

Reading in Science

In the classroom pupils are encouraged to read from a range of texts to develop their understanding and interest. These could include science textbooks, scientific reports, newspaper articles, materials from scientific websites.

Access to textbooks

KS3 – All pupils are given access to an online digital copy of the textbook, at times a physical copy will also be used in their science lessons. Pupils will be shown how to access the Exploring Science textbook from the publisher Pearson.

KS4 – Textbooks can also be accessed via an online link.

The textbooks at KS4 are from the publisher Oxford and approved by the exam board AQA, pupils have been shown which books to use for their specific science course.

The website is called www.kerboodle.com. Your child can access this using their own personal log in. Their username will be the same as their school username. They will have created a password and the institution code for our school is **bro8**.

How to use the science textbooks

If you're struggling to read or understand information from any scientific text that you read, please see your science teacher for support and advice.

KS3 – Exploring Science

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The contents is always found at the start of the book. This provides a list of the page numbers in your text book for certain topics. These are often used as the titles in your science lessons.

GLOSSARY

Pronunciation notes: A capital 'C' is said as in 'car'

absorb	To 'soak up' or 'take in'	backbone	A series of small bones (vertebrae) that form a chain to support the main part of some animals' bodies.
abstract	A summary at the start of a scientific paper.	balanced diet	Eating a variety of foods to provide all the things the body needs.
abstract model	A model that only exists in your thoughts or via a computer program.	balanced forces	When two forces on an object are the same strength but in opposite directions.
acid (as-əd)	A substance that turns litmus red. It has a pH of less than 7.	bar chart	A chart where the lengths or heights of bars (rectangles) represent the values of the variables.
acid rain	Rainwater that is more acidic than usual due to air pollution.	base	Any substance, soluble or insoluble, that neutralises an acid forming a salt and water only.
acne (ack-nee)	Spots on the skin.	biceps	A muscle in the upper arm, used to help pull up the lower arm.
across (physics)	When one component is connected in parallel to another.	biofuel	A fuel made from plants or animal droppings.
adaptation	The features that something has to enable it do a certain job or survive in a particular place.	biomechanics	The study of how muscles and bones work together.
adapted (ad-əpt-əd)	If something has adaptations for a certain job or for survival in a particular place. It is said to be adapted for that job or place.	bladder	The organ that stores urine.
addictive	If something makes you feel that you need to have more of it, it is said to be addictive.	blood vessel	A tube that carries blood around the body.
adolescence (ad-ə-les-əns)	A time when physical and emotional changes occur in teenagers.	boiling	When there is liquid turning into a gas in all parts of a liquid, creating bubbles of gas in the liquid.
afterbirth	When the placenta is pushed out through the vagina after the baby has been born.	boiling point	The temperature at which a liquid boils.
aim	What you are trying to find out or do.	bond	A force that holds some atoms tightly together.
air pressure	The force on a certain area caused by air molecules hitting it.	bone marrow	The tissue inside bones in which blood cells are made.
air resistance	A force on objects moving through air.	brain	The organ that controls the body. It is part of the nervous system.
alkali (alk-ə-lai)	A substance that turns litmus blue. It has a pH of more than 7.	breathing	The movement of muscles that make the lungs expand and contract.
ammeter	A piece of equipment that measures how much electricity is flowing around a circuit.	breathing rate	The number of times you inhale and exhale in one minute.

The glossary is found in the back of the textbook, this provides an alphabetical list of key words (tier 3 vocabulary) used in science lessons along with giving a simple definition. If you still do not understand this term, you can either see your science teacher or read further information by accessing the index.

Coal, oil and natural gas are **non-renewable** fuels because they cannot be replaced at the rate that humans use them up. It takes many millions of years for them to form and so our supplies will eventually run out.

How the time left varies for different fuels

Look at graph D.

- Which fossil fuel will run out first?
- Why do you think the lines on the graph have no definite end?

Write down two similarities between the formation of coal and oil.

Write down one difference.

Other fuels

Biofuels are made from plants or the wastes from animals. They are **renewable** fuels, because more plants can be grown to make more fuel.

In some countries, animal wastes are dried to be used as solid fuel. Animal and plant wastes can also be turned into methane, the main substance in natural gas.

Crops can be grown to make biofuel. Some biofuels are made out of waste cooking oil, which originally came from plants.

Gases such as **hydrogen** can also be used as fuel. At the moment, most hydrogen is made from natural gas, but scientists are trying to find ways of making it cheaply from wastes.

This car has an electric motor. A fuel cell in the car combines hydrogen with oxygen from the air to produce electricity.

I can ...

- describe what fuels are and how they were made
- explain why fossil fuels are described as non-renewable
- name some renewable fuels.

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Questions are spread throughout the page so you can answer them as you go along.

If you are having trouble finding information about something, use the **Index**, on pages 207–208.

I can ... boxes help you to reflect on what you have learned. Consider each statement carefully and think about how well this applies to you.

KS3 Literacy Tasks

These are examples of some reading material that all pupils will read during the teaching of these topics.

Year 7 – Horrible Science

Biology – 7A – Microscopic Pants

Chemistry – 7G – Gruesome Gases

Physics – 7J – Shock Treatment

Year 8 – Biomedical Science Journals for Teens

Biology – 8A – How does the food you eat affect your growth and development?

Chemistry – 8G - Heavy metal pollution: How can we make water safe to drink?

Physics – 8J - How do smartphones affect our sleep?

Year 9 – Science News for Students

Biology – 9B – Stalking Plants by scent

Chemistry – 9E – Fakes in the museum

Physics – 9I – Raindrops break the speed limit

How to use the KS4 textbook

https://www.kerboodle.com

Available: single sign-on. Students, teachers and administrators can now sign in to Kerboodle via school Microsoft or Google account. [Find out more.](#)



Lessons, Resources, Assessment, and Kerboodle Books

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Sign in Redeem book code

Username/Email SCHOOL USERNAME

Password

Institution Code bro8

Sign in [Forgot password?](#)

To access your kerboodle account please use this website www.kerboodle.com

Please see your science teacher if you need support with this.

Administrator Your school's Administrator is Mrs K Lee. [Contact them by email](#) about adding students to your Kerboodle school.

Students There are 671 students in your Kerboodle school. You can now add students to teaching groups. [Find out more.](#)

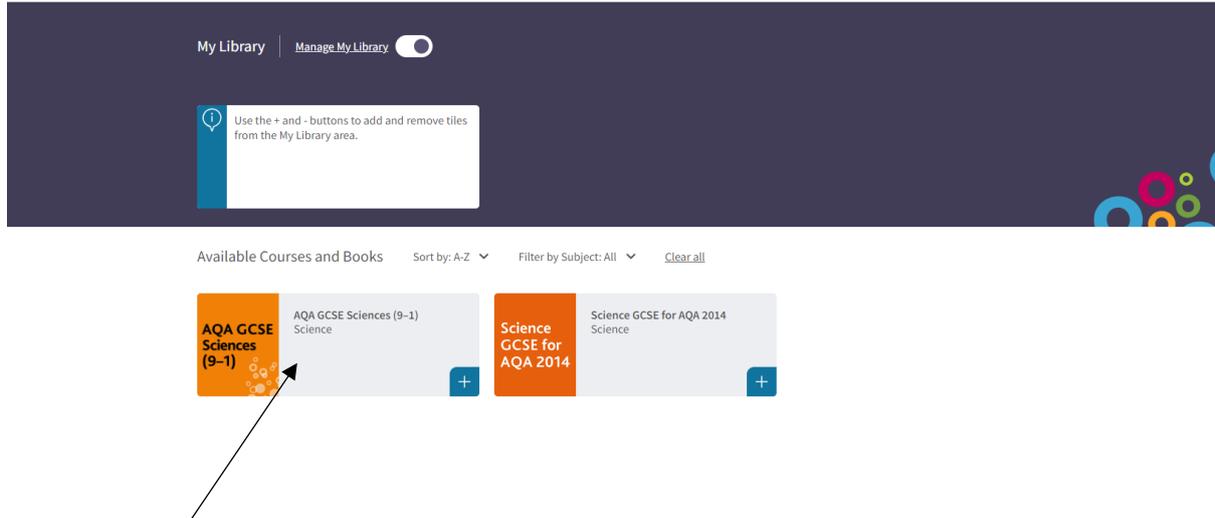
My Library [Manage My Library](#)

Use the + and - buttons to add and remove tiles from the My Library area.

Available Courses and Books Sort by: A-Z Filter by Subject: All [Clear all](#)

AQA GCSE Sciences (9-1) Science

Science GCSE for AQA 2014 Science



Choose this to access the science textbooks for your course.

[Getting started](#) | [My subscriptions](#) | [Acknowledgements](#)

Assignments

Due this week **0** To mark **0** [Go to Markbook](#)

Reports *(Number completed by students in last 7 days)*

0 Assignments completed

Choose this textbook if you're in Set 1-6 and are completing Combined Science

Choose this textbook if you're in Opt A,B or C and are completing Separate Science

[Getting started](#) | [My subscriptions](#) | [Acknowledgements](#)

Assignments

Due this week **0** To mark **0** [Go to Markbook](#)

Reports *(Number completed by students in last 7 days)*

0 Assignments completed

Click on the arrow to access the textbooks for Chemistry and Physics

How to use this book

Learning objectives

- Learning objectives at the start of each spread tell you the content that you will cover.
- Any outcomes marked with the higher tier icon **H** are only relevant to those who are sitting the higher tier exams.

This book has been written by subject experts to match the new 2016 specifications. It is packed full of features to help you prepare for your course and achieve the very best you can.

Key words are highlighted in the text. You can look them up in the glossary at the back of the book if you are not sure what they mean.

Many diagrams are as important for your understanding as the text, so make sure you revise them carefully.

Synoptic link



Synoptic links show how the content of a topic links to other parts of the course. This will support you with the synoptic element of your assessment.

There are also links to the Maths skills for biology chapter, so you can develop your maths skills whilst you study.

Practical



Practicals are a great way for you to see science in action for yourself. These boxes may be a simple introduction or reminder, or they may be the basis for a practical in the classroom. They will help your understanding of the course.

Required practical



These practicals have important skills that you will need to be confident with for part of your assessment. Your teacher will give you additional information about tackling these practicals.

Study tip

Hints giving you advice on things you need to know and remember, and what to watch out for.

Anything in the Higher Tier spreads and boxes must be learnt by those sitting the higher tier exam. If you will be sitting foundation tier, you will not be assessed on this content.

Higher

Go further

Go further feature boxes encourage you to think about science you have learnt in a different context and introduce you to science beyond the specification. You do not need to learn any of the content in a Go further box.

Using maths



This feature highlights and explains the key maths skills you need. There are also clear step-by-step worked examples.

Key points

Linking to the Learning objectives, the Key points boxes summarise what you should be able to do at the end of the topic. They can be used to help you with revision.

Summary questions

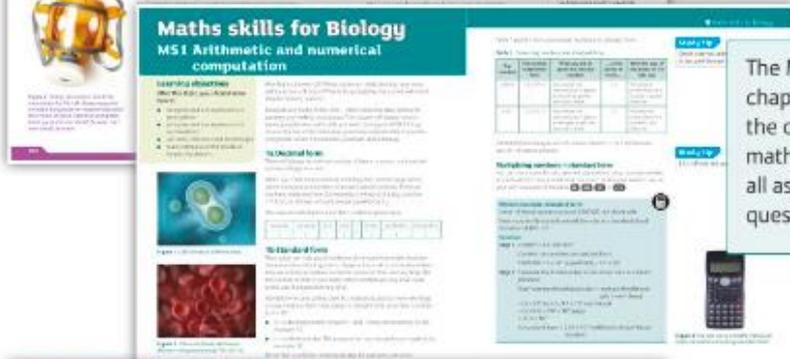
Each topic has summary questions. These questions give you the chance to test whether you have learnt and understood everything in the topic. The questions start off easier and get harder, so that you can stretch yourself.

The Literacy pen  shows activities or questions that help you develop literacy skills.

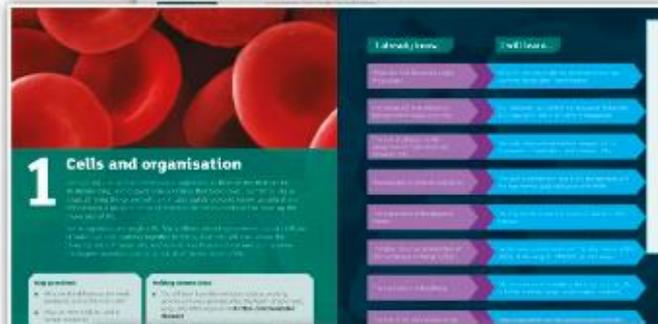
Any questions marked with the higher tier icon **H** are for students sitting the higher tier exams.



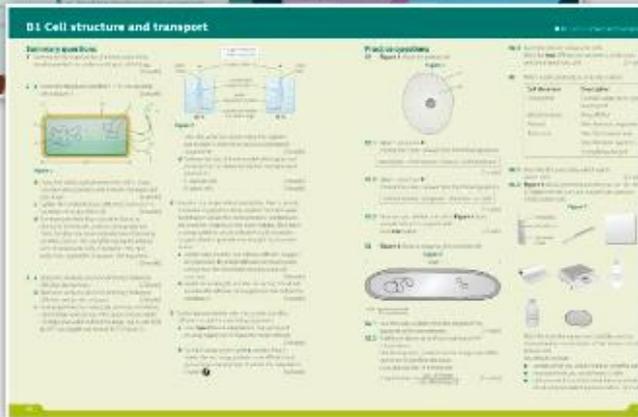
Working scientifically skills are an important part of your course. The working scientifically section describes and supports the development of some of the key skills you will need.



The Maths skills for biology chapter describes and supports the development of the important mathematical skills you will need for all aspects of your course. It also has questions so you can test your skills.



The section openers include an introduction to the section, some key questions the section will answer, and the required practicals in that section. They also introduce the key concepts from KS3 and tell you how they will be developed in that section.



At the end of every chapter there are summary questions and practice questions. The questions test your literacy, maths, and working scientifically skills, as well as your knowledge of the concepts in that chapter. The practice questions can also call on knowledge from any of the previous chapters to help support the synoptic element of your assessment. There are also further practice questions at the end of the book to cover all of the content from your course.

Wider Reading

Reading is an essential skill in the study of Science, be this the activity of learning the fundamentals of the taught curriculum or reading for pleasure. A large number of scientists have suggested they developed an interest in science from the books that they read when they were young.

You can loan books from both the school library and our science library which has access to a wide range of scientific magazines. This can be found in Lab 3, for more details please see Mrs Timmis.

Scientific articles available to loan from Lab 3

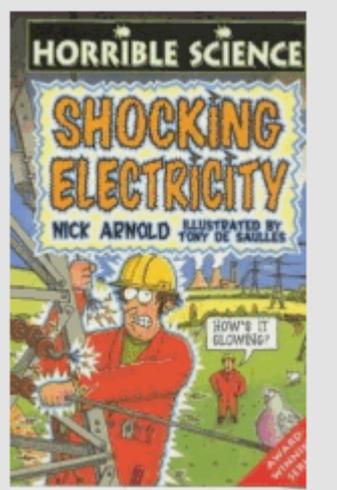
KS3 – How It Works Magazine (short articles covering all 3 areas of Science, linked to areas of interest or recent scientific findings)

KS4 – BBC Science Focus Magazine (more in-depth articles covering recent discoveries and interests in Science)

School Library

The following books are all available from the school library, please visit the school library and see Mrs Llewellyn for more information.

KS3



Series: [Horrible Science S.](#)

Classification: 537

Key words: [Physics](#) [Science](#) [Book Collections](#) [Salmon](#) [Horrible Science](#)
[Electricity](#) [Magnetism](#) [Magnets](#) [Power](#)

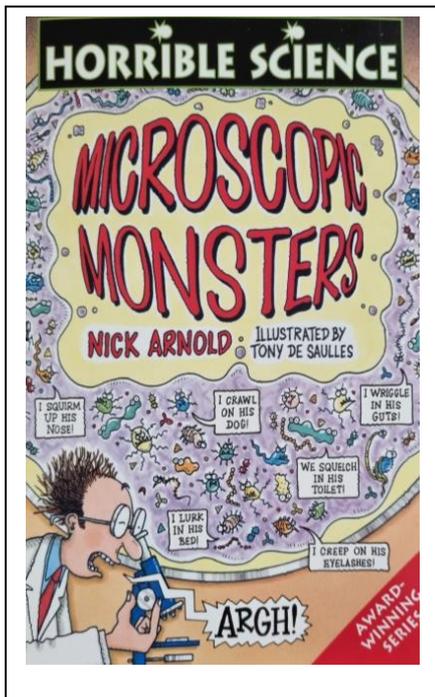
Summary: Are you buzzing to discover how an electric eel can give you a nasty shock?; why electricity keeps your heart beating?; or which scientist gave electric shocks to his eyeballs? Using fact files and quizzes, teacher tests and cartoons, discover the shocking facts about electricity.

Collection: Non-Fiction

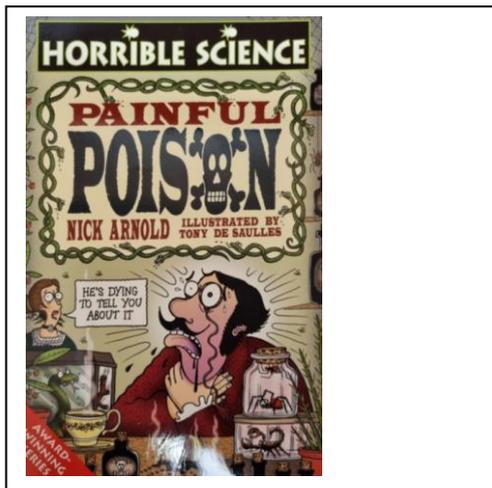
Publisher: Scholastic Hippo

Year: 2000

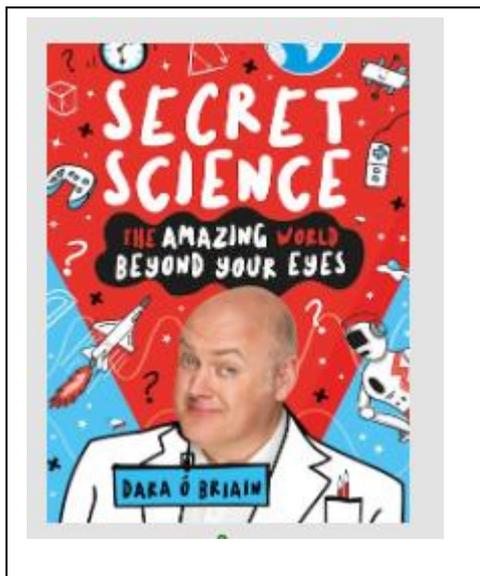
ISBN: 9780439012720



Series: [Horrible Science S.](#)
 Classification: 579
 Key words: [Science](#) [Medicine](#) [Horrible Science](#) [Bacteria](#) [Microscopes](#)
 Summary: Packed with facts about the tiny world of microbes - viruses, bacteria, amoebas, they're all here, as well as many other diminutive creepy-crawlies. Read the diary of a dust mite, get up close and personal with bacteria and find out what it takes to be a micro surgeon.
 Collection: Non-Fiction
 Publisher: Scholastic Hippo
 Year: 2001
 Edition: R
 ISBN: 9780439995016



Series: [Horrible Science S.](#)
 Classification: 571.95 - 6.0
 Key words: [Science](#) [Biology](#) [Life Sciences](#) [Book Collections](#)
[Accelerated Reader](#) [3 Points](#) [Poison](#)
 Summary: Science with the squishy bits left in | Painful Poison will dish up a deadly dose | Are you brave enough to discover: * how to turn your brother or sister into a zombie slave? * why you are breathing in poison right now? * what is the secret of the vomit goblet? If you think you can stomach the sick side of Science, then read on as we get wise to the wicked world of killer chemicals. Track down vile villains as a poison detective, meet snakes, spiders and other poison pets and discover the dreadful details of the Gruesome Guide. With fantastic fact files, quirky quizzes and crazy cartoons, Painful Poison is reading to die for | Science has never been so horrible | The complete lowdown on this
 cover everything from plants and creatures that use poison for attack and defence to poisons that are affecting our planet such as car pollution, radiation and the result of burning off fossil fuels. With lost lab notes, and terrible tales, like the Victorian arsenic murders and the story about the Arctic survivors who were poisoned by eating polar bear livers, this is perfect subject matter for Horrible Science
 Collection: Non-Fiction
 Publisher: Scholastic Hippo
 Year: 2004
 ISBN: 9780439973618



Series: Everything is extraordinary

Classification: 500

Subjects: Science - juvenile literature

Key words: Science - juvenile literature Brain Experiments

Summary: Join Dara O'Briain as he reveals what's really happening in what you think is your boring, normal, everyday life.

- * How your brain is just waiting for a tiger to eat you.
- * How farty cows will force us to eat insects instead.
- * How sunlight from many millions of years ago is driving you to school (yep, smelly fishy)
- * And how eating chocolate while holding your nose is the greatest scientific experiment of ALL time!

Join us on the most extraordinary, ordinary day ever to find out all this and much, much more.

Collection: Non-Fiction

Illustrator: Bramall, Dan

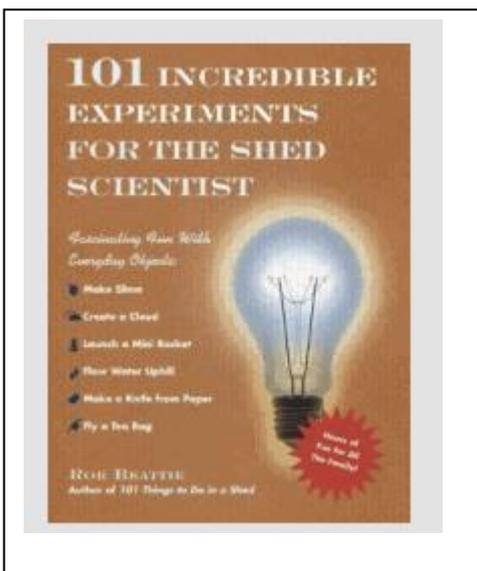
Publisher: Scholastic Children's Books

Place: London

Year: 2018

ISBN: 9781407188140

Physical 1 volume : illustrations.



Classification: 502

Key words: Science Popular Science Experiments

Summary: Presents tricks, experiments and inventions - which can be conjured up from the world of the garden shed! Packed with over 100 ingenious projects, this book shows how to make slime, create glow-in-the-dark gherkins, make a teabag fly, build a static electricity flea circus, erect a homemade power station, construct a can crusher, and more.

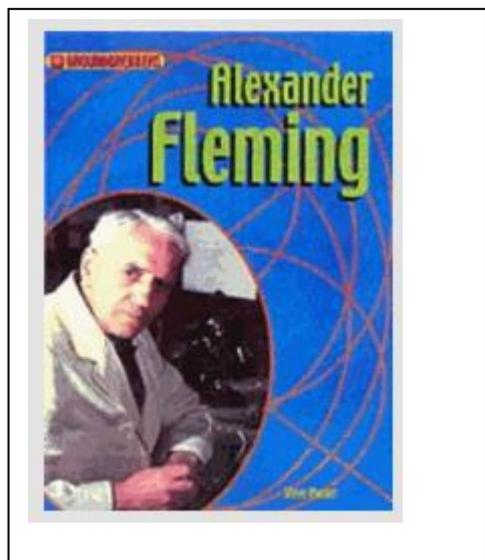
Collection: Non-Fiction

Publisher: Ebury Press

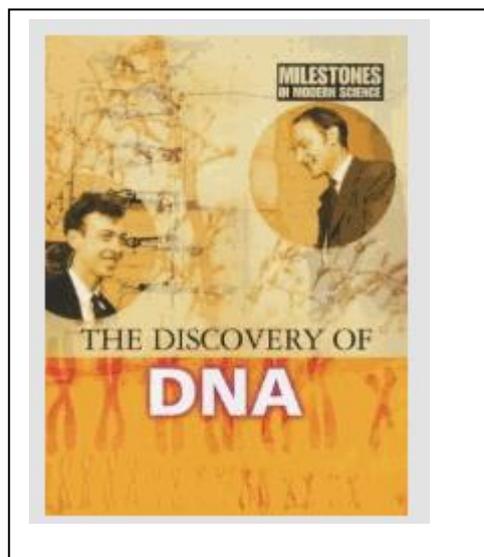
Year: 2006

ISBN: 9780091914202

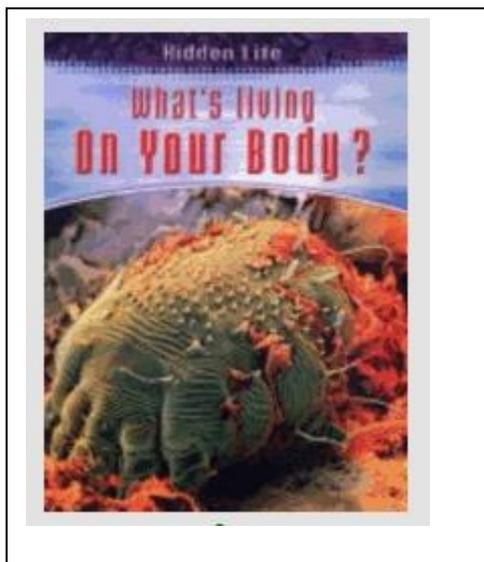
KS4



Series: Groundbreakers S.
Classification: 616.014092
Key words: Scientists Antibiotics Alexander Fleming Penicillin Medicine Salmon Science
Summary: Part of a biography series exploring the lives and achievements of important inventors and pioneers of science. This book provides the life story of Alexander Fleming and an analysis of his work.
Collection: Non-Fiction
Publisher: Heinemann Library
Year: 2002
ISBN: 9780431104843



Series: Milestones in Modern Science S.
Classification: 572.86
Key words: Science Biology Life Sciences Dna Reproduction Genetics
Summary: This fabulous new series takes key scientific developments from the last century and investigates how they came about, their creation or discovery, and their long-term effects. Each book places the development in the context of its time, to increase awareness of some of the amazing discoveries that have helped to shape the world today, and the key people behind each of these scientific milestones. The Discovery of DNA charts the developments that led to the discovery of the structure of DNA by Watson and Crick in 1953 - a revelation which allowed the science of genetics to take off at breakneck speed, advancing our understanding of the make-up of living things beyond recognition.
Collection: Non-Fiction
Publisher: Evans Brothers Ltd
Year: 2005
ISBN: 9780237527402



Series: [Hidden Life S.](#)

Classification: 616.9041

Key words: [Science](#) [Biology](#) [Life Sciences](#) [Microbiology](#) [Bugs](#) [Parasites](#)
[Microscopy](#)

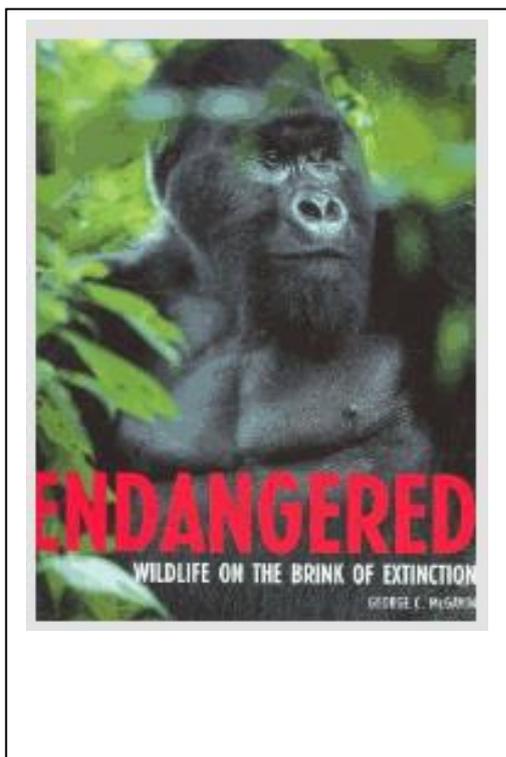
Summary: A useful educational resource, the books that make up this series explore the various tiny life forms that inhabit the world in which we live. This illustrated volume explores the micro organisms that live on the surface of the human body.

Collection: Non-Fiction

Publisher: Heinemann Library

Year: 2004

ISBN: 9780431189611



Classification: 590.00

Key words: [Wild Animals](#) [Endangered Species & Extinction Of Species](#)

Summary: There have been at least five great extinctions in the history of the earth where up to 95 per cent of all species have been wiped out in one event. the causes are attributed to massive volcanic eruptions, disastrous meteor strikes, and rapid climatic change. 'endangered' describes these events, but its main thesis is reserved for the potential sixth great extinction, attributable to mankind. beautifully illustrated, 'endangered' looks at those species which have become extinct or which are so severely threatened that they soon will if we do not apply more international rational restraint upon the way we exploit our environment. however, this is more than a scare-mongering book designed to exploit guilt and anxiety, it is a celebration of the variety of nature and hopeful guide to a future world, safe for all species. unimpeachable authorship, extraordinary photography and compelling yet objective text make this book essential to any natural history reading list in the twenty-first century. 'endangered' is seeking endorsement from the world wildlife fund for nature.

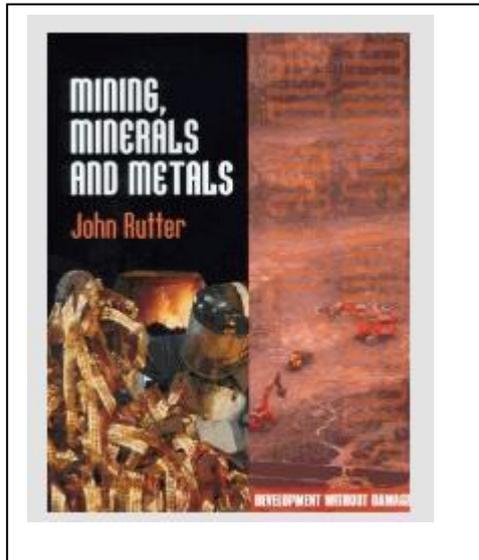
Collection: Non-Fiction

Publisher: Octopus Publishing Group

Year: 2006

Edition: New title

ISBN: 9781844034956



Series: Development Without Damage

Classification: 333.85

Key words: Relationship & Social Issues Personal Awareness - Family

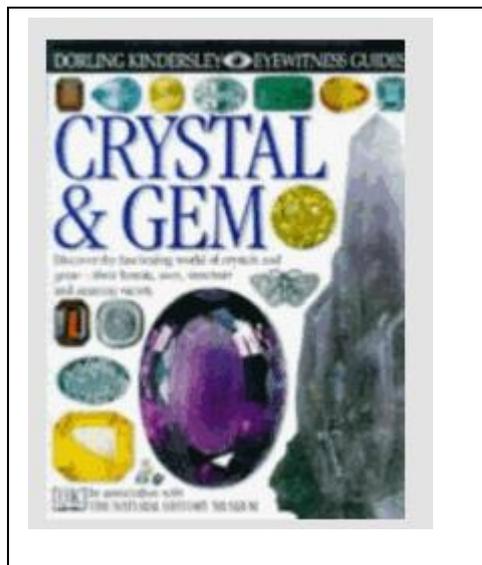
Summary: This series focuses on the environmental impact of resource-based industries around the world, today and in the future. how can the growing demand for raw materials be balanced with the increasingly urgent need to reduce the footprint that is left when natural resources are taken from the earth and developed for worldwide consumption? it is highly illustrated, with an emphasis on presenting a balanced argument about marrying global development with sustainability.

Collection: Non-Fiction

Publisher: Evans Publishing Group

Year: 2009

ISBN: 9780237536442



Series: DK Eyewitness Guides S., No. 25

Classification: 548

Key words: Science Salmon Geography Link Geology Rocks Crystals Gemstones Minerals

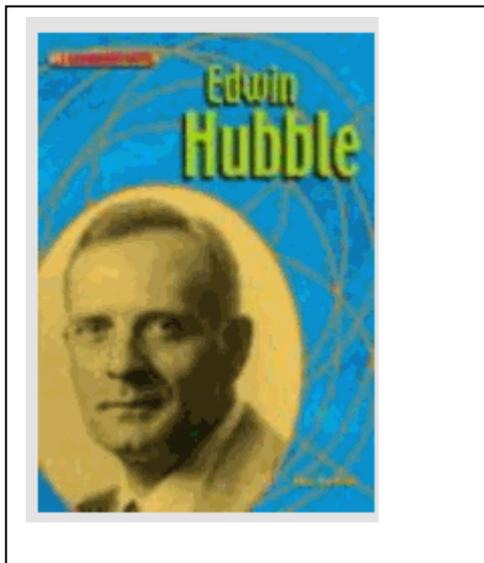
Summary: Part of the Eyewitness Guide series, this visual encyclopaedia identifies the many different crystals that exist, from the rare to the more common, together with the properties they hold. The illustrations show how crystals are mined and the book follows their path to the jewellers window.

Collection: Non-Fiction

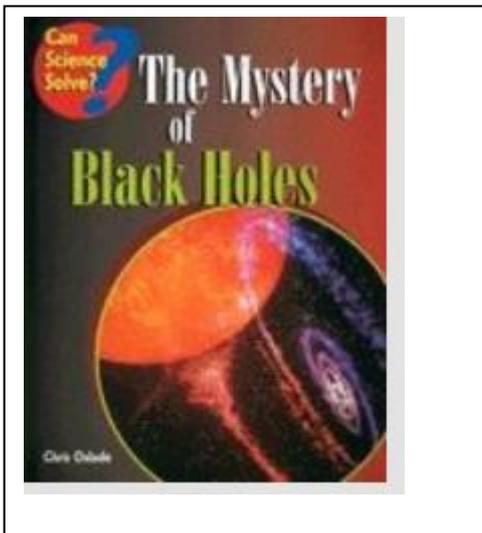
Publisher: Dorling Kindersley Publishers Ltd

Year: 1997

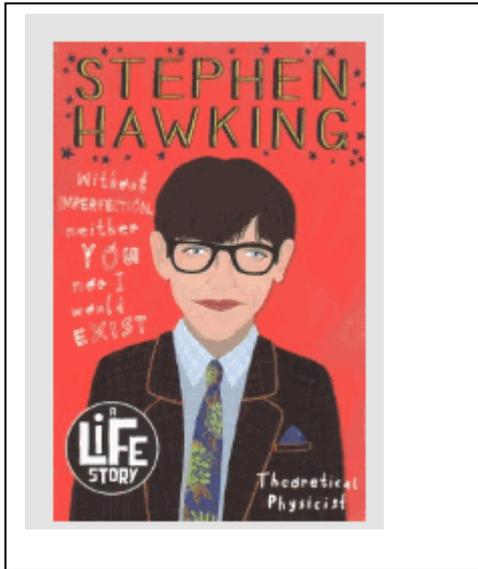
ISBN: 9780863185755



Series: **Groundbreakers S.**
Classification: 520.92
Key words: **Science** **Space** **Astronomy** **Universe** **Non-Fiction** **Salmon**
Scientists **Edwin Hubble**
Summary: Part of a biography series exploring the lives and achievements of important inventors and pioneers of science. This book provides the life story of Edwin Hubble and an analysis of his work.
Collection: Non-Fiction
Publisher: Heinemann Library
Year: 2002
ISBN: 9780431104850



Series: **Can Science Solve...?**
Classification: 523.00
Key words: **Science** **Solar System** **Space** **Black Holes**
Summary: A discussion of the mystery of black holes, putting forward the cases for and against a rational scientific explanation. Evidence is provided in the form of eyewitness accounts and written and pictorial reports, and it explores the way science can be used to explain phenomena.
Collection: Non-Fiction
Publisher: Heinemann Educational Books - Library Division
Year: 1999
ISBN: 9780431016290



Series: A Life Story

Classification: 530.092

Key words: Science & Technology: General Interest (Children's / Teenage)
Space (Children's / Teenage)
Personal & Social Issues: Disability & Special Needs (Children's / Teenage)
Disability - Social Aspects Gravity
True Stories - Discovery / Historical / Scientific
Quantum & Theoretical Chemistry Stephen Hawking
Educational - Physics Theoretical & Mathematical Astronomy

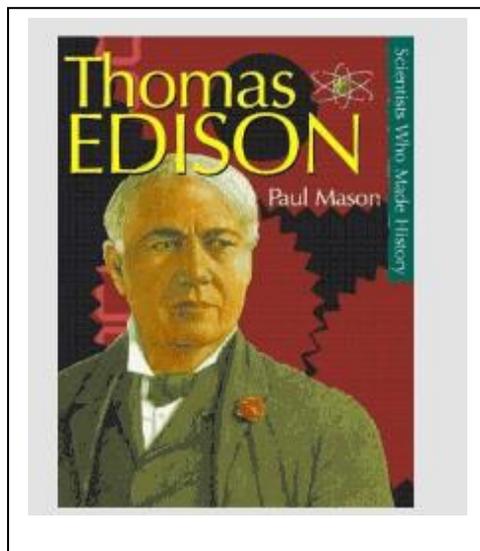
Summary: Stephen Hawking: stargazer, physicist, icon. Award-winning children's author and journalist, Nikki Sheehan, explores the life of the inspirational scientist.

Collection: Non-Fiction

Publisher: Scholastic

Year: 2019

ISBN: 9781407193182



Series: Scientists Who Made History S.

Classification: 621.3092

Key words: Science Technology Salmon Inventors Green Engineers
Electricity Thomas Edison

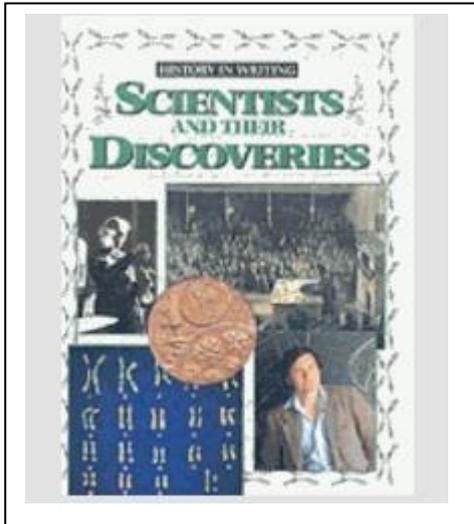
Summary: Thomas A Edison was the man who first recorded sound, the creator of the first electric power supply and the genius behind over a thousand other inventions. This work tells Edison's life story, from growing up in a small town in Ohio, to running the largest private laboratory in the USA, and also reveals his great discoveries.

Collection: Non-Fiction

Publisher: Hodder Wayland

Year: 2001

ISBN: 9780750238991



Series: Scientists Who Made History S.

Classification: 621.3092

Key words: Science Technology Salmon Inventors Green Engineers
Electricity Thomas Edison

Summary: Thomas A Edison was the man who first recorded sound, the creator of the first electric power supply and the genius behind over a thousand other inventions. This work tells Edison's life story, from growing up in a small town in Ohio, to running the largest private laboratory in the USA, and also reveals his great discoveries.

Collection: Non-Fiction

Publisher: Hodder Wayland

Year: 2001

ISBN: 9780750238991