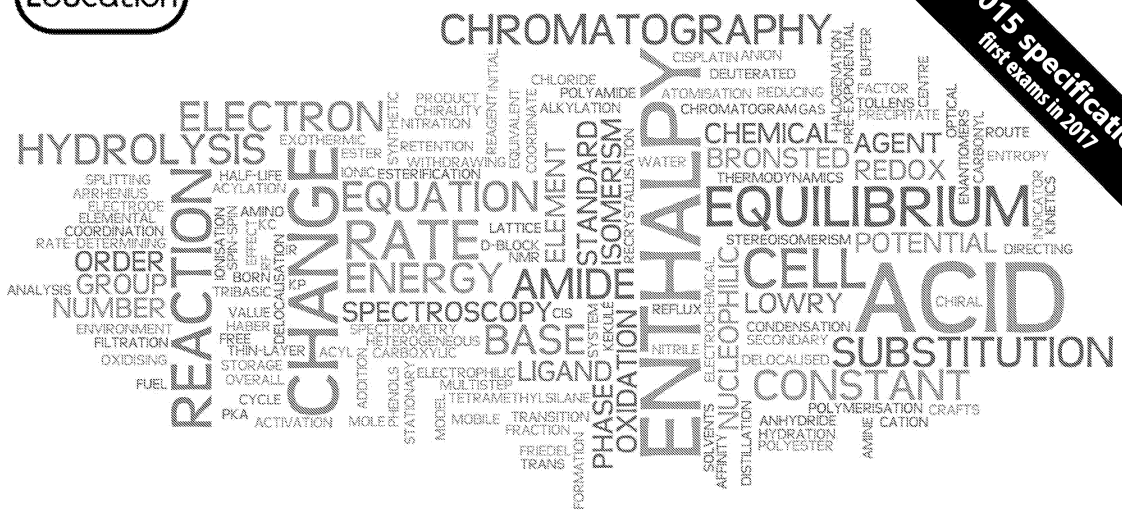
Zig Zag Education

Chemistry

A Level | OCR | H432

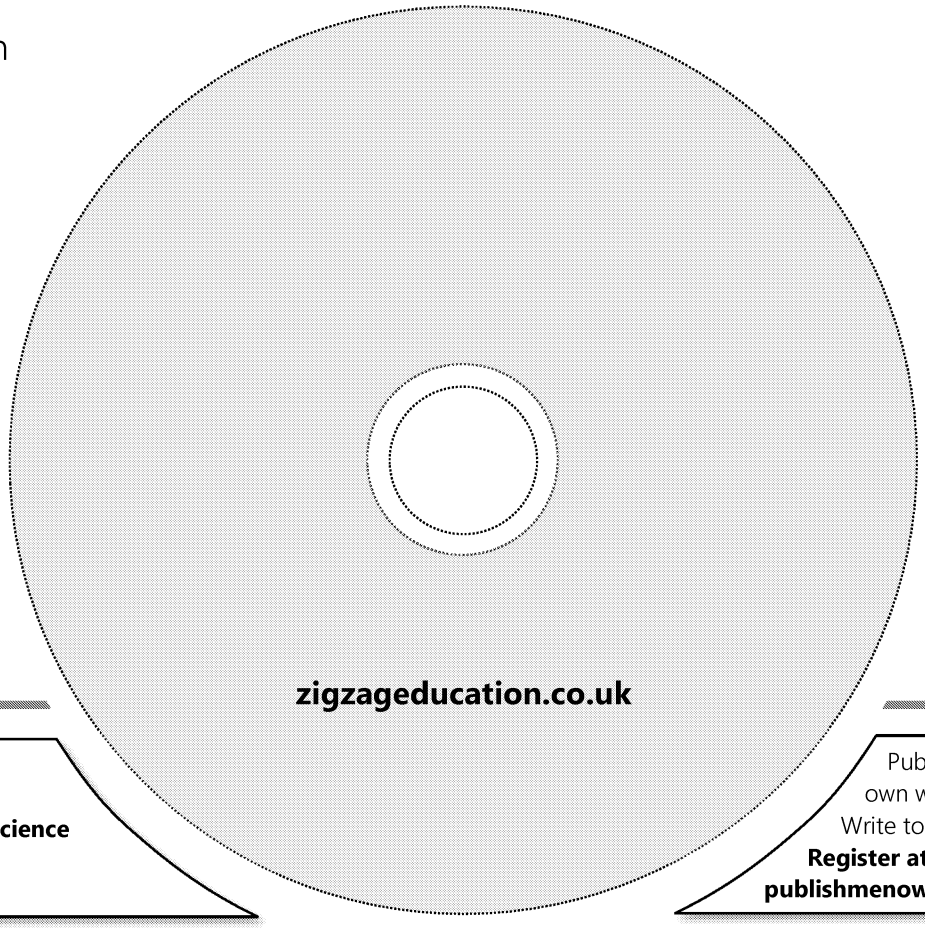
2015 specification
first exams in 2017



Technical Terminology Activity Pack

for A Level Year 2 OCR Chemistry A

R Dunn



DA3/ 9421

POD 9421

zigzageducation.co.uk

Follow @ZigZagScience on twitter

Publish your own work... Write to a brief... **Register at publishmenow.co.uk**

Contents

Thank You for Choosing ZigZag Education ..... **ii**

Teacher Feedback Opportunity ..... **iii**

Terms and Conditions of Use ..... **iv**

Teacher's Introduction ..... **v**

Activity Types vi

Crosswords ..... **8 pages**

Match-up Activities ..... **8 pages**

Table-fill Activities ..... **8 pages**

Keyword Answers ..... **8 pages**

Crossword Solutions ..... **8 pages**

Summary of Topics

	Topic Title	Spec Reference
1	Reaction Rates and Equilibria	5.1.1–5.1.2
2	Acids, Bases and Buffers	5.1.3
3	Enthalpy and Entropy	5.2.1–5.2.2
4	Redox and Electrode Potentials	5.2.3
5	Transition Elements	5.3.1–5.3.2
6	Aromatic Compounds, Carbonyls and Acids	6.1.1–6.1.2
7	Nitrogen Compounds, Polymers and Synthesis	6.2.1–6.2.5
8	Analysis	6.3.1–6.3.2

Teacher's Introduction

Overview

This resource has been produced to support teaching and learning of the **A Level Year 2 OCR Chemistry A** specification **H432**. The learning content is covered by the following sets of keywords with matching descriptions, which cover all of the learning aims for the topic:

- *Reaction Rates and Equilibria*
- *Acids, Bases and Buffers*
- *Enthalpy and Entropy*
- *Redox and Electrode Potentials*
- *Transition Elements*
- *Aromatic Compounds, Carbonyls and Acids*
- *Nitrogen Compounds, Polymers and Synthesis*
- *Analysis*

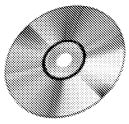
For each set, there are a number of different keyword activities on CD designed to give you a range of different options for classroom use, homework and revision. This variety enables you to take a different approach to different topics – such as using the Crosswords as homework for one topic, and the Match-up as a starter for another.

Alternatively, differentiate the activity for a given topic; for example, you might want to give your stronger students the **Crosswords** early on while you start weaker learners on the **Match-up** (where terms and definitions are both available). **Domino** and **Bingo** activities add an element of fun and reinforcement, as well as the potential for pair and group work. Finally, the **Flash Cards** come into their own for revision and the **Table-fill** and **Write Your Own Glossary** allow students to test their understanding by correctly filling in keywords or definitions.

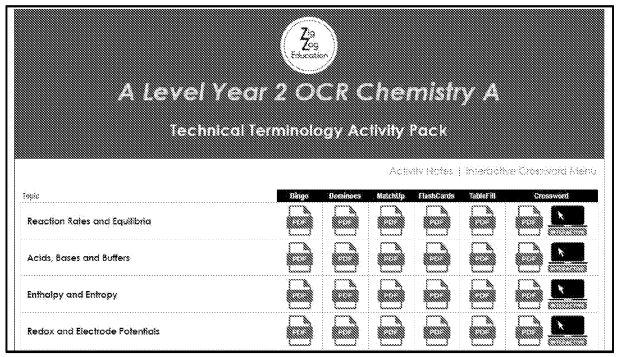
For more information about the different activities included, see overleaf. →

Digital Format!

All of the activities are provided electronically on the accompanying CD. To use on a school network, the entire contents of the CD need to be copied and pasted into an accessible location.



Providing easy access to the activities are two HTML menus:



1. ***Access All* Menu** →

   Location: **index.html**

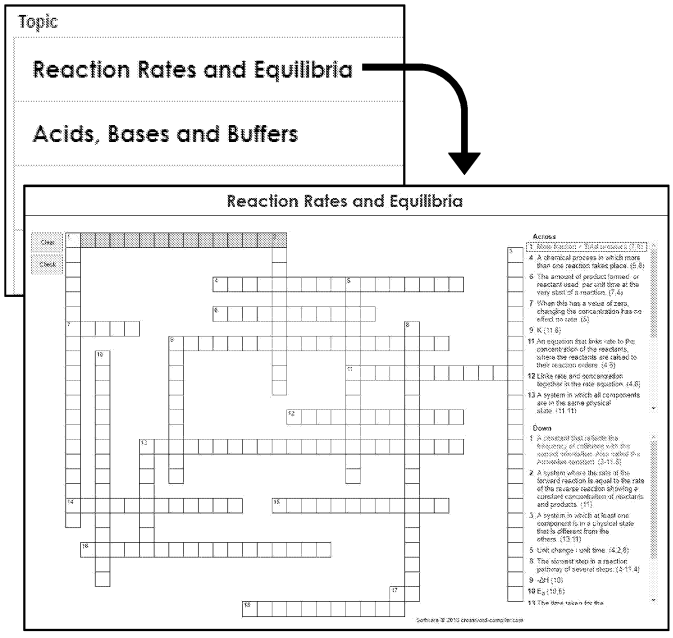
   This menu, designed primarily for teacher use, includes links to everything provided on the CD – allowing you to easily select what you need when preparing your lessons.

   If you intend to give learners access to this menu, then be aware that it does include links to the solutions.

2. ***Interactive Crossword* Menu** →

   Location: **interactive-crosswords/index.html**

   This menu, which can be accessed via the *Access All* Menu, is included to allow learner access to just the interactive crosswords (without the answers).



Free Updates!

Register your email address to receive any future free updates* made to this resource or other Chemistry resources your school has purchased, and details of any promotions for your subject.

** resulting from minor specification changes, suggestions from teachers and peer reviews, or occasional errors reported by customers*

Go to **zzed.uk/freeupdates**

Activity Types

All activities are provided as PDF files, allowing for easy printing and sharing on your school's internal network or VLE. In addition, each of the single-page activities (*Crosswords*, *Match-up* and *Table-fill*), as well as the solutions, are provided on paper too.

The activities included in this resource are as follows:

Bingo

✓ PDF

Each student is given a different bingo card containing a selection of words from the set. The teacher reads the definitions using the Keyword Answers, and the student must match the definition to the words on their card to complete rows, columns, and the full bingo card. The bingo activity is available for sets with 12 or more words.

Crosswords

✓ PDF ✓ PAPER

These traditional keyword activities are equally effective as lesson or homework activities – and are also an excellent way of easing students into their revision programme.

In addition to the photocopiable worksheets and PDF, the crosswords are provided in interactive format on the accompanying CD-ROM. These are web-based (HTML5) and will run straight from your Internet browser.

Dominoes / Loop Cards

✓ PDF

This is essentially another match-up activity, but this one is designed to be used in a more active way to engage students. It is recommended that students work in pairs or small groups.

Half of each card contains a keyword, and the other half contains a description. To complete the activity, students must align all the cards in the correct order. There is a 'Start' and a 'Finish', meaning that if any cards are left outside the chain, then students have gone wrong somewhere.

Match-up

✓ PDF ✓ PAPER

Students match descriptions to their keywords by drawing lines between them. Because there are similar descriptions and keywords, students are likely to make the odd mistake while completing the activity, so it is recommended that they use a pencil to start with! By eliminating the keywords that they are familiar with, students can then think about and learn the ones that they are less confident with.

Flash Cards

✓ PDF

These are a helpful revision tool. To make the cards, fold the page in half, then cut out each card and stick them together so the keyword is on one side and the definition the other. In addition, students could use these to play a game of pairs. Cut each card in two and place them all face down on the table. Students will then take it in turns to turn over two cards with the aim of matching a keyword to its definition. Matched-up cards are removed, and the game is finished when all the cards have been matched.

Glossary Builders

Table-fill

✓ PDF ✓ PAPER

Nothing fancy – students simply write the keyword which is being described, without any other help. Because this activity tests the students' own knowledge, it is best used as a homework activity at the end of each topic or during revision. This then acts as a check that they have grasped the key terminology for each topic. Alternatively, the tables could be given to students at the beginning of the topic, to see what they already know.

Write Your Own Glossary

✓ PDF

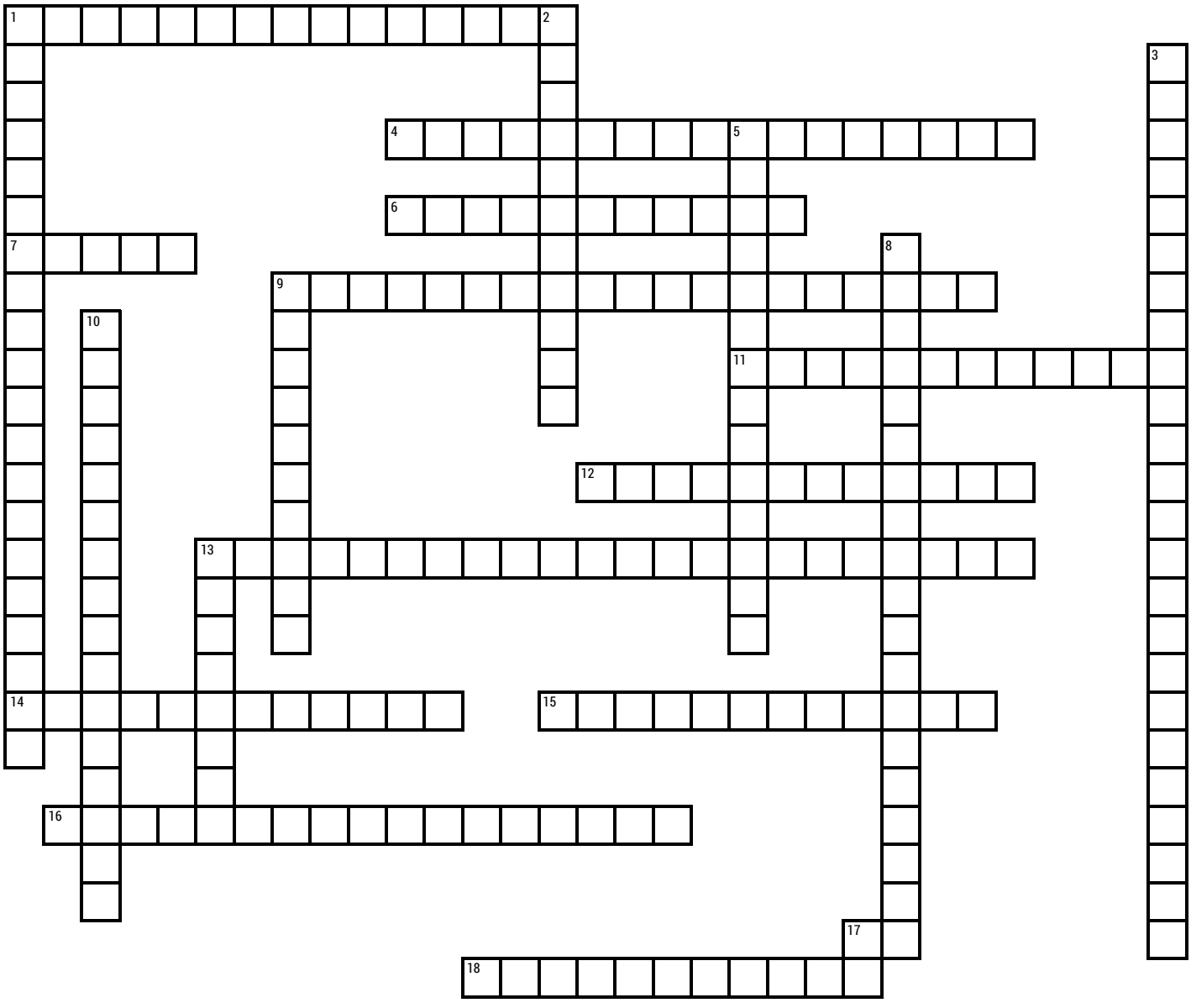
Like the Table-fill, this activity can be used to test students before learning a topic, or as a revision tool after learning a topic. Students are given a list of the keywords and need to produce their own definitions. Using Table-fill and Write Your Own Glossary, lessons can be differentiated for all levels of learner.

Selected Activities and Completed Glossary Page

This sample shows one example of several activities.
The whole resource contains approximately 50 activities –
6 or 7 activities for each of the 8 topics.

The resource covers 142 key terms.

Reaction Rates and Equilibria



Across

1 Mole fraction × Total pressure (7,8)
4 A chemical process in which more than one reaction takes place. (9,8)
6 The amount of product formed, or reactant used, per unit time at the very start of a reaction. (7,4)
7 When this has a value of zero, changing the concentration has no effect on rate. (5)
9 K (11,8)
11 An equation that links rate to the concentration of the reactants, where the reactants are raised to their reaction orders. (4,8)
12 Links rate and concentration together in the rate equation. (4,8)
13 A system in which all components are in the same physical state. (11,11)
14 Add all the individual orders up to get this. (7,5)
15 Part of the total number of moles, but not expressed as a percentage. (4,8)
16 The formula used to mathematically describe the relationship between the rate constant of a reaction and temperature. (9,8)
17 The equilibrium constant represented in terms of partial pressures of reactants and products. (2)
18 +ΔH (11)

Down

1 A constant that reflects the frequency of collisions with the correct orientation. Also called the Arrhenius constant. (3-11,6)
2 A system where the rate of the forward reaction is equal to the rate of the reverse reaction showing a constant concentration of reactants and products. (11)
3 A system in which at least one component is in a physical state that is different from the others. (13,11)
5 Unit change / unit time. (4,2,8)
8 The slowest step in a reaction pathway of several steps. (4-11,4)
9 -ΔH (10)
10 E_a (10,6)
13 The time taken for the concentration of a reactant to reduce by half. (4-4)
17 The equilibrium constant represented in terms of concentrations of reactants and products. (2)

Reaction Rates and Equilibria *(Table Fill)*

The amount of product formed or reactant used in a unit time.	
The power of the concentration terms in the rate equation.	
The sum of all the orders in the rate equation.	
The amount of product formed, or reactant used, per unit time at the very start of a reaction.	
The coefficient of proportionality that relates the rate of a reaction to the concentration terms of the reactants at a specified temperature.	
The time taken for the concentration of a reactant to reduce by half.	
A chemical process in which more than one reaction takes place.	
The slowest step in a reaction pathway of several steps.	
An equation that links rate to the concentration of the reactants, where the reactants are raised to their reaction orders.	
The formula used to mathematically describe the relationship between the rate constant of a reaction and temperature.	
The minimum energy required for a reaction to start when reactants collide.	
A constant that reflects the frequency of collisions with the correct orientation. Also called the Arrhenius constant.	
The number of moles of one species, divided by the total number of moles of all species.	
The pressure that one gas in a mixture of gases would exert on a sealed container if it occupied that container alone.	
A system where the rate of the forward reaction is equal to the rate of the reverse reaction showing a constant concentration of reactants and products.	
A system in which all components are in the same physical state.	
A system in which at least one component is in a physical state that is different from the others.	
A reaction in which energy is taken in by the reaction system.	
A reaction in which energy is released by the reaction to the environment.	
The ratio of concentrations in a reversible system once equilibrium has been established. Symbol K	
The equilibrium constant represented in terms of concentrations of reactants and products.	
The equilibrium constant represented in terms of partial pressures of reactants and products.	

Reaction Rates and Equilibria *(Match Up)*

1	A chemical process in which more than one reaction takes place.
2	A constant that reflects the frequency of collisions with the correct orientation. Also called the Arrhenius constant.
3	A reaction in which energy is released by the reaction to the environment.
4	A reaction in which energy is taken in by the reaction system.
5	A system in which all components are in the same physical state.
6	A system in which at least one component is in a physical state that is different from the others.
7	A system where the rate of the forward reaction is equal to the rate of the reverse reaction showing a constant concentration of reactants and products.
8	An equation that links rate to the concentration of the reactants, where the reactants are raised to their reaction orders.
9	The amount of product formed or reactant used in a unit time.
10	The amount of product formed, or reactant used, per unit time at the very start of a reaction.
11	The coefficient of proportionality that relates the rate of a reaction to the concentration terms of the reactants at a specified temperature.
12	The equilibrium constant represented in terms of concentrations of reactants and products.
13	The equilibrium constant represented in terms of partial pressures of reactants and products.
14	The formula used to mathematically describe the relationship between the rate constant of a reaction and temperature.
15	The minimum energy required for a reaction to start when reactants collide.
16	The number of moles of one species, divided by the total number of moles of all species.
17	The power of the concentration terms in the rate equation.
18	The pressure that one gas in a mixture of gases would exert on a sealed container if it occupied that container alone.
19	The ratio of concentrations in a reversible system once equilibrium has been established. Symbol K
20	The slowest step in a reaction pathway of several steps.
21	The sum of all the orders in the rate equation.
22	The time taken for the concentration of a reactant to reduce by half.

Rate of reaction	
Order	
Overall order	
Initial rate	
Rate constant	
Half-life	
Multistep reaction	
Rate-determining step	
Rate equation	
Arrhenius equation	
Activation energy	
Pre-exponential factor	
Mole fraction	
Partial pressure	
Equilibrium	
Homogeneous equilibrium	
Heterogeneous equilibrium	
Exothermic	
Endothermic	
Equilibrium constant	
K_c	
K_p	

Reaction Rates and Equilibria