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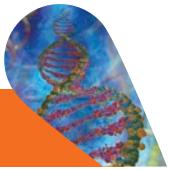
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PEARSON science



Student Book

Written specifically to meet the requirements of the Australian Curriculum, the student book acts as a guide for both student and teacher.

- Written specifically for the Australian Curriculum Science course
- Utilises an inquiry approach throughout
- Offers content and activities that enhance the development of Achievement Standards. The content is presented in a range of contexts within the three interrelated strands of Science Inquiry Skills, Science as a Human Endeavour and Science Understanding.

Activity Book

The activity book is a write-in resource designed to enrich students' skills by providing a variety of activities and questions to reinforce learning outcomes.

- Supports and extends the student book
- Caters for a range of learning styles.

Teacher Companion

The teacher companion makes lesson preparation easy by combining full-colour textbook pages with teaching strategies, ideas for class activities and fully worked solutions.

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- Includes all answers to the student and activity book.



ALWAYS LEARNING

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How to use this book

PEARSON SCIENCE 10 Student Book

PEARSON SCIENCE 10 has been designed for the Australian Curriculum: Science course. It includes content and activities that enhance the development of the Year 10 Achievement Standards within the three interrelated strands of Science Inquiry Skills, Science as a Human Endeavour, and Science Understanding. The content is presented through a range of contexts to engage students and assist them to make connections between science and their lives.

The Cross-curriculum priorities and General Capabilities are addressed throughout the series.

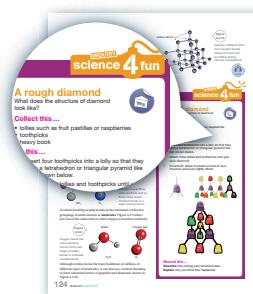
PEARSON SCIENCE 10 is designed for an inquiry approach to science learning. Its engaging design, unambiguous features and clear easy-to-understand language make this a valuable resource for students of all interests and abilities.



Chapter opening page

The chapter opener engages students through questions that get them thinking about the content and concepts to come.

The key ideas reflect the elaborations and standards relevant to the chapter.



science 4 fun

Inquiry-based activities using everyday materials assist students to understand key concepts under development.

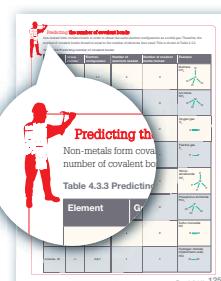
These can be used as a focus or context for the unit.

Icons indicate whether an activity is suitable to be done at home or requires teacher supervision.



Look who is using science

Careers pages spread throughout the book look at careers that involve and use science.



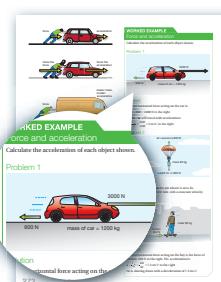
Skill builder

Key skills are outlined in clear steps to support science learning.



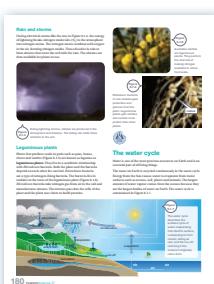
Unit opening

Each chapter is divided into self-contained units. The unit opener includes an introduction that places the material to come in a meaningful context.



Worked example

Worked examples of problems and techniques assist students to master and apply key skills.



Photos and illustrations

Stunning and relevant photos and illustrations are clearly referenced from within the text to assist students to understand the idea being developed.



SciFile

SciFiles include quirky information to engage students.

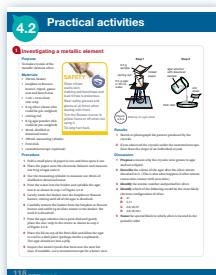


Unit review

Each unit finishes with a set of questions and activities organised under the headings of Bloom's Taxonomy of Cognitive Processes. To further students' understanding of the intent of a question and level of explanation

expected, bolded verbs are used throughout. A list of all verbs and their meanings can be found on page xii.

The final heading is 'Inquiring'. These questions challenge students to use their inquiry skills to go further with the unit content.



Practical activities

Practical activities are placed at the end of each unit. Practical activity icons appear throughout the units to indicate suggested times for practical work.

A Student-design investigation icon indicates that an

activity includes student design.

Safety boxes highlight significant hazards.

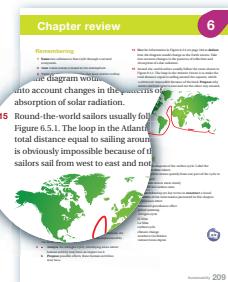
A safety glasses icon reminds students when appropriate to wear safety glasses.



Science as a Human Endeavour

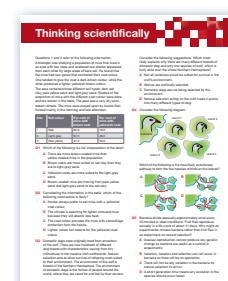
The Science as a Human Endeavour strand is addressed throughout the units and in Science as a Human Endeavour spreads. Many of

these are developed and extended in the Activity Book.



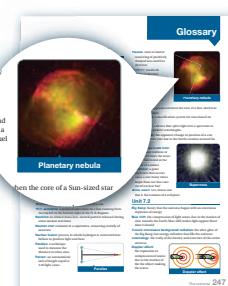
Chapter review

Each chapter finishes with a set of questions and activities organised under the headings of Bloom's Taxonomy of Cognitive Processes.



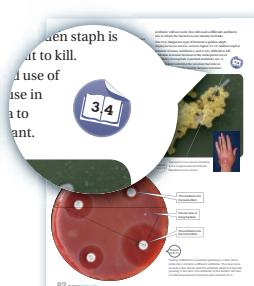
Thinking scientifically

Following the Chapter review are Thinking scientifically style questions relevant to that chapter. These test students' science and interpretive skills.



Glossary

Every chapter concludes with an illustrated glossary that engages students and provides a ready reference for the key terms of the chapter.



Activity Book icon

This icon indicates a related Activity Book worksheet that enhances or extends this area.

The
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package

Don't forget the other PEARSON science 10 package components that will help engage and excite students in science:
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PEARSON science 10 Pearson Reader

Verbs

The verbs below, based on Bloom's Taxonomy, appear in **bold** text throughout this book. The verbs help students know the level of response required for a question and provide a common language and consistent meaning in the Australian Curriculum documents.

Remembering

enter	Place data into a computer program by key strokes or copying from a digital source, e.g. CD, DVD, USB storage device
label	Add annotations to a diagram or drawing
list	Write down phrases or items only without further explanation
name	Present remembered ideas, facts or experiences
present	Provide information for consideration
recall	Present remembered ideas, facts or experiences
record	Store information and observations for later
specify	State in detail
state	Provide information without further explanation

Understanding

account	Account for—state reasons for, report on. Give an account of—narrate a series of events or transactions
calculate	Ascertain/determine from given facts, figures or information (simply repeating calculations that are set out in the text)
clarify	Make clear or plain
construct	Prepare or devise something, such as a key or diagram
define	State meaning and identify essential qualities
describe	Provide characteristics and features
determine	Find out the size or extent, either by using an equation, counting, estimating, or similar method
discuss	Identify issues and provide points for and/or against
draw	Use a pencil to produce a likeness onto a page, or sketch to provide a representation or view
explain	Provide a sequence to make the relationships between things evident; provide why and/or how
extract	Choose relevant and/or appropriate details
gather	Collect items from different sources
modify	Change in form or amount in some way
outline	Sketch in general terms; indicate the main features
predict	Suggest what may happen based on available information
produce	Provide
propose	Put forward for consideration or action
rank	Place in order of size, age, or as instructed
recount	Retell a series of events
summarise	Express, concisely, the relevant details
write	Compose or construct a sentence that explains a feature

Applying

apply	Use, utilise, employ in a particular situation
calculate	Ascertain/determine from given facts, figures or information
demonstrate	Show by example
examine	Inquire into
identify	Recognise and name
use	Employ for some purpose

Analysing	
analyse	Identify components and the relationship between them; draw out and relate implications
calculate	Ascertain/determine from given facts, figures or information (requiring more manipulation than simply applying the maths)
classify	Arrange or include in classes/categories
compare	Show how things are similar or different
contrast	Show how things are different or opposite
critically (analyse/ evaluate)	Add a degree or level of accuracy, depth, knowledge and understanding, logic, questioning, reflection and quality to (analyse/evaluate)
discuss	Identify issues and provide points for and/or against
distinguish	Recognise or note/indicate as being distinct or different from; to note differences between
infer	Recognise and explain patterns and meaning and relationships
interpret	Draw meaning from
research	Investigate through literature or practical investigation
Evaluating	
appreciate	Make a judgement about the value of
assess	Make a judgement of value, quality, outcomes, results or size
conclude	Come to a judgement or result based on the reasoning or arguments that you present
critically (analyse/ evaluate)	Add a degree or level of accuracy, depth, knowledge and understanding, logic, questioning, reflection and quality to (analyse/evaluate)
deduce	Draw conclusions
evaluate	Make a judgement based on criteria; determine the value of
extrapolate	Infer from what is known
justify	Support using an argument or conclusion
propose	Put forward (for example a point of view, idea, argument, suggestion) for consideration or action
recommend	Provide reasons in favour
select	Choose one or more items, features, objects
Creating	
construct	Make; build; put together items or arguments
design	Provide steps for an experiment or procedure
investigate	Plan, inquire into and draw conclusions about
synthesise	Put together various elements to make a whole

Look who is using science



PALAEONTOLOGIST

My name is Scott Hocknull, and I am a palaeontologist at a state museum. I have loved animals, especially dinosaurs, since I was a child. I was a volunteer at the museum for 10 years during my school and university holidays, when I found many new fossil sites for the museum. At 22, I was appointed Curator of Geosciences at the museum and I was named the Young Australian of the Year in 2002.

In my research, I have studied the evolution of Australia's fauna and flora and Australia's climate over the last 15 million years. Currently I am studying Australian dinosaurs discovered near the townships of Winton and Eromanga in Queensland. In 2009, my colleagues and I discovered and named three new species of dinosaur, including Australia's most complete theropod (a carnivorous dinosaur) skeleton, named *Australovenator wintonensis*. I also helped to discover 'Cooper', Australia's largest dinosaur. If you are interested in fossils, there is enough work in Australia to last you a lifetime.



GENETICIST

I am Kathy Belov, an Associate Professor in the Faculty of Veterinary Science. I loved biology at school and at university. I completed a Bachelor of Science with honours. After working for two years, I began a PhD, studying the immunity genes of the brushtail possum.

An Australian Research Council fellowship allowed me to continue my work on genes for immunity—this time focusing on the platypus and echidna. Three years later I received a University of Sydney Fellowship and have been in the Faculty of Veterinary Science ever since.

I have a very exciting career. Every day is different—I teach, do research, work with animals, travel and get to meet many interesting people, including celebrities. I work on large international projects, which is a lot of fun and a great opportunity to see the world. My fantastic research team keep me motivated. They are all very passionate about conservation and work tirelessly to understand the role genes play in disease susceptibility in our native wildlife.

INSECTICIDE TOXICOLOGIST

I am Maggie Hardy, a PhD student at the Institute for Molecular Bioscience. My research focus is the discovery of new, environmentally friendly insecticides from the venom of native Australian spiders, such as funnel-webs and tarantulas. Over 400 million years of evolution has led spiders to produce hundreds of chemical toxins (poisons) in their venom.

First I 'milk' my spiders to get the venom. I test the venom for insecticidal activity and once I have a hit, I isolate the toxin of interest. I search for the matching DNA sequence in a library of known DNA sequences from the



venom gland of the spider. Once found, the DNA sequence can be inserted into bacteria, which then make large quantities of the toxin. The toxin is then tested to ensure that it is not dangerous to non-target organisms, such as beneficial insects, pets or people. If the toxin passes these tests, only then can it be used in farming.