



# Ballymena Academy Physics

## Year 10 Revision Checklist

Summer 2018



Please ensure you bring the following items with you on the day of the exam:

- Pen(s) and pencil(s).
- 30cm ruler
- Scientific Calculator



### **The following is a list of topics which will be examined:**

(Please refer to the individual pupil guides for a full list of learning outcomes and VLE for revision questions on each topic).

***Assume all parts will be covered unless mentioned below.***

### **Year 10: Forces**

<b><i>Objective/ Learning outcome.</i></b>	<b><i>Notes to help with learning.</i></b>
Recall what a Force is	A <b>Push</b> or a <b>Pull</b>
Recall the effects of a Force	Change the speed, shape, direction of an object or make it spin.
Recall the unit for Force	Newton (N)
Understand the difference between mass and weight	Mass is amount of matter measured in Kg Weight is Force of gravity acting on a mass measure in Newtons.
Recall the equation for Weight	Weight = Mass x Gravity
Be able to rearrange this equation to calculate mass or gravity	Mass = Weight / Gravity Gravity = Weight/ Mass
State what Friction is	A Force which opposes motion
List ways Friction can be reduced	Polishing, rolling, cushion of air, oiling etc.
List situations where friction is useful	Grip on boots, tread on car tyres, brakes on bikes etc.
List situations where friction is a nuisance	Slows objects down e.g. air resistance on cars etc.
State Hooke's Law	"The extension of a spring is directly proportional to the applied load provided the elastic limit has not been exceeded"

Carry out an experiment to investigate Hooke's Law	Weight on a spring, measure extension. Plot and interpret a graph of Force (Weight) against Extension
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**Year 10: Pressure**

<b><i>Objective/ Learning outcome.</i></b>	<b><i>Notes to help with learning.</i></b>
Recall what factors affect Pressure	Force and Area
Recall the equation for Pressure	Pressure = Force / Area
Be able to rearrange this equation to calculate Area or Force	Force = Pressure x Area Area = Force / Pressure
State the Units for Pressure	N/cm <sup>2</sup> N/m <sup>2</sup> (also known as Pascal i.e. <b>1Pa = 1 N/m<sup>2</sup></b> )

**Year 10: Speed**

<b><i>Objective/ Learning outcome.</i></b>	<b><i>Notes to help with learning.</i></b>
Recall what factors affect Speed	Distance and Time
Recall the equation for Speed	Speed = Distance / Time
Be able to rearrange this equation to calculate Distance or Time	Distance = Speed x Time Time = Distance / Speed
State the Units for Speed	m/s    km/h
Interpret motion graphs	Draw and explain Distance Vs Time graphs

**Year 10: Electricity**

<b><i>Objective/ Learning outcome.</i></b>	<b><i>Notes to help with learning.</i></b>
State which materials can be charged.	Insulators.
Define an insulator and give some examples.	A material that doesn't allow charges to flow through it, e.g. plastic, rubber, wood.
Explain how insulators become negatively charged.	Electrons move onto of the insulator.
Explain how insulators become positively charged.	Electrons move off of the insulator.

Explain how POLYTHENE can be charged by rubbing it with wool.	Electrons move onto of the polythene and off of the wool. The polythene becomes negatively charged and the wool positively charged.
Explain how ACETATE can be charged by rubbing it with wool.	Electrons move off of the acetate and onto the wool. The acetate becomes positively charged and the wool negatively charged.
State two uses of static electricity.	Photocopier, spray painting cars, defibrillator.
Know circuit symbols for bulb, cell, battery, switch, ammeter	See p. 5 in electricity notes.
Know the difference between an insulator and conductor.	
State a rule explaining how like charges and unlike charges behave.	Like charges repel Unlike charges attract
Use circuit symbols to draw circuit diagrams	See p. 5
State definitions of an electrical conductor and an electrical insulator	<ul style="list-style-type: none"> <li>• A material that allows electricity to pass through it is known as a conductor.</li> <li>• A material that does not allow current to pass through it is known as an insulator.</li> </ul>
List 3 examples of good conductors	Learn 3 examples from the table on page 34.
List 3 examples of good insulators	Learn 3 examples from the table on page 34.
State the type of circuit required for current to flow	The circuit must be complete.
State how to light a bulb with "normal" brightness	A circuit with one cell and one bulb.
Explain the difference between a series and a parallel circuit	See pp. 9 - 10
State what happens to the brightness as more bulbs are added to series and parallel circuits	<p>In series: the bulbs get dimmer as more are added.</p> <p>In parallel: the bulbs stay the same brightness as more bulbs are added, but more current is drawn from the battery.</p>
Explain how a switch can be used to complete an electrical circuit	A closed switch is used to complete an electrical circuit. See p. 11.

State the instrument used to measure electrical current	An Ammeter is used to measure current. It is placed in series in the circuit.
State the unit of current	Amperes or Amps for short (A).
Calculate the current at different points in a circuit diagram	Remember how current changes in series circuits and on the different branches in parallel circuits. See p. 12.

**Year 10: Magnetism**

<b><i>Objective/ Learning outcome.</i></b>	<b><i>Notes to help with learning.</i></b>
State three magnetic materials.	Iron, nickel and cobalt
Be able to identify magnetic materials, non-magnetic materials and magnets	Use a magnet
State how like poles and unlike poles behave when brought together.	Opposites attract, like repel
Explain what is meant by an electromagnet.	A material that becomes a magnet when current flows through it
State three factors that affect the strength of an electromagnet.	Current, coils, core
List three uses of electromagnets.	Scrap yard magnet, speakers, electric bell
Label the parts of an electric bell and explain how it works.	Know diagram and explain how it works

**Year 10: Light and Shadows**

<b><i>Objective/ Learning outcome.</i></b>	<b><i>Notes to help with learning.</i></b>
State the name given to objects that produce light + examples	Luminous e.g. sun, fire, torch
State the name given to objects that reflect light + examples	Non-luminous e.g. moon, planet, mirror, table
Explain, using a ray diagram how an image is formed in a pin hole camera.	See pp. 2-3 in Light booklet.  The image is upside-down (inverted), dim and sharp.
State how light travels.	In straight lines
Name 2 different types of shadow.	Umbra and penumbra

State 2 differences between the types of shadow.	Umbra – perfectly dark, sharp edge Penumbra – not perfectly dark, blurry edge
Draw a ray diagram to show how shadows are produced using a point source.	Use a pencil and ruler and put arrows on rays
Draw a ray diagram to show how shadows are produced using an extended source.	Use a pencil and ruler and put arrows on rays

## Year 10: Reflection and Refraction

<i>Objective/ Learning outcome.</i>	<i>Notes to help with learning.</i>
State the law of reflection.	Angle of incidence = angle of reflection
Draw a ray diagram to show how a light ray is reflected off 1 mirror and 2 mirrors	Use a pencil and ruler to clearly draw the normal, incident and reflected rays. Remember to put <b>arrows</b> on rays.
State the properties of an image in a plane (flat) mirror.	The image is: <ul style="list-style-type: none"> <li>• the same size and the object,</li> <li>• the same distance away from the mirror as the object</li> <li>• is laterally inverted</li> <li>• is virtual</li> </ul>
State 2 uses of a mirror.	Make-up/shaving mirror, periscope, dental mirror etc.

## GRAPHS

- Picking good scales for x and y-axis to use 2/3 of the page
- Putting a title on the graph
- Labelling the x and y-axis including units e.g. distance / m or force / N
- Plotting points correctly and drawing a best fit line

Please refer to the VLE for a collection of resources to support your revision including revision questions!



## General

### Welcome to Year 10 Physics!!!

Here you will find resources, websites, games and quizzes that will help you with your understanding and revision of the topics you learn in Year 10 physics.



Welcome to Physics!

Below is a link to the vle

<http://ballymenaacademy2.wholeschoolvle.com>