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BrightRED Revision Cards

N5

CHEMISTRY



# BRIGHT RED REVISION CARDS

These revision cards are packed full of great National 5 Chemistry questions, diagrams, illustrations, answers and tips to help you to actively test your knowledge and ramp up your revision.

Each card covers a course topic which offers a mixture of multiple-choice and exam-style questions. Answers and explanations with key pointers are on the reverse.

**7 ATOMIC STRUCTURE: ISOTOPES AND RELATIVE ATOMIC MASS**

**QUESTIONS**

1 Copper is made up of two different types of atoms,  $^{63}\text{Cu}$  and  $^{65}\text{Cu}$ . What term is used to describe these different types of copper atoms?

2 The graph shows the mass spectrum for an atom. What is the most likely value for the relative atomic mass of atom?

3 Which pair of atoms in the table are isotopes?

4 Copper is made up of two different types of atoms,  $^{63}\text{Cu}$  and  $^{65}\text{Cu}$ . A sample of copper has a relative atomic mass of 63.5. What is the mass number of the more common type of atom in the sample of copper?

**ANSWERS**

1 **REMEMBER!** All the isotopes of an element are chemically similar. The number of neutrons in an atom has no effect on the chemical properties of the atom.

2 As the most abundant isotope is neon-20, the relative atomic mass will be closer to this than the other values.

3 Isotopes have the same number of protons but a different number of neutrons.

4 In other words, isotopes are atoms with the same atomic number but different mass numbers.

5 **REMEMBER!** Isotopes have the same number of protons but different mass numbers.

6 **REMEMBER!** Isotopes have the same atomic number but different mass numbers.

7 **REMEMBER!** The relative atomic mass of an element and the mass number of an atom are not the same thing. Mass number refers to an individual atom and a will always be a whole number. Relative atomic mass is an average calculated from all the isotopes of an element and so it will not be a whole number.

Number of protons	Number of neutrons	Number of electrons
10	10	10
10	11	10
10	12	10
10	13	10
10	14	10
10	15	10
10	16	10
10	17	10
10	18	10
10	19	10
10	20	10

- Answers with short explanations
- **REMEMBER!** tips to shine a light on any harder concepts or questions

## HOW TO USE

You can test yourself alone or with friends and should do so at spaced intervals when you feel confident about the topics you have studied. You can use the cards in any order to vary your approach and can shuffle the pack to mix things up a little bit!

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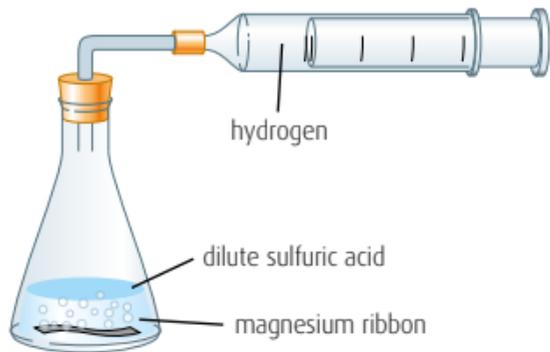
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## REACTION RATES: MEASURING AND CALCULATING RATES

## QUESTIONS

- Which piece of apparatus is **least** likely to be used when measuring the rate of a reaction?  
**A** Stopwatch                      **C** Test tube  
**B** Balance                          **D** Measuring cylinder
- Which of the following would not increase the rate of reaction in the diagram?  
**A** Using magnesium powder  
**B** Increasing the concentration of sulfuric acid  
**C** Heating the reaction  
**D** Diluting the sulfuric acid
- What is the term used to describe the speed at which a chemical reaction occurs?
- What can be added to a reaction to speed up the rate, without getting used up itself?
- What is the essential piece of apparatus to use when monitoring mass loss?



## ANSWERS

- 1 C** A test tube has no volume markings on it and so it could not accurately measure volume.
- 2 D** A, B and C will all increase the rate of reaction. Diluting the acid will decrease the concentration, therefore decrease the rate of reaction.

**REMEMBER!** When carrying out experiments to identify which factor alters the rate of a reaction, it is very important that only one factor is changed to ensure a fair comparison is made. For example, when investigating temperature, only the temperature should change. Other factors like concentration should stay constant.

- 3** Rate of reaction. The reaction rate can be expressed as the changes in mass or volume/the time interval over which the change took place.

**REMEMBER!** Only the average reaction rate can be found when dividing the change in quantity of reactant or product by the change in time as the reaction rate is constantly changing.

- 4** Catalyst.
- 5** A balance. Mass loss is measured on a balance; the other options are suitable for gas collection.

**REMEMBER!** Although a balance can measure decreasing mass, it can also be used to determine the increasing mass of the gas produced if the total starting mass of the chemicals and apparatus is known.



# 41 NUCLEAR CHEMISTRY: RADIOACTIVITY AND PROPERTIES

## ANSWERS

- 1 **B** Beta radiation is negatively charged, therefore will be attracted to a positive charge

**REMEMBER!** You need to learn the specific properties of the three types of radiation, including mass, charge and ability to penetrate different materials.

- 2 **C** Gamma radiation is an electromagnetic wave, therefore travels at the speed of light.
- 3 Alpha ( $\alpha$ ). Alpha radiation is a helium nucleus.
- 4 Beta ( $\beta$ ). Beta radiation is stopped by a thin strip of metal.
- 5 Gamma ( $\gamma$ ). Gamma radiation does not hold a charge, therefore is not affected by electric fields.



## QUESTIONS

- Distillation makes use of which physical property of substances?
  - Melting point
  - Boiling point
  - Water solubility
  - Flammability
- Which of the following mixtures could be safely distilled using a Bunsen burner?
  - Propanol and ethanol
  - Ethanol and water
  - Water and salt
  - Salt and propanol
- Carbon dioxide is a soluble gas. Which method of gas collection is most suitable? See fig 1.
- Identify the technique shown in fig 2.

Fig 1

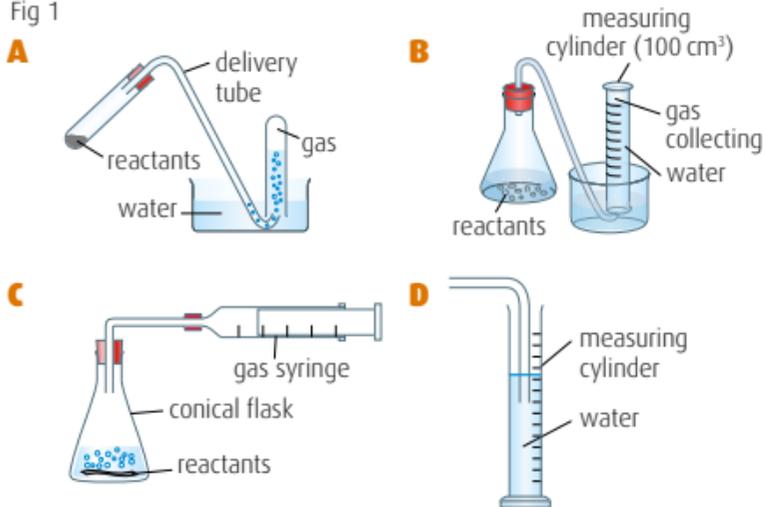
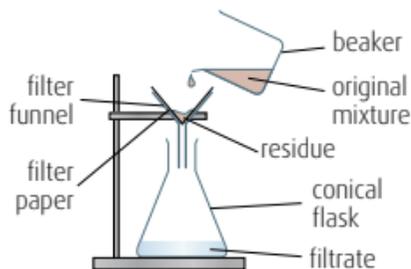


Fig 2



## ANSWERS

**1 B****2 C** Ethanol and propanol are flammable and so a Bunsen burner should not be used.**3 C** As it is soluble, a gas syringe is the best option.**4** Filtration. Separating an insoluble solid from a liquid is filtration.