GCSE Chemistry - Chemistry - Key Stage 4

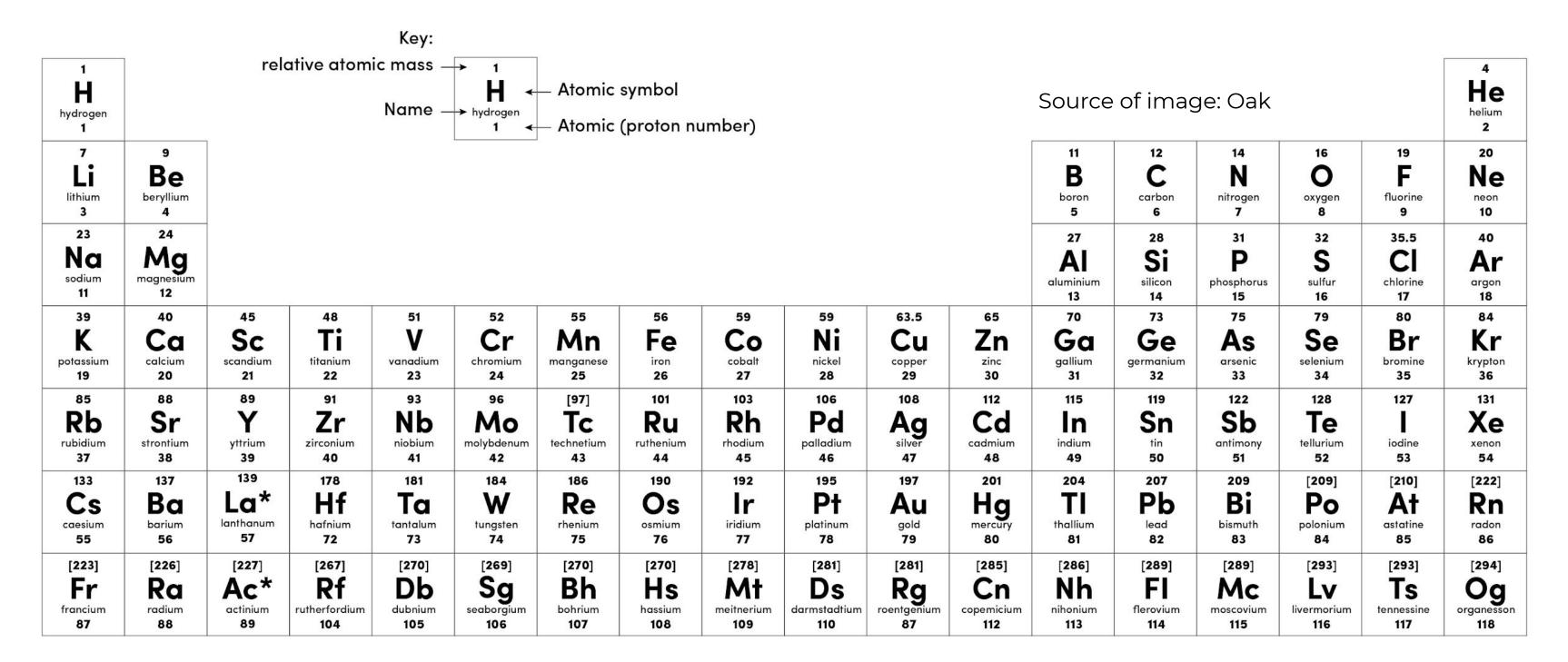
Organic chemistry

# Carboxylic acids

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### **Periodic Table of Elements**





### Independent practice

- 1. What is the common name for ethanoic acid?
- 2. What is the functional group found in carboxylic acids?
- 3. Name the first 4 carboxylic acids in order.
- 4. What do the names of all carboxylic acids end in?

#### Challenge:

A carboxylic acid has 10 carbon atoms. State its name.



#### Independent practice

Draw the displayed formula for propanoic acid and butanoic acid.

#### **Support:**

- 1. Draw your COOH group
  - Draw the C
  - Attach an O to the C using a double bond
  - Attach the OH group to C, by the O, with a single bond

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- 2. Draw the rest of the hydrocarbon
  - Remaining carbon atoms
  - 4 bonds from each carbon atom
  - Draw in your hydrogen atoms



#### Pause point

- 1. Are carboxylic acids soluble or insoluble in water?
- 2. What colour does universal indicator turn when added to carboxylic acids?
- 3. What is the rough pH range of carboxylic acids?
- 4. What is the general word equation for the reaction between a carboxylic acid and a metal carbonate?
- 5. What gas is produced when a metal carbonate reacts with acid?

Challenge: Write a word equation for the reaction between sodium carbonate and ethanoic acid.



## Independent practice

1. Why does hydrochloric acid have a lower pH than ethanoic acid?

2. If the pH of ethanoic acid is 5 and hydrochloric acid is 2, what is the difference in hydrogen ion content?

3. How many orders of magnitude is this?



# Independent task

- 1. What are the two products when an alcohol reacts with a carboxylic acid?
- 2. What small molecule is released when an alcohol reacts with a carboxylic acid?
- 3. Complete the following equations.

Methanol + ethanoic acid →

Propanol + methanoic acid →

Butanol + propanoic acid →

