

Year 10 Curriculum Area – Combined Science – Physics

<p>What concepts will we be covering this half term?</p>	<p>Curriculum mapping for students Key concepts:</p> <p>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</p> <p>Physics: Topic P11 – Wave Properties The Nature of Waves The Properties of Waves Reflection and Refraction</p> <p>Physics: Topic P12 – Electromagnetic Waves The Electromagnetic Spectrum Light, infrared, microwaves and radio waves Communications Ultraviolet waves, X-rays and Gamma rays X-rays in Medicine</p>
<p>What resources can you use to support your learning?</p>	<p>BBC website: Any topics not covered by Oak National Academy can be found here Physics: https://www.bbc.co.uk/bitesize/examspecs/zsc9rdm</p> <p>Oak National Academy:</p> <p>Physics:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

Physics: Topic P11 – 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.

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.

<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.

Physics: Topic P12 – Electromagnetic Waves

The Electromagnetic Spectrum

<https://classroom.thenational.academy/lessons/electromagnetic-spectrum-part-1-6dk62r>

In this lesson we will be looking at a range of waves called the electromagnetic spectrum. We will consider how this spectrum is grouped and the uses of each of these groups.

<https://classroom.thenational.academy/lessons/electromagnetic-spectrum-part-2-c9h3cr>

In this lesson we will consider some of the dangers associated with some regions of the electromagnetic spectrum and how some EM waves are produced.

Light, infrared, microwaves and radio waves

<https://classroom.thenational.academy/lessons/infrared-60u3cd>

In this lesson we will investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.

Communications

Ultraviolet waves, X-rays and Gamma rays

X-rays in Medicine

BBC Bitesize

<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</p> <p>gwatkins@netherthorpe.derbyshire.sch.uk</p> <p>mraybold@netherthorpe.derbyshire.sch.uk</p> <p>sparry@netherthorpe.derbyshire.sch.uk</p> <p>jmccammon@netherthorpe.derbyshire.sch.uk</p> <p>shutton@netherthorpe.derbyshire.sch.uk</p> <p>jcarr@netherthorpe.derbyshire.sch.uk</p> <p>pgreenwood@netherthorpe.derbyshire.sch.uk</p> <p>bchristmas@netherthorpe.derbyshire.sch.uk</p> <p>nconnolly@netherthorpe.derbyshire.sch.uk</p> <p>jroberts@netherthorpe.derbyshire.sch.uk</p>