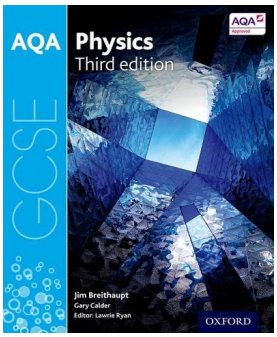
# Physics Overview




**Term:** Autumn
**Year:** 10
**Teacher:** Mrs Aziza Helaly
**Textbook title:** AQA GCSE Physics Oxford

**What will we be covering this term?**

**1st Half Term:**

***Conservation and dissipation of energy II:*** In this chapter, students will continue to develop their understanding of energy and energy transfer begun in Key Stage 3. This includes development of an energy stores model and the processes, such as forces and electrical currents, through which energy can be transferred.

Students will learn how to measure the work done by a force acting over a distance and how this concept can be used to analyse energy changes in gravitational stores, through lifting and falling, and elastic potential stores during stretching using the relevant mathematical relationships. 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.

**2nd Half Term:**

***Electric circuits:*** In this chapter, Students will 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:

| 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 |
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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;
**1st Assessment:** Conservation and dissipation of energy II
**2nd 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?

- 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/
- 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.

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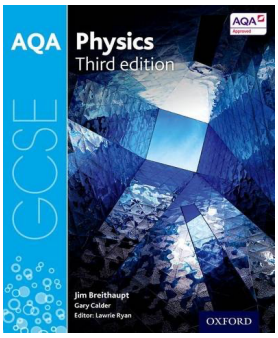


**Term:** Spring
**Year:** 10

**Teacher: Mrs Aziza Helaly**

**Textbook title:** AQA GCSE Physics Oxford

**What will we be covering this term?**

**1st Half Term:**

***Electricity in the home:*** In this chapter, students will compare direct and alternating currents in terms of current direction. They will describe the UK mains supply and the wires used within it, outlining the National Grid and the high voltages associated with it. Finally, students will consider the importance of efficiency within mains powered electrical devices linking this concept back to energy transfer by a current and to the simplified system of energy efficiency ratings used when considering the purchase of an appliance.

***Molecules and matter:*** The changes in the properties of matter were used to introduce the kinetic theory and to analyse the changes in temperature occurring during heating and the concept of latent heat. Students will describe latent heat of fusion and vaporisation mathematically, calculating energy changes during the appropriate phase changes and attempted to measure the latent heat of fusion for ice using electrical heating.

The students will also analyse the relationships between the pressure and temperature of a fixed mass of gas, determining that the pressure is proportional to the absolute temperature.

**2nd Half Term:**

***Radioactivity:*** In this chapter, students will describe how the structure of the nucleus was discovered by the radiation emitted during nuclear decay and how experimentation and developments in our understanding of subatomic particles have driven to changes in the model used to describe the atom from the plum pudding model, through to the Rutherford model and then Bohr model.

Students will describe the changes in the nucleus which occur during alpha, beta, and gamma decay along with neutron emission in terms of atomic (proton) number and mass number using the appropriate nuclear notation for isotopes.

***Forces and motion:*** In this chapter, Students began this chapter by experimentally determining the relationships between a force acting on an object and the acceleration, and the mass of the object and the acceleration. The results led of the formulation for Newton's second law of motion and its application. Higher-tier students have also defined the inertial mass of an object.

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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;
**1st Assessment:** Electricity in the home & Molecules and matter
**2nd Assessment:** Radioactivity
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.

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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

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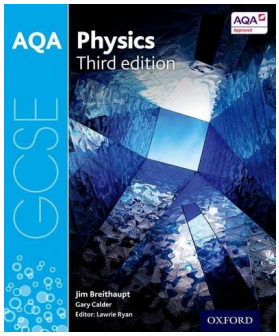


**Term:** Summer
**Year:** 10
**Teacher:** Mrs Aziza Helaly
**Textbook title:** AQA GCSE Physics Oxford

**What will we be covering this term?**

**1st Half Term:**
***Forces and motion (Cont.):*** student will continue to develop their understanding of forces and motion. They will investigate the concept of momentum and its conservation. They will use the principle of conservation of momentum to allow them to determine the velocity of objects after collisions or explosion have taken place in a range of scenarios.

Finally, students will investigate the effect of forces on the stretching of a range of materials identifying both linear and non-linear relationships between the force and extension.

**2nd Half Term:**
***Wave properties:*** In this chapter, 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. The students will analyse wave properties such as wavelength, amplitude, and period leading to the relationships between period, frequency and wave speed, frequency, and wavelength.

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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;
**1st Assessment:** Forces and motion
**2nd Assessment:** Wave properties

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.

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