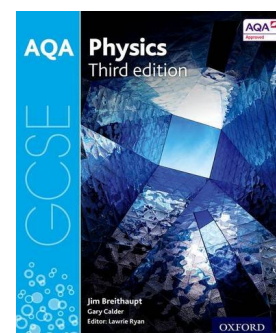




# Physics Overview

**Term:** Autumn  
**Year:** 9  
**Teacher:** Mrs Aziza Helaly  
**Textbook title:** AQA GCSE Physics Oxford



## What will we be covering this term?

### 1<sup>st</sup> Half Term:

**Energy - Conservation and dissipation of energy:** Energy is a fundamental concept that students should be confident with. This term, students will study the significant overlapping contents between Key Stage 3 and Key Stage 4. This includes development of an energy stores model and the processes, such as forces and electrical currents, through which energy can be transferred. They will revise how to measure the work done by a force acting over a distance. Finally, students will learn about the rate of energy transfer in different systems through the through the concept of power and how this power rating can be used to determine total energy change over time.

**Energy transfer by heating:** In this chapter, students will revise and develop their understanding of the heating and cooling processes, which transfer energy within a material or from one object to another. They will investigate thermal conductivity and the differences in the processes of thermal conduction in metals and non-metals.

**Energy resources:** In this chapter, students will examine the different sources of energy that are used to generate electricity or provide heating for homes. They will consider the effect of the production and use of biofuels on the environment along with the concept of carbon-neutrality before outlining the use of nuclear power in comparison to fossil fuels. Student will describe and evaluate renewable resources such as wave power, wind power, hydroelectricity and tidal technology and how these can be used to generate electricity in specific locations.

### 2<sup>nd</sup> Half Term:

**Particle model of matter - Molecules and matter:** Students will revise and increase their understanding of the concept of density as a property of a material or object by measuring and calculating the density of solids and liquids. This leads to a discussion of the states of matter, solid liquid and gas, the properties of matter which is in these states and the changes which occur as a material changes from one state to another.



## Teacher's Marking Key:

Mark code	Means .....
SP	Spelling error
//	New paragraph needed
Work underlined	Indicate a word or phrase does not make sense
?	Not clear. Rewrite this section again to improve the expression.
FS	Write in full sentences
EX	Develop your explanation further using scientific keywords.
D	You need to add more detail.
EBI	Even better if
www	What went well
GR	Grammar error
P	Punctuation error

## How will my child be assessed this term?

There will be at least 2 assessed pieces this term. In more detail;

**1<sup>st</sup> Assessment:** Energy

**2<sup>nd</sup> Assessment:** Particle model of matter

At the end of the term there will summative exam that will test their knowledge for what they've covered during the course of the entire term.

## How can I help my child in this subject?

- Ensure homework is complete; you can track students' homework assignments at <https://www.showmyhomework.co.uk>
- Encouragement, praise, ensuring that they do their homework; and checking their student planner.
- Encouraging them to read around the subject.
- Their notes must be in order; discipline is essential.

## Resources

### *Useful Websites*

For independent study the following websites are recommended:

- Mathematical relationships in GCSE Physics: <https://www.my-gcsescience.com/mathematical-relationships-gcse-physics/>
- AQA specification: <http://www.aqa.org.uk/subjects/science/gcse/physics-8463>
- BBC Bitesize: [http://www.bbc.co.uk/schools/gcsebitesize/science/add\\_aqa/](http://www.bbc.co.uk/schools/gcsebitesize/science/add_aqa/)
- S-cool the revision website: <http://www.s-cool.co.uk/gcse/physics>
- Revision GCSE Physics: <http://www.gcsescience.com/pe.htm>



- Assessment resources:  
<http://www.aqa.org.uk/subjects/science/gcse/physics-8463/assessment-resources>
- GCSE exam questions organised by Topics & difficulty:  
<https://www.savemyexams.co.uk/gcse-physics-aqa.html>

### **Communications**

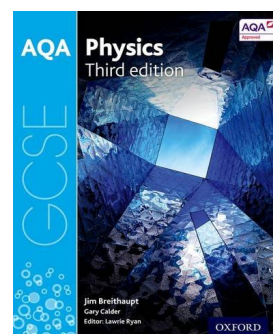
**Who do I contact if I have concerns about my child's progress in this subject?**

Please feel free to contact us at the school from 9.00-15:00 if you have any questions or concerns or contact me by email [aziza.helaly@alkhairschool.org.uk](mailto:aziza.helaly@alkhairschool.org.uk).



# Physics Overview

**Term:** Spring  
**Year:** 9  
**Teacher:** Mrs Aziza Helaly  
**Textbook title:** AQA GCSE Physics Oxford



## What will we be covering this term?

### 1<sup>st</sup> Half Term:

**Forces- Forces in balance:** This is a key concept that students should be confident with. In this term, students will study the significant overlapping contents of forces between Key Stage 3 and Key Stage 4. Students will compare vectors and scalars using the examples of distance and displacement along with the nature of forces. Representations of vectors using scale diagrams led to descriptions of the forces acting in a wide variety of situations and the identification of Newton's third law. The concept of balanced and unbalanced forces will use to determine the behaviour of objects and the application of Newton's first law of motion.

**Motion:** In this chapter, students will analyse the motion of objects in depth starting from a recap of the concept of speed and this relationship to distance travelled and time taken. The representation of motion using distance-time graphs representing single and multiple objects will be analysed to give detailed descriptions of the movement of the objects.

### 2<sup>nd</sup> Half Term:

**Electricity - Electric circuits:** This topic has a significant overlapping content between Key Stage 3 and Key Stage 4 which will be covered this term. Students will describe the structure of an atom in terms of charged particles and the process of charging by friction resulting in ions and the transfer of electrons.

Students will then describe electric circuits and the components used to construct them using the concept of current as the rate of charge flow through components due to a potential difference between points in the circuit. Resistance was introduced and the cause of a heating effect and corresponding energy transfer.

Finally, students investigate and analyse a range of series and parallel circuits describing the path of current at junctions, the potential difference across branches and components, and the effect on resistance of series and parallel branches.



## Teacher's Marking Key:

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## How will my child be assessed this term?

There will be at least 2 assessed pieces this term.

In more detail;

**1<sup>st</sup> Assessment:** Forces in balance & Motion

**2<sup>nd</sup> Assessment:** Electric circuits

At the end of the term there will summative exam that will test their knowledge for what they've covered during the course of the entire term.

## How can I help my child in this subject?

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- S-cool the revision website: <http://www.s-cool.co.uk/gcse/physics>
- Revision GCSE Physics: <http://www.gcsescience.com/pe.htm>
- Assessment resources:  
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### **Communications**

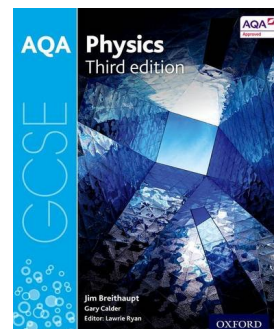
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# Physics Overview

**Term:** Summer  
**Year:** 9  
**Teacher:** Mrs Aziza Helaly  
**Textbook title:** AQA GCSE Physics Oxford



## What will we be covering this term?

### 1<sup>st</sup> Half Term:

**Waves- Wave properties:** This is a fundamental concept and will prepare students for studying GCSE. In this term, students will study the significant overlapping contents between Key Stage 3 and Key Stage 4. Students will observe and describe the properties of mechanical and electromagnetic waves in terms of energy transfer with or without the need for a transfer medium. They will compare transverse waves and longitudinal waves by examining the relationship between the direction of propagation and the direction of the oscillations. In addition, they will investigate and describe both the reflection and refraction of waves describing these effects in terms of wave fronts.

### 2<sup>nd</sup> Half Term:

**Light:** Students began this chapter by looking at the reflection of light by plane mirrors using both a wave front and ray model. This led to descriptions of real and virtual images and their properties and why images are not formed by 'rough' surfaces. Then they will move on to investigate and describe refraction of light in more detail.

## Teacher's Marking Key:

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### **How will my child be assessed this term?**

There will be at least 2 assessed pieces this term.

In more detail;

**1<sup>st</sup> Assessment:** Wave properties

**2<sup>nd</sup> Assessment:** Light

At the end of the term there will summative exam that will test their knowledge for what they've covered during the course of the entire term.

### **How can I help my child in this subject?**

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### **Resources**

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