Cambridge Primary
Revise for Primary Checkpoint

Science

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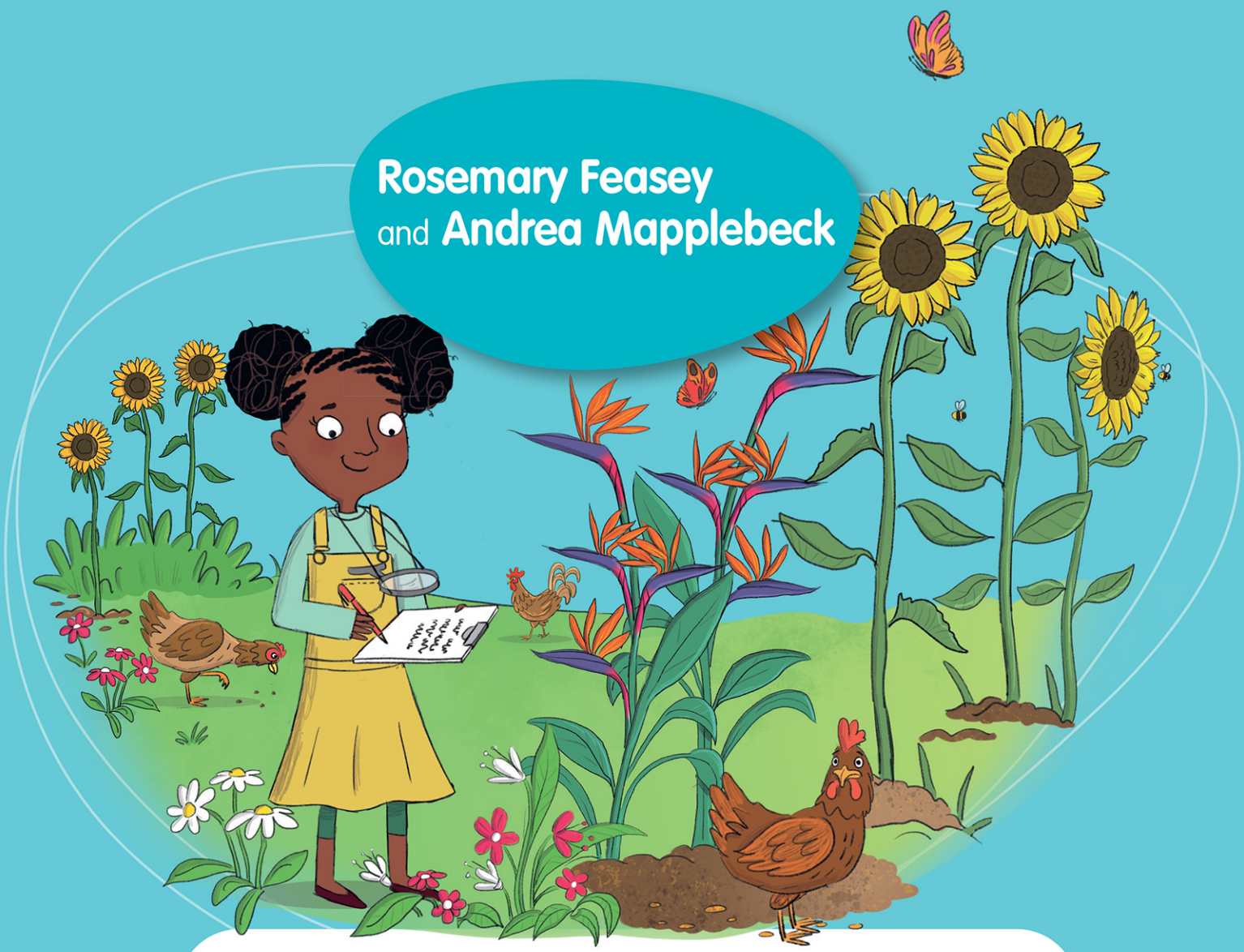
and Andrea Mapplebeck



Study Guide

HODDER EDUCATION

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Introduction

What is this book about?

This Study Guide will help you to recall key information and ideas and build your understanding about the science topics that you have been learning in Stage 6. It will help you to make sure that what you learn stays in your memory for a long time.

How can this book help you?

Revision helps you to remember facts and to practise different ways of working. It can help you make connections between ideas so that the knowledge you have and the understanding you develop is more likely to stay in your memory for longer. Revision can help to make it easier for your brain to retrieve (get back) what you know when you need it in the future, for example, in a new topic or a school test.

How can I help myself when using this book?

Be honest, if you do not know something, admit it yourself. If you still do not understand an idea or a word, ask a partner or an adult to help you understand. Positive learners know that asking for help is a good thing to do.

It's OK to make mistakes

When we learn it is fine to make mistakes and errors, especially when revising. These are great learning opportunities and should be explored if new learning is to take place. If you are unsure, do not know or make a mistake, do not worry, look back through your books, ask a partner or an adult to help you, that way you will continue to learn and succeed.

Worked examples

Throughout this Study Guide, you will find examples of learners' work which have errors in them called worked examples. Finding and correcting the errors is a great way to help you learn. You will also find examples of 'good' answers, to help you understand how questions and problems can be answered.

Model icon
Shows you are using a mental or physical model of something in the real world.

Star icon
This tells you that you need to think and work like a scientist.

Link icon
This tells you that content is related to another subject you are learning.

What approaches (ways) does this Study Guide use to help you revise science?

This Study Guide offers different approaches that you can use to help you decide what you know and understand and what you are still unsure of, this will enable you to practise and revise, ensuring that those ideas 'stick' in your memory.

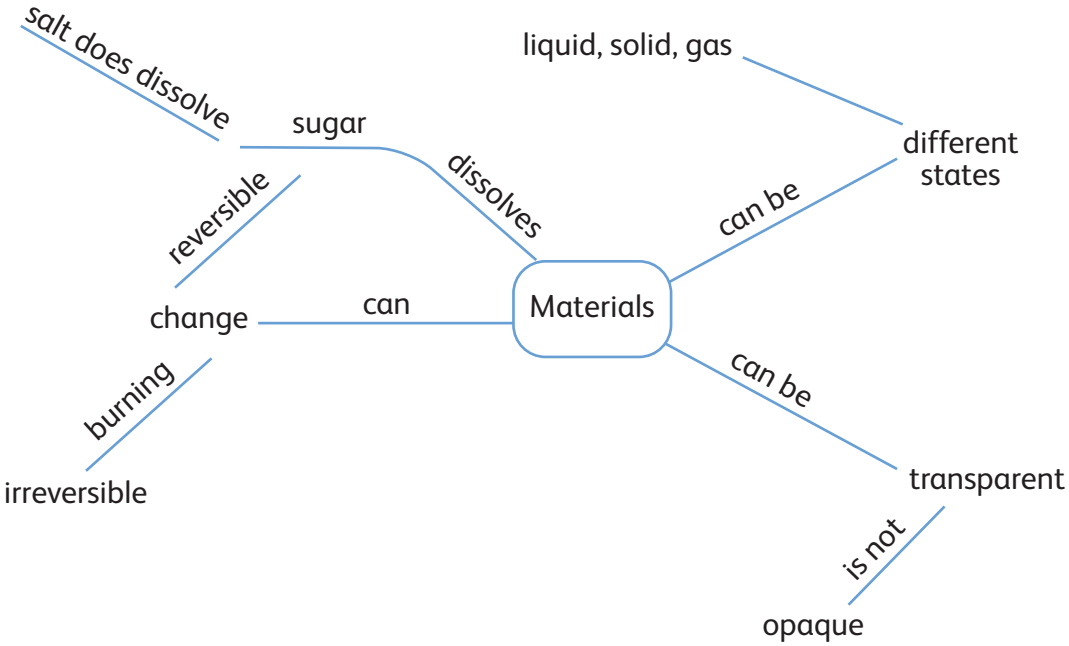
There are many different ways of revising what you know in science. To help you understand how each approach works, the following pages explain each of the different approaches. Each person learns and remembers their science in different ways, approaches that you find helpful might be different to what others prefer to use.

A few of the revision approaches are explained so that you know what they are and why they are used. You might find some of them useful in other subjects to help you remember and revise facts and ideas for example, in maths, geography and history.

Concept maps

A concept map is a type of thinking map. It is a useful way to help you remember key words and ideas in a topic and make links between them.

With a concept map you can group words using headings. You can then show how ideas link by drawing lines between them. You need to write on the lines why you are connecting the lines together.



Definitions

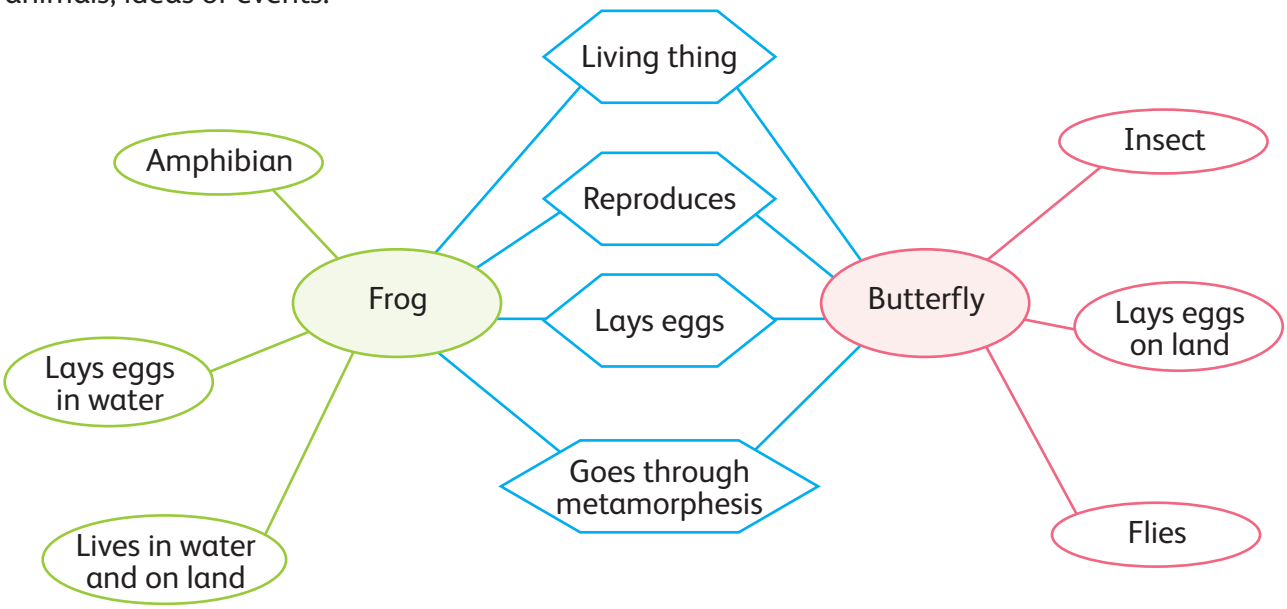
Thinking about and writing down definitions for words can help you understand the word better and give you confidence to use the words when speaking or writing about science.

Being able to use scientific vocabulary correctly is very important, if you are unsure of a word use a dictionary or thesaurus to check if you are correct. You could make yourself a science dictionary, write the word, how to say it, a definition and even draw or stick a picture or sample of something, for example, a material (aluminium foil).

This Study Guide also provides other ways to help you learn words, such as key word cards, mnemonics and acrostics.

Double bubble

A double bubble is another type of thinking map. A double bubble is a useful way to check that you have understood ideas. The double bubble helps you look at two different ideas and compare them for similarities and differences. It is used to compare and contrast objects, animals, ideas or events.



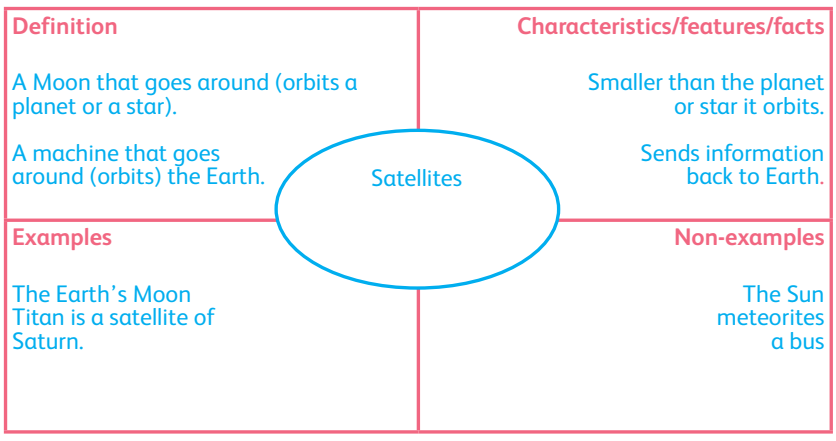
In the centre of the large circles write the name of, for example, the two ideas you are thinking about. Down the middle of the double bubble, in the hexagons, you are looking for similarities. This means you will write one thing in each hexagon that is true for both ideas. In the outside circles you then consider differences. You will note down things that are different for each of the ideas you are thinking about.

By drawing out your thinking using this type of thinking map you will make connections and remember what you have been learning about.

Frayer map

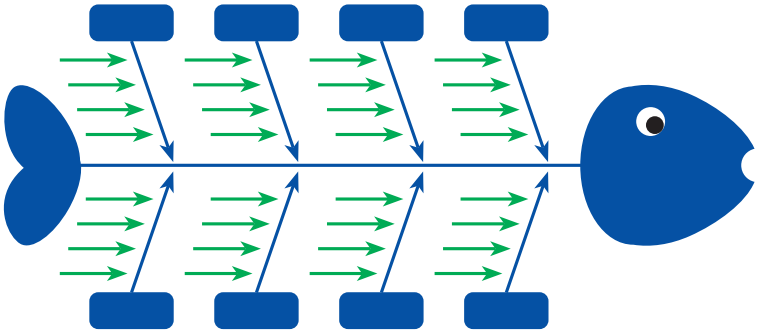
A Frayer map helps you to identify and define unfamiliar concepts and vocabulary in a topic. Learning vocabulary so that you know how to spell words and understand what they mean is very important in science. If you can read, spell and explain scientific words and apply them to everyday life, it means that your learning is secure.

A Frayer map is used to focus on revising and learning about one word at a time.



Fishbone organiser

This is another type of thinking map. A fishbone organiser is a useful way of organising ideas and knowledge linked to the same topic. It is a visual way to link many ideas that connect to the same issue and help you record what you know about a problem and how to solve it. A fishbone organiser is a simple way that you can organise your ideas, make links and solve problems. You might want to use different colours on your fishbone organiser so you can pick out ideas that link.



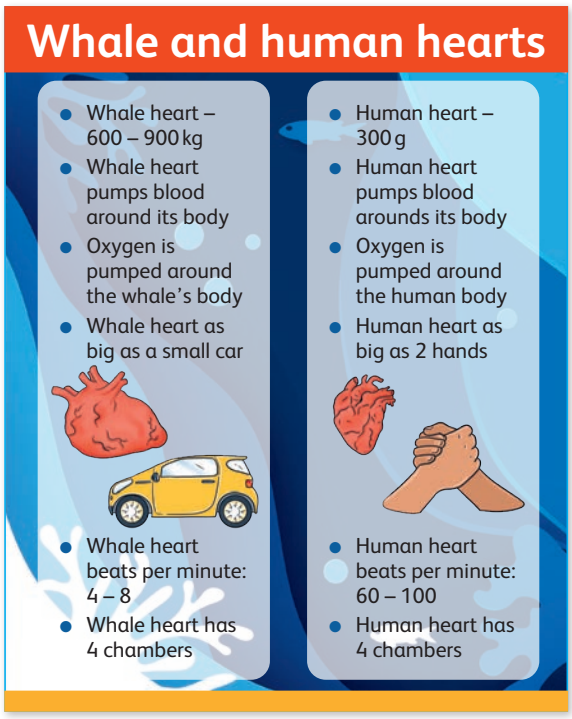
Infographics

The word 'infographic' is made up of:

info (information) + **graphic** (visual)

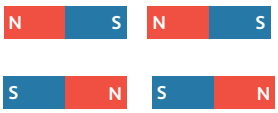
So, an infographic is made using pictures, charts and graphs so that information can be read easily.

Using infographics can help your brain remember information, as it draws on the idea of Dual Coding. 'Dual Coding' gives two different ways of showing the information, both visual and written at the same time. Looking at the information on an infographic and talking about it with others, can make it easier for your brain to recall (remember) information. You might find that using infographics made by others or by yourself can help you to learn ideas and facts.



Key Word Cards

Key word cards can help you remember words and revise scientific vocabulary that you need to read, spell and know what the word means. You can make key word cards for any topic, on one side write the word, on the other side write the definition (what the word means). You could write words in different colours and split words up to help you remember them. This revision approach will help you by challenging you, making sure that you can read, spell and understand what the word means.

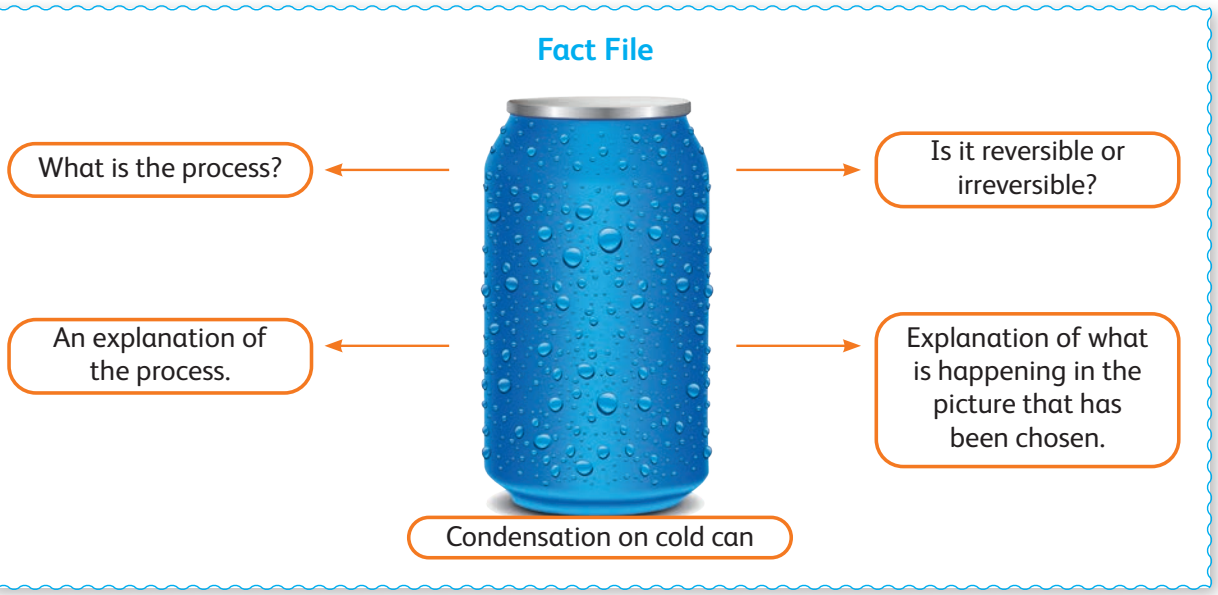
There must be two objects that touch. These can change the motion, direction and shape of the object they act on. They can be balanced or unbalanced.	**Contact force** 	There must be two objects that interact, these objects are not touching. Examples of non-contact forces are weight (gravity) and magnetism. They can be balanced or unbalanced.	**Non-contact force** 

Fact files

Fact files are really good ways to learn, memorise and help to recall information. They are quick and easy to make so that you can show key ideas, scientific vocabulary and give examples of science in action in everyday life.

You can make a set of fact files for a topic or different topics which you can keep and use to revise learning, and to give a partner and family to use to 'test' you on your science.

Fact File



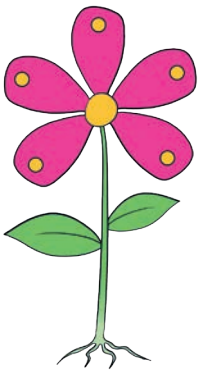
Learning flower

A learning flower is a memory aid that can help your brain remember and organise ideas. This is a visual way of organising your learning, which some learners find really useful when trying to revise a topic.

This will help you recall important things you have covered in this topic and make links between the different ideas.

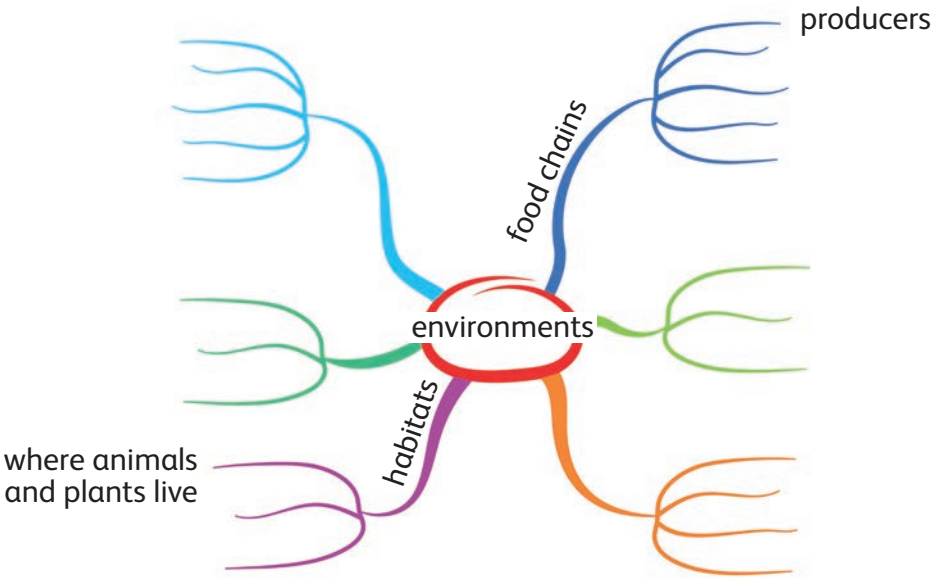
When you use a learning flower, write:

1. the topic title in the centre of the flower
2. key words on the front of the petals
3. definitions of the words on the back of the petals
4. key learning on the stem
5. what you already know on the roots
6. questions or things that you do not fully understand on the leaves.



Memory maps

A memory map is a way of helping you to revise information and ideas. A memory map can help you group and organise information to help your memory so that you can work out what you know already and where the gaps are in your understanding.



Mnemonics

Mnemonics often use rhymes or a sentence to help us learn information so that it sticks in our memory and also makes it easier to retrieve (get back) that information.

For example, you might know all of the names of the planets in our solar system, a mnemonic could help you to remember not only the name of each planet easily but the order of the planets as they orbit the Sun.

Mnemonic for the planets

My (Mercury) Very (Venus) Easy (Earth) Method (Mars) Just (Jupiter) Speeds (Saturn) Up (Uranus) Nothing (Neptune).

Model answer (Worked answer)

A model answer is an 'ideal' response to a question. Looking at different answers to questions and thinking about how they can be improved using your own knowledge is one way of helping you to revise and remember your science. Thinking about what the strengths and weaknesses of an answer are is a way of assessing how good an answer is. Re-writing it to improve the answer can help you later when you have to write an answer yourself.

Prefixes

A prefix is a group of letters added to the beginning of a word to change the meaning of the word.

For example:
The word 'microbe' begins with the root word **micro** which comes from Greek word **mikros** which means 'small'. Whenever you come across a word where the root word is micro the word has something to do with being small.

The word 'microscope' is made up of the root word 'micro' and the word 'scope'. *Micro* means 'small', and *scope* means 'see'. So the prefix changes the meaning of scope (to see) to mean 'to see very small (microscopic) things'.

How can prefixes help you in revision? If you know what some prefixes mean, for example: micro (small) or therm (heat), then it can help you to use your memory to work out what certain words mean when you read or hear them.

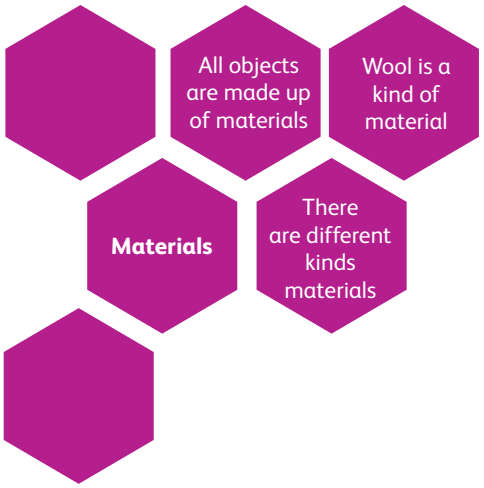
Rich picture poster

A rich picture is a way of showing an idea, information, a process or for example, a habitat by using pictures, diagrams and individual words, phrases and colour coding. Using a rich picture can sometimes be easier to show what you know than, for example, writing sentences or paragraphs, especially if you are someone who learns and remembers pictures more easily.

Rich pictures do not have to be created in any order, they can just show the flow of ideas, for example, how to solve a problem or how to get people to recycle and reuse materials. It is different to an infographic because it does not have to use graphs, charts and numbers.

Revision hexagons

Revision hexagons are hexagon shapes that tesselate (link together). The ideas and facts that you write in them must link to what is written in the hexagons around.



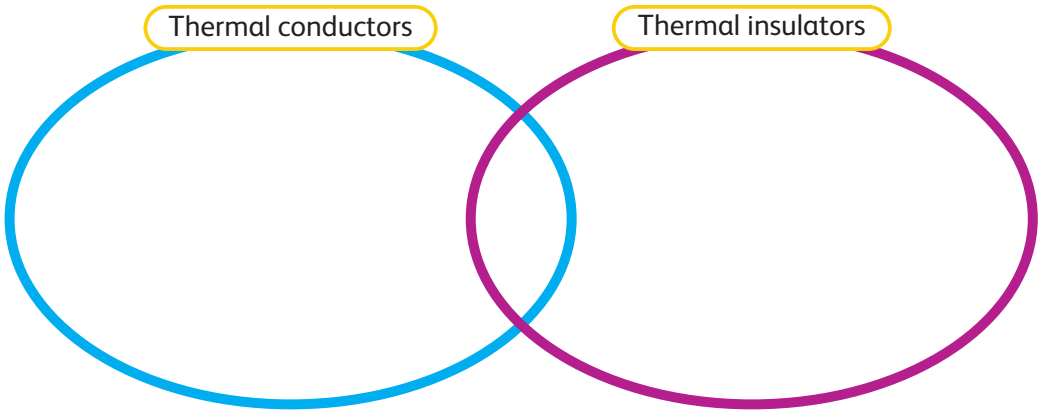
This revision approach helps you to:

- think about what you know
- recall facts and ideas
- make links between learning.

Venn diagram

A Venn diagram is a visual organiser. It helps you to see how you can organise what you know by helping to show similarities and differences between ideas.

For example, you could use a Venn diagram to organise objects according to the material/s they are made from. Venn diagrams usually have 2 or 3 circles which overlap in the middle; where the circles overlap shows similarities, and where they do not overlap shows differences.



Using these different approaches in your learning and revision:

As you work through this Study Guide think about which approaches help you to:

- access your memory and remember ideas and words
- make connections (see links) between learning
- remember the most ideas or information
- organise what you know
- spot gaps in your learning and understanding.

Think about which approaches you enjoy using, if you enjoy using an approach in revision it can make revising a topic more interesting and easier to learn and remember.

Different approaches suit different learners, work out which ones suit you best, and then you can make your brain work and grow!

Unit 1 Systems and diseases

What will you learn

This unit will help you to revise your learning of:

- many vertebrates have similar circulatory systems
- how the heart works
- the function of the heart
- many vertebrates have similar respiratory systems
- how the lungs work
- the function of the lungs.

This unit will also help you to revise your learning of some diseases and their causes and defence mechanisms against infections.

Pages 8–25

The circulatory system

Revision approach

Using memory maps

What is a memory map?

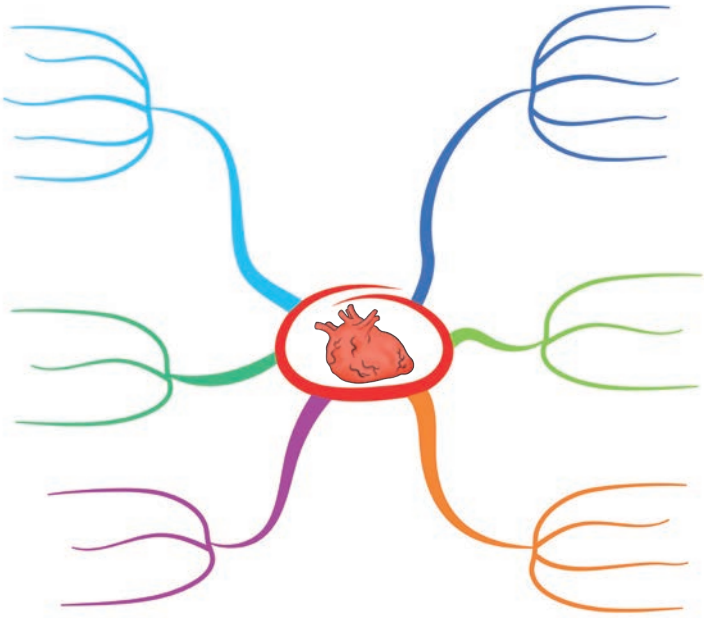
A memory map is a useful tool to revise information and ideas. In this unit, you are going to use a memory map to help you to revise information about the heart, lungs and disease, so that you can see what you know already and where the gaps are in your understanding.

Activity 1

Creating a memory map

You will need:
- plain paper
- coloured pens

1 In the middle of a sheet of paper or a page in your notebook, draw a picture of something that reminds you of the circulatory system. In the example below, a heart has been drawn.



2 Draw two or three lines coming from your picture for key ideas about the circulatory system. Using different coloured pens, add as many words, phrases or pictures that you remember about the circulatory system.

3 As you continue adding to your memory map, keep going back and reading what you have written, it might help you to think of other things that you know. You can add more lines. Remember you probably know more than you think.

4 When you have finished, share your memory map with someone else. Ask them to add something that you have left out.

5 Keep your memory map, you are going to add to it throughout this unit.

6 Follow the same instructions to draw a memory map about what you can remember about the respiratory system and illness and disease.

Activity 2

1 Look at the table below.

2 Add the words from this list to the table and describe what each does in the circulatory system. One has already been done for you.

arteries | blood | blood vessels | capillaries | lungs | veins

Word	What do they do?
Arteries	Tubes that carry blood away from the heart.

3 Check your definitions using a dictionary.

4 Test yourself, or get someone else to test you, to check that you can spell each word correctly.

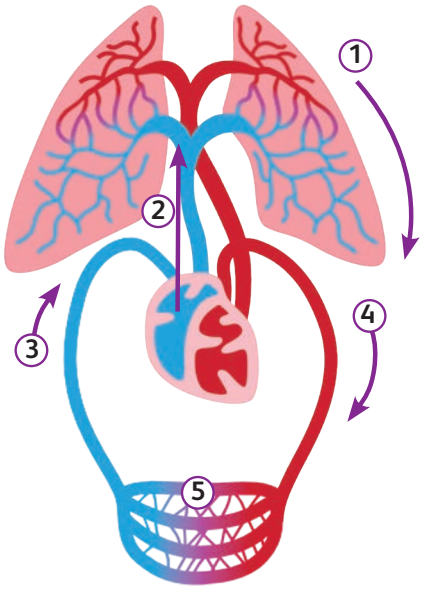
Activity 3

Your heart is part of the circulatory system. The diagram below shows the circulatory system.

oxygen rich blood | heart | rest of body | blood low in oxygen | lungs

Match the labels to the numbers.

1	
2	
3	
4	
5	



a How many labels did you get correct? _____

b If you got any wrong, which ones? What can you do to remember all of them correctly?

_____

_____

c Try again, did you get them all correct this time? _____

d Write a paragraph to explain how the circulatory system works. Use the diagram and labels to help you explain.

_____

_____

_____

_____

_____

Activity 4

Go back to your memory map of the circulatory system on page 12.

What can be added to the memory map to help you revise the circulatory system?

Activity 5

Science in context

Christiaan Barnard led the surgical team that performed the first human-to-human heart transplant on 2 and 3 December 1967. This was the first time that a human heart had been successfully transplanted into another human. It was carried out because the patient was critically ill with heart failure and would have died if he had not received a new heart from a donor.

Unfortunately, the patient who received the transplanted heart died 18 days later. However, thanks to Christiaan Barnard's pioneering work, today across the world, around 5000 cardiac (heart) transplants are carried out each year. Most of the people who have a heart transplant now live long and healthy lives, thanks to their new heart from a heart donor.

Think about what Christiaan Barnard needed to know about the heart and the circulatory system.

Write down six things that he and his team needed to know to carry out the heart transplant.

Activity 6

Humans and whales are both vertebrates, they both have a spine (backbone) and a circulatory system.

The poster on the next page is an **infographic** about the similarities and differences between human and whale circulatory systems. The word infographic is made up of:

info (information) + **graphic** (visual)

So, an infographic is a visual of data and information that can be read easily.

Look at the information presented on the infographic about human and whale hearts.

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Science
Study Guide

Build, reinforce and assess knowledge with additional practice and revision activities.

- Boost confidence with a range of tests and practice questions that cover various skills such as recall, data handling and application.
- Improve technique with a range of engaging activities.
- Consolidate knowledge with key content presented in a manageable and focussed format.

Cambridge Primary Revise for Primary Checkpoint Science can be used independently for homework or additional practice, or alongside the Cambridge Primary Science Teacher's Guides in the classroom.

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