

Year 9 Chemistry Remote Learning Programme: Spring 1 2022

Lesson Number	Lesson Title	Lesson Detail
1	Electron Configuration & The Periodic Table https://classroom.thenational.academy/lessons/electron-configuration-and-the-periodic-table-61jp4c	In this lesson, we will explain why the charge of an atom is neutral. Draw and write the electron configuration of atoms and explain how electron configuration is linked to the group number.
2	Periodic Table Development https://classroom.thenational.academy/lessons/periodic-table-development-6cwp8t	In this lesson, we will describe the main features of the modern periodic table, describe early versions of the periodic table, and then compare the modern periodic table with the early periodic tables.
3	Why elements react https://classroom.thenational.academy/lessons/why-elements-react-6cuk4d	In this lesson, we will describe what happens when metals and non-metals react in terms of electrons. Explain why noble gases do not react, describe, and explain the physical property trends of group 0.
4	Group 1 https://classroom.thenational.academy/lessons/group-1-cdk68r	In this lesson, we will describe the trends in the physical properties of group 1 elements, and the reactions of group 1 metals with water and oxygen.
5	Group 7 https://classroom.thenational.academy/lessons/group-7-c5h36c	In this lesson, we will describe and explain the trends in the physical properties of group 7 elements.
6	Group 7 Displacement https://classroom.thenational.academy/lessons/group-7-displacement-69jp4c	In this lesson, we will describe trends in group 7 reactivity, predict the products and colour changes that occur during displacement reactions of group 7 elements and write word and symbol equations for these displacement reactions.
7	Comparing the reactivities of Group 1 and Group 7 elements https://classroom.thenational.academy/lessons/comparing-the-activities-of-group-1-and-7-elements-6tjpac	In this lesson, we will use electron configuration to explain trends in reactivity in both group 1 and group 7 elements.

8 HT only	Displacement Reactions (ionic equations) https://classroom.thenational.academy/lessons/displacement-reactions-ionic-equations-c5hp6d	In this lesson, we will write word and symbol equations for the displacement reactions of group 7. Higher tier content is included in this lesson also involves writing ionic equations.
9	Rusting https://classroom.thenational.academy/lessons/rusting-6nhk6c	This lesson will look at corrosion and rusting. We will look at experiments to see what is needed for rusting to occur as well as what we can do to prevent rusting. We will look at the sacrificial protection of iron using zinc.

Year 10 Chemistry Remote Learning Programme: Spring 1 2022

Lesson Number	Lesson Title	Lesson Detail
1	Exo and Endothermic reaction https://classroom.thenational.academy/lessons/exothermic-and-endothermic-reactions-cqw32t	This lesson, students will define exothermic and endothermic reactions and give examples of each.
2	Required practical: Temperature change - Part 1 https://classroom.thenational.academy/lessons/required-practical-temperature-change-part-1-6tgp8c	This lesson, students will identify variables affecting the temperature change in a reaction, then process data and display these appropriately.
3	Required practical: Temperature change - Part 2 https://classroom.thenational.academy/lessons/required-practical-temperature-change-part-2-ccwkjt	This lesson, students will draw conclusions and explain the changes in temperature in experiments. Students will then evaluate the equipment and data and make suggestions for improvements.
4	Writing a method to test a hypothesis https://classroom.thenational.academy/lessons/writing-a-method-to-test-a-hypothesis-cmtk4e	This lesson, students will write a method to test a given hypothesis.
5	Energy Level diagrams https://classroom.thenational.academy/lessons/energy-level-diagrams-cgv68e	This lesson, students will draw energy level diagrams for exothermic and endothermic reactions. Students will identify activation energy and overall energy change in energy diagrams. We will also explain why reactions are endothermic or exothermic in terms of bond breaking and bond making.
6	Calculating bond energies https://classroom.thenational.academy/lessons/calculating-bond-energies-68tker	This lesson, students will calculate bond energy values and use them to predict whether a reaction will be exothermic or endothermic. Students will relate bond energies to the correct part of energy level diagrams.
7 Triple only	Fuel cells https://classroom.thenational.academy/lessons/fuel-cells-cguk4d	In this lesson, students will describe how cells and batteries can be made and how the voltage can vary. Students will describe how a fuel cell works and write half equations for the electrode reactions in a fuel cell. We will also evaluate the use of hydrogen fuel cells in comparison to rechargeable cells and batteries.

8	<p>Review</p> <p>Combined https://classroom.thenational.academy/lessons/review-combined-64u3ar</p> <p>Triple https://classroom.thenational.academy/lessons/review-chemistry-6tgket</p>	This lesson will review the content of this unit
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Year 11 Chemistry Remote Learning Programme: Spring 1 2022

Lesson Number	Lesson Title	Lesson Detail
1	<p>Rate of reaction https://classroom.thenational.academy/lessons/rate-of-reaction-68uk8t</p>	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.
2	<p>Rate of reaction using graphs and tangents https://classroom.thenational.academy/lessons/rate-of-reaction-using-graphs-and-tangents-ccvp4d</p>	In this lesson, higher tier students will learn how to draw tangents and using tangents to determine the rate of reaction at a specific point.

3	<p>Collision theory</p> <p>https://classroom.thenational.academy/lessons/collision-theory-6hjk4c</p>	<p>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 is activation energy. At the end of the lesson, students are expected to be able to explain how reactions occur using collision theory.</p>
4	<p>Planning an investigation to find rate of reaction</p> <p>https://classroom.thenational.academy/lessons/planning-an-investigation-to-find-rate-of-reaction-chj64c</p>	<p>This lesson will prepare students for the required practicals in the following lessons. Students will look at how to write a method for a practical and learn how to collect and display data appropriately. At the end of the lesson, students will learn how to describe and explain trends in graphs.</p>
5	<p>Rate of reaction required practical – part 1</p> <p>https://classroom.thenational.academy/lessons/rate-of-reaction-required-practical-part-1-60tp4t</p>	<p>In this lesson, students will complete the required practical: Investigate the effect of concentration on the rate of reaction by a method involving measuring the volume of a gas produced. Students will go over the variables to change, measure and control. At the end of the required practical, students will learn how to display data appropriately and how to check reproducibility.</p>
6	<p>Rate of reaction required practical part 2</p> <p>https://classroom.thenational.academy/lessons/rate-of-reaction-required-practical-part-2-ccw64c</p>	<p>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.</p>
7	<p>Effect of changing surface area on rate of reaction</p> <p>https://classroom.thenational.academy/lessons/effect-of-changing-surface-area-on-rate-of-reaction-c9k32t</p>	<p>In this lesson, students will use data to describe and explain the effect of changing surface area on the rate of reaction.</p>
8	<p>Effect of changing temperature on rate of reaction</p> <p>https://classroom.thenational.academy/lessons/effect-of-changing-temperature-on-rate-of-reaction-6wu6cd</p>	<p>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.</p>

9	Effect of changing the pressure on rate of reaction 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.
10	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.