

Year 10 Curriculum Area – Combined Science – Chemistry

What concepts will we be covering this half term?

Curriculum mapping for students

Key concepts:

Chemistry: Topic C8 – Rates and Equilibrium

Key Question: How are reaction rates and reversible reactions affected by changing conditions?

Rate of Reaction

Collision Theory and Surface Area

The Effect of Temperature

The Effect of Concentration and Pressure

The Effect of Catalysts

Reversible Reactions

Energy and Reversible Reactions

Dynamic Equilibrium

Altering Conditions

Chemistry: Topic C10 – Chemical Analysis

Pure Substances and Mixtures

Analysing Chromatography

Testing for Gases

Chemistry: Topic C11 – The Earth's Atmosphere

History of our Atmosphere

Our Evolving Atmosphere

Greenhouse Gases

Global climate Change

Atmospheric Pollutants

What resources can you use to support your learning?

BBC website: Any resources not on Oak Academy links will be found here.

Chemistry: <https://www.bbc.co.uk/bitesize/examspecs/z8xtmnb>

Oak National Academy:

Chemistry:

Chemistry: Topic C8 – Rates and Equilibrium

Rate of Reaction

<https://classroom.thenational.academy/lessons/rate-of-reaction-68uk8t>

In this lesson, students will go over what chemical reactions are and the signs of a chemical reaction occurring. Students will learn and apply the equation used to calculate rate of reaction. At the end of the lesson, students will learn how to determine mean rate of reaction from graphs.

Collision Theory and Surface Area

<https://classroom.thenational.academy/lessons/collision-theory-6hjk4c>

In this lesson, students will look at the 5 factors that affect rate of reaction. Students will also learn what collision theory is and what activation energy is. At the end of

the lesson, students are expected to be able to explain how reactions occur using collision theory.

The Effect of Temperature

<https://classroom.thenational.academy/lessons/effect-of-changing-temperature-on-rate-of-reaction-6wu6cd>

In this lesson, students will study the effect of changing temperature on the rate of reaction and explain how increasing temperature affects rate of reaction using collision theory.

The Effect of Concentration

<https://classroom.thenational.academy/lessons/rate-of-reaction-required-practical-part-1-60tp4t>

<https://classroom.thenational.academy/lessons/rate-of-reaction-required-practical-part-2-ccw64c>

In this lesson, students will complete the required practical: Investigate the effect of concentration on rate of reactions by a method involving a change in colour or turbidity. After the required practical, students will explain observations and draw conclusions using particle theory.

The Effect of Pressure

<https://classroom.thenational.academy/lessons/effect-of-changing-pressure-on-rate-of-reaction-6tjker>

In this lesson, students will learn how to recognise reactions involving gases. Students will also describe and explain the effect of pressure on gaseous reactions and apply knowledge to novel reactions.

The Effect of Catalysts

<https://classroom.thenational.academy/lessons/catalysts-6rr3ad>

In this lesson, students will learn about catalysts and the role of catalysts in speeding up rate of reaction. Students are also expected to know how to show the presence of catalyst on reaction profiles.

Reversible Reactions

<https://classroom.thenational.academy/lessons/reversible-reactions-70r3gd>

In this lesson, students will learn about reversible reactions and how to represent them. Students will also learn to explain how direction of reversible reactions can be changed by changing the conditions. At the end of the lesson, students will also study what 'dynamic equilibrium' is.

Altering Conditions – Le Chatelliers Principles

<https://classroom.thenational.academy/lessons/le-chatelliers-principle-effect-of-changing-concentration-and-temperature-6cv68t>

<https://classroom.thenational.academy/lessons/le-chatelliers-principle-effect-of-changing-pressure-70rkat>

<https://classroom.thenational.academy/lessons/le-chatelliers-principle-uses-in-industry-60w3gd>

Review

<https://classroom.thenational.academy/lessons/the-rate-and-extent-of-chemical-change-review-part-1-61gp6d>

<https://classroom.thenational.academy/lessons/the-rate-and-extent-of-chemical-change-review-part-2-6hhkqc>

Chemistry: Topic C10 – Chemical Analysis

Pure Substances and Mixtures

<https://classroom.thenational.academy/lessons/pure-and-impure-formulations-cgvp4t>

This lesson will explain the difference between pure and impure substances, and define a formulation.

Analysing Chromatography

<https://classroom.thenational.academy/lessons/chromatography-61gkcd>

This lesson will describe how to correctly perform chromatography, the common mistakes and possible solutions.

<https://classroom.thenational.academy/lessons/interpreting-chromatograms-6ct6ae>

This lesson will build on Lesson 2. It will discuss how to interpret chromatograms and conclusions that can be drawn.

Testing for Gases

<https://classroom.thenational.academy/lessons/testing-gases-ccrp4r>

This lesson will describe the standard laboratory tests for gases and demonstrate how to write balanced equations for some reactions.

Chemistry: Topic C11 – The Earth's Atmosphere

History of our Atmosphere

<https://classroom.thenational.academy/lessons/the-earths-atmosphere-74wk2e>

This lesson compares the composition of the early atmosphere with that of the modern atmosphere, explains the reasons for the differences and looks at how limestone and fossil fuels form.

Our Evolving Atmosphere

BBC Bitesize

Greenhouse Gases

<https://classroom.thenational.academy/lessons/the-greenhouse-effect-6gup6r>

This lesson looks at what greenhouse gases are, describes the greenhouse effect and evaluates evidence to support the link between carbon dioxide levels and the average global temperature.

Global climate Change

<https://classroom.thenational.academy/lessons/climate-change-6gu6ce>

This lesson looks at the potential consequences of climate change, what the term carbon footprint means and explores some ways a person could reduce their carbon footprint.

Atmospheric Pollutants

<https://classroom.thenational.academy/lessons/pollutants-6rukcc>

This lesson looks at how pollutants are produced, what problems these pollutants can cause and the products of complete and incomplete combustion of a fuel.

Tasks to complete so we can assess your understanding/ Key

- Complete any of the revision tasks, watch the videos and do the tests on the BBC bitesize page.

Performance Indicator tasks	<ul style="list-style-type: none">• Complete the lessons on the oak national academy website – follow the lesson to watch the video and complete the activities and the quiz.
What can you do if you need help/ support?	If you need help please email your teacher – 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