

Year 10 Curriculum Area – Separate Science – Physics

What concepts will we be covering this half term?

Curriculum mapping for students

Key concepts:

Physics: Topic P10 – Forces and Motion

Key Question: How do forces need to be considered when designing structures and machines?

Force and Acceleration

Weight and Terminal Velocity

Forces and Braking

Momentum

Using Conservation of Momentum

Impact Forces

Safety First

Forces and Elasticity

Physics: Topic P11 – Force and Pressure

Key Question: How can we keep people alive deep in the oceans or up in space?

Pressure and Surface

Pressure in a Liquid at Rest

Atmospheric Pressure

Up-thrust and Flotation

Physics: Topic P12 – Wave Properties

The Nature of Waves

The Properties of Waves

Reflection and Refraction

Sound Waves

Uses of Ultrasound

Seismic Waves

What resources can you use to support your learning?

BBC website: Any topics not covered by Oak National Academy can be found here

Physics: <https://www.bbc.co.uk/bitesize/examspecs/zsc9rdm>

Oak National Academy:

Physics:

Physics: Topic P10 – Forces and Motion

Force and Acceleration

<https://classroom.thenational.academy/lessons/acceleration-60r3ar>

In this lesson we will look at the definition and equation of acceleration. We will also learn how to calculate acceleration.

Weight and Terminal Velocity

<https://classroom.thenational.academy/lessons/terminal-velocity-75hkec>

In this lesson we will look at the definition and conditions needed for terminal velocity. We will look at terminal velocity in different contexts.

Forces and Braking

<https://classroom.thenational.academy/lessons/stopping-distance-6wvk4c>

In this lesson, we will learn about stopping distance. We will look into thinking distance, braking distance and how these are linked to stopping distance.

Momentum

<https://classroom.thenational.academy/lessons/momentum-64r6ad>

In this lesson we will learn about the definition of momentum and how to calculate momentum of different objects. We will also look into the principle of conservation of momentum.

Using Conservation of Momentum / Impact Forces / Safety First

<https://classroom.thenational.academy/lessons/collisions-and-car-safety-crwkce>

In this lesson we will look at car safety and the factors that can affect car safety.

Physics: Topic P11 – Force and Pressure

Pressure and Surface

<https://classroom.thenational.academy/lessons/pressure-6xgkqc>

In this lesson we look at pressure. By the end of the lesson you should be able to say what pressure is, how to calculate it, and how we can use this knowledge in everyday situations.

Pressure in a Liquid at Rest

<https://classroom.thenational.academy/lessons/pressure-in-fluids-64t6ar>

In this lesson, we concentrate on pressure in fluids, and in particular how pressure changes in liquids. By the end of the lesson you will be able to calculate pressure in a column of water, and also explain why objects sink or float.

Atmospheric Pressure

<https://classroom.thenational.academy/lessons/atmospheric-pressure-74upct>

In this lesson we look at atmospheric pressure, and how it changes as we change altitude.

Physics: Topic P12 – Wave Properties

The Nature of Waves

The Properties of Waves

<https://classroom.thenational.academy/lessons/wave-properties-60vk0d>

In this lesson we will be defining the different properties of waves and comparing different types of wave.

<https://classroom.thenational.academy/lessons/calculations-with-waves-6xh66e>

In this lesson we will be performing calculations related to waves. We'll calculate frequency from diagrams and from information, calculate speed from recorded measurements and use the wave equation.

<https://classroom.thenational.academy/lessons/measuring-the-speed-of-waves-in-water-69k3jd>

In this lesson we will calculate the speed of waves in water by taking appropriate measurements and processing our results. We will look to reduce any errors in our measurements.

<https://classroom.thenational.academy/lessons/measuring-the-speed-of-waves-in-solids-c9gk6t>

In this lesson we will calculate the speed of waves in solids by taking appropriate measurements and processing our results. We will look to reduce any errors in our measurements.

	<p>Reflection and Refraction https://classroom.thenational.academy/lessons/reflection-60v3ad In this lesson we will be considering what happens when waves meet a material interface and constructing ray diagrams to illustrate reflection of waves at surfaces.</p> <p>https://classroom.thenational.academy/lessons/refraction-cmr64c In this lesson we will be looking at what may happen when a wave moves from one medium to another. We will look at how we can measure the effect of refraction and also how to explain it.</p> <p>Sound Waves https://classroom.thenational.academy/lessons/sound-64u3gt In this lesson we will be taking a closer look at sound and considering this in the context of human hearing.</p> <p>Uses of Ultrasound https://classroom.thenational.academy/lessons/ultrasound-and-seismic-waves-cckgqe In this lesson we will be looking at how ultrasound can be used for imaging and how seismic waves provide evidence for the structure of the Earth.</p> <p>Seismic Waves https://classroom.thenational.academy/lessons/ultrasound-and-seismic-waves-cckgqe In this lesson we will be looking at how ultrasound can be used for imaging and how seismic waves provide evidence for the structure of the Earth.</p>
<p>Tasks to complete so we can assess your understanding/ Key Performance Indicator tasks</p>	<ul style="list-style-type: none"> • Complete any of the revision tasks, watch the videos and do the tests on the BBC bitesize page. • Complete the lessons on the oak national academy website – follow the lesson to watch the video and complete the activities and the quiz.
<p>What can you do if you need help/ support?</p>	<p>If you need help please email your teacher –</p> <p>sfox2@netherthorpe.derbyshire.sch.uk gwatkins@netherthorpe.derbyshire.sch.uk mraybold@netherthorpe.derbyshire.sch.uk sparry@netherthorpe.derbyshire.sch.uk jmccammon@netherthorpe.derbyshire.sch.uk shutton@netherthorpe.derbyshire.sch.uk icarr@netherthorpe.derbyshire.sch.uk pgreenwood@netherthorpe.derbyshire.sch.uk bchristmas@netherthorpe.derbyshire.sch.uk nconnolly@netherthorpe.derbyshire.sch.uk jroberts@netherthorpe.derbyshire.sch.uk</p>