

Year 10 Curriculum Area – Separate 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 – Organic Reactions

Reactions of the Alkenes

Structures of alcohols, Carboxylic acids and Esters

Reactions and Uses of Alcohols

Carboxylic acids and Esters

Chemistry: Topic C11 – Polymers

Additional Polymerisation

Condensation Polymerisation

Natural Polymers

DNA

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-chateliers-principle-effect-of-changing-concentration-and-temperature-6cv68t>

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

<https://classroom.thenational.academy/lessons/le-chateliers-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-2-6hhkgc>

Chemistry: Topic C10 – Organic Reactions

Reactions of the Alkenes

<https://classroom.thenational.academy/lessons/reactions-of-alkenes-chhp4r>

In this lesson we will be comparing the combustion reactions of alkenes and alkanes and learning about the reactions of alkenes with halogens, hydrogen and water.

Structures of alcohols, Carboxylic acids and Esters

<https://classroom.thenational.academy/lessons/alcohols-69j3jc>

In this lesson we will be drawing and naming the first four alcohols and evaluating the production of ethanol from fermentation and hydration of ethene.

Reactions and Uses of Alcohols

<https://classroom.thenational.academy/lessons/properties-and-combustion-of-alcohols-crwkad>

We will be describing the physical properties of alcohols and the combustion of alcohols. We will also be identifying scientific variables and explaining the steps used to investigate the energy released from the combustion of alcohols.

Carboxylic acids and Esters

<https://classroom.thenational.academy/lessons/carboxylic-acids-c8u62t>

In this lesson, we will be naming and drawing carboxylic acids and describing their properties. We will also be explaining why carboxylic acids are weak acids and their reactions.

Chemistry: Topic C11 – Polymers

Additional Polymerisation and Natural Polymers

<https://classroom.thenational.academy/lessons/natural-and-addition-polymers-c8t3et>

In this lesson we will be learning about natural polymers and learning to draw addition polymers.

Condensation Polymerisation

<https://classroom.thenational.academy/lessons/condensation-polymers-70rkgd>

In this lesson, we will be describing and drawing condensation polymers and comparing condensation polymers to addition polymers.

DNA

BBC Bitesize

Tasks to complete so we can assess your understanding/ Key Performance Indicator tasks

- 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.

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
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