

## Introduction

Question loops are useful recap activities. This loop can be used as revision for simple acid and alkali units. Key vocabulary for particular topics can be focused on each time the loop is played. There will be several sets of cards in the *Fun-Size* sections of the Science Year ASE CD ROMs.

## Running the activity

There are 27 cards, two to a page, all different. Print out the set of 27 cards on 14 sheets of paper (card 28 is a front cover card). It is helpful to print the cards on different coloured paper for each subject area. Cut the A4 sheets in half lengthwise to make a "card" and laminate it for maximum durability. You may also need a stop-clock.

Give out individual cards to each pupil, or split the pupils into small groups and give a certain number of cards to each group until none are left. It is important that all the cards are used every time, or there will be a gap in the loop.

Start the activity by getting one pupil to ask their question. Another pupil will recognise the correct answer on their card and read it out. They should then read their question and so on until the loop returns to the starting person. This should happen with the 27<sup>th</sup> question asked. Pupils should turn their card over when they have finished. Record the amount of time taken to complete the loop and see if the class can better their time at the end of the lesson

For information and a blank template file contact [nigel.heslop@scienceyear.com](mailto:nigel.heslop@scienceyear.com)

## Safety

Not applicable.

## More ideas

The questions can be used as the basis of a quiz. Key words could be displayed beside the teaching station. Sticky Velcro patches make a good support for the word display. There should only be a few key words to focus attention on the target vocabulary for that session.

## Learning outcomes

Develop pupil knowledge of:

- Common examples of acids and alkalis
- Reactions of acids and alkalis
- Indicators
- pH scale

## Where the activity fits in

Revising Year 7 Chemistry topics.  
QCA SoW Unit 7E Acids and alkalis

## Skills

Vocabulary

## Acknowledgements

This idea was one originally seen used in a science context by Mike Evans and Linda Ellis.

Q1 Vinegar (a dilute acid) tastes

.....

A27 It goes blue

Q2 Very dilute alkalis feel .....

A1 Sour

Q3 All acids and alkalis must be treated with care because they can be

.....

A2 Soapy

Q4 To tell the difference between an acid and an alkali you need to use a chemical called an .....

A3 Hazardous

Q5 The scale used to measure the strength of an acidic or alkaline solution is called the ..... A4 Indicator

Q6 The strongest acid solutions have a pH of ..... A5 pH scale

Q7 The strongest alkaline solutions  
have a pH of .....

A6 pH1

Q8 A neutral solution has a pH of  
.....

A7 pH14

Q9 When an acid reacts with an alkali they .....

A8 pH7

Q10 A very weak acid solution has a pH of .....

A9 Neutralise each other

Q11 A very weak alkali solution has a pH  
of .....

A10 pH6

Q12 When you work with acids and  
alkalis you must wear .....

A11 pH8

Q13 After you have finished working with acids and alkalis you must

.....

A12 Eye protection

Q14 Many ordinary substances are acids, for example .....

A13 Wash your hands

Q15 Many ordinary substances are alkalis, for example .....

A14 Fruit juice and vinegar

Q16 Indicators are .....

A15 Soap and toothpaste

Q17 What hazard symbol is put on bottles of acid?

A16 Dye solutions that are different colours in acids and alkalis.

Q18 Why might you put alkaline bicarbonate of soda on bee stings?

A17 The corrosive symbol. It shows a hand being dissolved by a liquid.

Q19 Why might you put acidic vinegar on wasp stings?

A18 Because bee stings are acidic

Q20 Why do indigestion tablets contain alkaline substances?

A19 Because wasp stings are alkaline

Q21 What do acids do to most metals?

A20 Because indigestion is caused by having too much acid in the stomach

Q22 What gas is produced when a metal reacts with an acid?

A21 They corrode most metals

Q23 How do you test to show that a gas is hydrogen?

A22 The gas is hydrogen

Q24 What gas is produced when an acid reacts with carbonate rocks?

A23 Hydrogen burns with a squeaky pop

Q25 How would you test a gas to show that it is carbon dioxide?

A24 The gas is carbon dioxide

Q26 What colour does Universal Indicator go in an acidic solution?

A25 Pass it through limewater. Carbon dioxide turns limewater milky.

Q27 What colour does Universal Indicator go in an alkaline solution?

A26 It goes red

Question loop: Acids and alkalis (7E and 7F)

## Introduction

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## Learning outcomes

Develop pupil knowledge of:

- Adaptations
- Food chains and webs
- Predator-prey relationships

## Where the activity fits in

Revising Year 7 Biology topics.  
QCA SoW Unit 7C Environment and feeding relationships

## Skills

Vocabulary

## Acknowledgements

This idea was one originally seen used in a science context by Mike Evans and Linda Ellis.

Q1 What adaptation could a plant have for living in water?

A27 The number of predators decreases, because they have less food.

Q2 What adaptation could an animal have for living in a forest?

A1 Long stems to reach the surface.

Q3 Why do bluebells in woods grow and flower before the trees grow their leaves?

A2 Coat or feather colours that camouflage it against the trees.

Q4 What adaptations could an animal have if it lives underground?

A3 There is more light available before the tree leaves shade them.

Q5 Why do no plants live *totally* underground?

A4 Feet shaped for digging, and a good sense of touch and smell. Eyesight is unimportant.

Q6 If a bird eats nuts, what may its beak look like?

A5 There is no light for photosynthesis.

Q7 If a bird digs in the mud for worms to eat, what may its beak look like?

A6 Short and strong to crack the shells.

Q8 Where on land would you look to find snails?

A7 Long and thin, to probe deep into the mud

Q9 Where do woodlice prefer to live?

A8 Snails live in damp places, like under leaves. They eat the leaves. They hide from predators under the leaves. They like damp places so their bodies do not dry out.

Q10 Owls can see very well when there is very little light. When do they hunt their prey?

A9 They prefer dark, damp places under pieces of wood. They eat the wood, and the moisture stops their bodies from drying out.

Q11 Why do hedgehogs hibernate?

A10 Just after sunset.

Q12 How can you tell that an eagle is a predator?

A11 Hedgehogs hibernate through the winter because their food is in short supply.

Q13 How can you tell that a fox is a predator?

A12 It has sharp claws and a hooked beak for tearing flesh.

Q14 How does an antelope avoid being eaten?

A13 It has sharp pointed teeth to kill small animals.

Q15 Why do cats lose some of their fur in spring?

A14 An antelope can run faster than most predators.

Q16 Grass → rabbit → fox: This is an example of a .....

A15 They do not need their thick winter fur to keep them warm.

Q17 Food chains link together to make a

.....

A16 It is an example of a food chain.

Q18 The arrows in a food chain show

us.....

A17 Food web.

Q19 Why do some plants produce fruit that it is easy for animals to eat?

A18 The direction of energy flow through the food chain.

Q20 What are the *producers* in a food web?

A19 The fruits contain seeds that are spread in animal waste.

Q21 What is a herbivore?

A20 They are the plants. They make their own food.

Q22 What is the name for an animal that only eats other animals?

A21 An animal that only eats plants

Q23 What is an omnivore?

A22 Carnivore.

Q24 What word means the total number of one type of plant or animal?

A23 An animal that eats both plants and animals.

Q25 If the prey population *increases*, what happens to the number of predators?

A24 Population.

Q26 If the predator population *increases*, what happens to the number of prey?

A25 Predator numbers increase, because they have more food. There is a short delay while the predators breed.

Q27 If the prey population *decreases*, what happens to the number of predators?

A26 The number of prey decreases, because more of them are eaten.

Question loop: Environment and feeding relationships (7C)

## Introduction

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## Learning outcomes

Develop pupil knowledge of:

- Chemical and physical changes
- Evidence for chemical change
- Combustion
- Fuels

## Where the activity fits in

Revising Year 7 chemistry topics.  
QCA SoW Unit 7F Simple chemical reactions

## Skills

Vocabulary

## Acknowledgements

This idea was one originally seen used in a science context by Mike Evans and Linda Ellis.

Q1 A permanent change in a material is usually a .....

A27 When a solid becomes a gas.

Q2 A temporary change in a material (for example, ice melting and refreezing) is called a .....

A1 Chemical change.

Q3 Evidence for a chemical change are things you can .....

A2 Physical change.

Q4 Fuel burning is a chemical change because .....

A3 See, hear or smell, like bubbles of gas being made.

Q5 The scientific name for burning is ... A4 New substances are made.

Q6 During combustion .....

A5 Combustion.

Q7 Materials that release energy when they burn are called .....

A6 New substances are made, and heat and light energy is released.

Q8 When fuels burn they react with ...

A7 Fuels.

Q9 Hundreds of years ago people thought burning was .....

A8 Oxygen.

Q10 Which two people changed these ideas?

A9 The release of phlogiston.

Q11 These two scientists showed that ...

A10 Joseph Priestley and Anton Lavoisier.

Q12 The fire triangle shows us three things that are needed to keep a fire going. These are ...

A11 Air is a mixture of gases including oxygen, which is a pure substance.

Q13 Firemen use the fire triangle information to .....

A12 Fuel, oxygen and a source of heat.

Q14 The fuel for a Bunsen burner is ...

A13 Put fires out. They cut off the fuel, prevent oxygen reaching the fire, or take away the source of heat.

Q15 Methane burns in air to make ...

A14 Methane.

Q16 Many fuels burn to make carbon dioxide because they have lots of ...

A15 Carbon dioxide and water vapour.

Q17 How can you find out if a gas is carbon dioxide?

A16 .....carbon atoms in them

Q18 Which gas is made when metals react with acids?

A17 Pass it through limewater. Carbon dioxide turns limewater milky.

Q19 This metal does not react with acids to produce hydrogen .....

A18 Hydrogen.

Q20 When metal reacts with acid, the metal disappears or gets smaller. We sometimes call this .....

A19 Copper.

Q21 Which gas is produced when metals react with carbonates?

A20 Corrosion.

Q22 In a solid the particles are .....

A21 Carbon dioxide.

Q23 In a liquid the particles are .....

A22 In fixed positions but vibrating.

Q24 In a gas the particles are .....

A23 Linked together by weak forces,  
but moving past each other.

Q25 When a solid melts the particles ...

A24 Well separated and moving very fast in random directions.

Q26 When a liquid boils the particles ...

A25 Have enough energy to break away from their fixed positions. Liquids do not have a fixed shape.

Q27 What is sublimation?

A26 Have enough energy to break the weak forces between them and become separate particles. Gases do not have a fixed shape or a fixed volume.

Question loop: Simple chemical reactions (7F)