- ❑ 3 Produce a written laboratory report using appropriate headings.
- ❑ 4 Form valid conclusions and evaluate my work using my knowledge of Physics.
- ❑ 5 Use my notes and study guide in order to fully prepare for an assessment.

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Average and Instantaneous Speed, Speed – Time Graphs and Acceleration

At the end of the section I can :

- ❑ 1 Describe how to measure average speed.
- ❑ 2 Carry out calculations involving the relationship between distance, time and average speed.
- ❑ 3 Describe how to measure instantaneous speeds.
- ❑ 4 Carry out calculations involving the relationship between distance, time and instantaneous speed.
- ❑ 5 Identify situations when average and instantaneous speeds are different.
- ❑ 6 Use correctly in context the terms speed and acceleration.
- ❑ 7 Describe the motions represented by a speed – time graph.

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Forces

At the end of the section I can :

- ❑ 1 State that objects can experience a force without contact from other objects.
- ❑ 2 State that a force can change the speed, shape and direction of an object.
- ❑ 3 State weight is a force and can be described as the Earth's pull on an object.
- ❑ 4 Distinguish between mass and weight.
- ❑ 5 State that weight per unit mass is known as the gravitational field strength.
- ❑ 6 State that the gravitational field strength on Earth is 10 Nkg^{-1}.
- ❑ 7 Carry out calculations using the equation W = mg.
- ❑ 8 State that the friction is a force which can oppose the motion of a body.

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Forces Continued…

- ❑ 9 Describe situations where friction is a nuisance and state the methods used to decrease friction.
- ❑ 10 Describe situations where friction is needed and state the methods used to increase friction.
- ❑ 11 State that equal forces acting in opposite directions are called balanced forces and equivalent to no force at all.
- ❑ 12 State that when balanced forces or no forces act on an object that its speed remains constant.
- ❑ 13 Explain, in terms of forces, why seatbelts are used in cars.

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Projectiles

At the end of the section I can :

- ❑ 1 Describe how the angle of launch effects the range of a projectile.