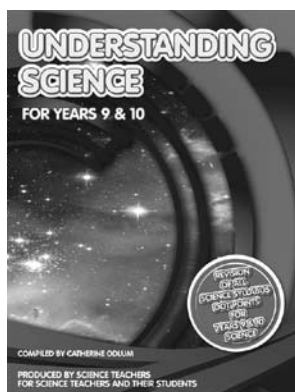


SciTalk

ISSN 1323-7667

Number 3 – August 2008

Understanding Science for Years 9 & 10



ISBN 9781875918065
\$26.95

This book provides comprehensive coverage of the Science Syllabus Dot Points for Years 9 and 10, using questions and answers. It is the ideal revision guide for Years 9 and 10 Science students.

It covers all the Prescribed Focus Areas, plus the Knowledge and Understanding and the Skills sections of the Science Syllabus.

The questions and answers were prepared by highly experienced Science teachers who have done School Certificate marking. Each answer is clearly written in an easy to understand style, as required for the School Certificate Science Test.

This book has been trialled by many students, who found it helped them tremendously when revising the Science Syllabus Dot Points.

Students can complete this book after each topic during Years 9 and 10, or they can complete it for revision during Year 10. There are 39 Science Syllabus Dot Points to revise. So they should not leave it until the last minute to start. Individual copies and class sets can now be ordered.

* Special school prices are available – see page 6

Top students and Science teachers use and recommend Odlum & Garner books which are produced by Science teachers for Science teachers & their students

From
\$21.55*
with discount

2008 editions of Past HSC Papers with Worked Solutions 2001–2007

These are available for Biology, Chemistry, Physics, Earth & Environmental Science, and Senior Science ... see page 7 for special school prices and how to order these books.

FUN PARK EXCURSIONS

Conducted by Physics is Fun
The original and best!

**CHEAPEST PROVIDER FOR
SCHOOL FUN DAYS &
EDUCATIONAL EXCURSIONS**

Why pay more?

ALL SCHOOL FACULTIES CAN BOOK
FOR OUR SPECIAL SCHOOL PRICES

Enquiries/bookings: (02) 9939 6107
... see p 6 for full details

www.odlumgarner.com

INSIDE SCITALK ▶▶▶▶

- Understanding Science for Yrs 9 & 101, 7
- Past HSC books: 2008 editions1, 7
- Cheapest provider for Fun Park Excursions ...1
- Diary Dates / BOS Update / Night-Stalk2
- Out and About.....3, 4
- Joint Excursions: IMAX/Aquarium/Luna Park ..4
- Science on the Web5
- Free passes to WIN5
- Some Eggsiting Experiments5
- Fun Park Excursions at Luna Park6
- Science Tests for the School Certificate6
- Past HSC Papers with Worked Solutions.....7
- Photospot: Dendritic structure in a Ni alloy....8
- Australian students excel in 2008 ISOs.....8
- Biozone Biology Student Workbooks.....9
- Astronomy: As Winter becomes Spring ...
Aboriginal stories: Southern Cross10
- Biology in Focus series11
- Fizzics Education Science Incursions12
- IVY – Labcoats, safety goggles & more..... 12
- NewScientist: Special Education Price12

★★ ATTENTION ★★

After you have read this, please write/ tick your name below and pass it on.

- 1.
- 2.
- 3.
- 4.
- 5.

Please return to file or noticeboard.

PRIZES TO WIN!

See pages 1, 5 & 12
Send in your entries now
(ALL IN THE ONE ENVELOPE if you prefer!)

This SciTalk & past issues are available at
www.odlumgarner.com

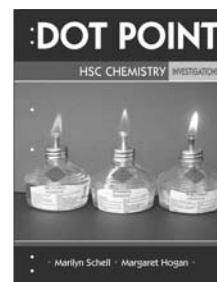
Book Giveaway

WIN these books ...



**Dot Point HSC Chemistry
Investigations**

by Marilyn Schell & Margaret Hogan



ISBN: 9780855835613
\$44.95

Published by Science Press

This great book covers all the mandatory experiments and research investigations in column 3 of the HSC Chemistry syllabus.

It has been designed to help students plan, record and evaluate experimental procedures and research activities. It also includes extension questions.

TO WIN: Send in your name, school and school address, on the back of an envelope

by 26 September 2008 to:

Book Giveaway, PO Box 442, Freshwater 2096

★★★

Winner for SciTalk 2/08

Congratulations to Deb Smith, Macintyre HS, who won Biology 1 & 2 (1:\$63.95, 2:\$65.95) published by Jacaranda.



Celebrate National
Science Week
16–24 August 2008

Diary Dates 2008



Update on BOS matters

Regularly check the BOS website to ensure you have the latest data – for syllabuses, past exam papers, Official Notices, Board Bulletins, the statistics archive & more.

2008 Higher School Certificate (HSC) exam and School Certificate timetables & 2008 Approved Scientific Calculators

These are now on the BOS website. The HSC exam period is from 16 October–13 November, while the School Certificate test period is 10–14 November 2008.

Official Notices go online

Official Notices will be effective from the date they are on the BOS website. They will still appear in print form for at least 2008, but will be on the website prior to the Board Bulletin reaching schools.

BOS enquiries:

- Ph (02) 9367 8111, fax (02) 9367 8484
 Website www.boardofstudies.nsw.edu.au/
 BOS contacts for Science:
- Inspector Science, K–12 & Senior
 - Assessment Officer – Science

International Year of Planet Earth 2007–2009

(Also: *International Polar Year, International Year of the Reef, International Heliophysical Year, & International Year of Sanitation*)

AUGUST 2008

- 16–24 National Science Week: *Planet Earth – Planet of Change*. www.scienceweek.info.au/
- 16–24 Australian Science Festival, ACT. School Activities will be at: www.sciencefestival.com.au
- 15, 18 Science Week events: Physics is Fun at Luna Park. www.odlumgarner.com
- 20 Physics Olympiad Nat. Qualifying Exam. www.aso.edu.au/ Close date: 27 June. 6125 9645
- 22–26 Ultimo Science Festival: RACI, (02) 9663 4960, www.chem.unsw.edu.au/raci
- 24 Geoscience Australia Open Day: 10am–4pm, www.ga.gov.au/about/event/openday2008.jsp
- 27 Biology Olympiad Nat. Qualifying Exam. www.aso.edu.au/ Close date: 27 June. 6125 9645

SEPTEMBER 2008

- 3 Chemistry Olympiad Nat. Qualifying Exam. www.aso.edu.au/ Closedate: 27 June. 6125 9645
- 23 Spring Equinox

OCTOBER 2008

- 12–18 Earth Science Week. www.ga.gov.au/education/events_6249_9859 (www.earthsciweek.org)
- 16–13 Nov HSC exams (see box below for details)
- 17, 20, 24, 27 Physics is Fun at Luna Park Sydney. Enquiries: ph (02) 9939 6107, fax (02) 9939 6105

NOVEMBER 2008

- 10, 14, 21, Physics is Fun at Luna Park Sydney. Enquiries: ph (02) 9939 6107, fax (02) 9939 6105
- 24, 28 Physics is Fun at Luna Park Sydney. Enquiries: ph (02) 9939 6107, fax (02) 9939 6105

DECEMBER 2008

- 5, 12 Physics is Fun at Luna Park Sydney. Enquiries: ph (02) 9939 6107, fax (02) 9939 6105
- 21 Summer Solstice

JANUARY 2009 National Youth Science Forum. Forms to local Rotary club by 15/5/08, interviews in July. Only for Yr 11 in 2008. Enquiries: 6125 2777, fax 6125 8015, email: nsss@anu.au, www.nysf.edu.au/

While all dates have been checked to ensure that information in DIARY DATES is correct, no responsibility will be accepted by the publisher or Editor for any omissions or inaccuracies in it.

NOTE: Your purchase of the Odium & Garner Past HSC Biology, Chemistry and Physics books helps to support the production of Past HSC books for Earth & Environmental Science and Senior Science. Thank you to all the teachers who support these projects.

2008 HSC Science Examination Dates

24 Oct Biology: 9.25 am–12.30 pm
3 Nov Senior Science: 1.55 pm–5 pm
4 Nov Physics: 9.25 am–12.30 pm
6 Nov Chemistry: 9.25 am–12.30 pm
12 Nov Earth & Environmental Science: 9.25 am–12.30 pm

2008 School Certificate Tests

10 November

- English: 9.20–11.30 am (includes 10 mins reading time)
- Science: 12.50–3 pm (includes 10 mins reading time)

11 November

- Maths: 9.25–11.30 am (includes 5 mins preparation time)
- Australian History, Geography, Civics & Citizenship: 12.50–3 pm (incl 10 mins reading time)

12–14 November (each school does either an online test on one of these days or the pen & paper test)

- Computing skills test (online): 8 am–5 pm

14 November

- Computing skills test (online): 8–11 am
- Computing skills test (pen & paper): 11 am–12.15 pm

Goals are dreams with deadlines.
 ... Diana Scharf Hunt

Life is like riding a bicycle.
 You don't fall off unless you stop pedalling.
 ... Claude Pepper

Fun Park Excursions to Luna Park Sydney

Conducted by Physics is Fun
The original and best
 Details at: www.odlumgarner.com

SPECIAL SCHOOL PRICES through Physics is Fun!

WHY PAY MORE? SAVE \$\$\$ ANY FACULTY CAN COME ... see p6

★ ◆ ★ ◆ ★

Come for just a **FUN DAY** or **EDUCATIONAL DAY!** These days are held throughout the year and are a great way to have FUN learning.

Worksheets are available for:

- Primary Science & Technology, English, Maths
- Science 7-10 • Technology • Mathematics • Art
- Physics • Senior Science • Biology • Photography
- Peer Support • Commerce/Bus. Studies/Tourism

Book your date now by ph (02) 9939 6107. “
**** Includes complete Risk Assessment package! ****

The Great Australian Marsupial

Night Stalk

in partnership with Tiwest

Many Australian marsupials are on the brink of extinction and need your help. If you would like to help Australian scientists and conservationists, you can take part in this year's Night Stalk.

Anyone can do a Night Stalk survey – all you need is a torch. It's fun! It's free, and easy to do! Get a group together, count the number of marsupials you see in your local bush, record your findings on a spotter's log and send your results to Perth Zoo.



The Great Australian Marsupial Night Stalk

1 September–16 October 2008

This annual national survey, now in its 10th year, runs from 1 September–16 October, and is designed to collect information about marsupial and feral animal numbers and their distribution.

For details, contact:
 The Great Australian Marsupial Night Stalk, in partnership with Tiwest.
 Ph: (08) 9474 0497 Fax: (08) 9474 4113
 Email: nightstalk@perthzoo.wa.gov.au
 Visit: www.perthzoo.wa.gov.au/staticpages/nightstalk/index.html



AUSTRALIAN MUSEUM SCHOOLS PROGRAMS 2008

Involve your students in exciting exhibitions and stimulating curriculum-linked programs exploring nature and culture.

PRIMARY

We offer sessions with a Museum educator:

- Animals past and present
- Fossils
- Aboriginal studies

SECONDARY

Sessions with a Museum educator include:

- Human Story (Yr 11–12)
- Fossils (Yr 7–12)
- Evolution of Australian Biota (Yr 11–12)
- Earth & Environmental Science Sessions (Yr 11–12)
- Investigations Days (Yr 7–10)
- Evolution Trail Combo (Yr 9–10)
- Aboriginal studies talks (Yr 7–12)
- Site Study for History students (Yr 7–10)

K–12 self-guided activities are also available for exhibitions on Skeletons, Birds and Insects, Planet of Minerals, Indigenous Australians and more ...

New Permanent Exhibitions only opened this year

DINOSAURS

Encounter dinosaurs as you've never seen them before in this exciting new immersive exhibition at the Australian Museum. Teacher resource packs available.

SURVIVING AUSTRALIA

Discover surprising animal secrets in this new exhibition showcasing stories of Australia wildlife and tales of their adaptation and survival over millions of years of changing climate and landscape. Teacher resource packs available.

For bookings and further information

Ph (02) 9320 6163
 Fax (02) 9320 6072
www.australianmuseum.net.au/visiting/education

AUSTRALIAN MUSEUM
 6 College Street, Sydney
 (opp. Hyde Park)
 open daily 9.30 am – 5 pm
www.australianmuseum.net.au



Science Teachers' Forum

To be held at the
Children's Medical Research Institute – Westmead, Sydney
Monday 24 November 2008
 9.45 am–4.30 pm

This one-day forum will focus on the science of genetics and disease, concentrating on topics relevant to the HSC Biology syllabus.

It will include an introduction to the use of Gene Technology in Medical Research, followed by captivating presentations from two prominent CMRI scientists on cutting edge basic research. There will be time for questions after each presentation. There will also be an informative session devoted to the topic of genetics and ethical issues followed by interactive hands-on practical lab demonstrations of simple DNA-based techniques.

Cost: \$55 to cover cost of refreshments and lecture notes.



**CHILDREN'S
 MEDICAL
 RESEARCH
 INSTITUTE**

*Places will be limited, so please book
 by Friday 31 October 2008.*

Contact: Debbie Brewer (02) 9687 2800
 or email: dbrewer@cmri.com.au

COMBINE A FUN PARK EXCURSION BOOKED THROUGH PHYSICS IS FUN WITH IMAX OR SYDNEY AQUARIUM

Combine your Fun Park Excursion at Luna Park Sydney booked through PHYSICS IS FUN with a visit (before or afterwards) to either IMAX or SYDNEY AQUARIUM for a great action-packed, fun time of interactive learning. These excursions are a great way to demonstrate learning in action.

• COSTS, BOOKING DETAILS & WORKSHEETS:

IMAX: www.imax.com.au/schools
 SYDNEY AQUARIUM: www.sydneyaquarium.com.au
 PHYSICS IS FUN (Luna Park): www.odlumgarner.com



• PLANNING YOUR DAY:

Allow 1 hr for IMAX (any film),
 or 2 hrs for a Sydney Aquarium excursion.
 Allow 2–3+ hours for Physics is Fun at Luna Park (open 11 am–6 pm)

BOOK & PAY SEPARATELY FOR EACH EXCURSION

Science on the Web

• Topics on NOVA: Science in the News www.science.org.au/nova

Maintained and updated regularly by the Australian Academy of Science, this site provides reliable and up-to-date information on many topical issues in Science. It is great for research, assignments as well as for encouraging an interest in Science.

• Beyond Discovery: The Path from Research to Human Benefit www.beyonddiscovery.org/

This series of articles traces the origins of important recent technological and medical advances. Each story reveals the crucial role played by basic science, the applications of which could not have been anticipated at the time the original research was conducted. The articles are found under these headings: Agriculture, Biology, Chemistry, Earth Sciences, Environmental Issues, Health, Physics and Technology. This site is maintained by the US National Academy of Sciences.

• ABC Science Online

www.abc.net.au/science/
 Here you'll find programs from ABC radio and TV, as well as original online material including a daily science news service, in depth features, quizzes, Dr Karl's Great Moments in Science, videos, audio, podcasts, forums, news feeds and more. Encourage your students to explore this site – it is a 'gateway to Science' with all the information it has about the latest things in the world of Science.

• Avoid the risk of lead poisoning

www.workershealth.com.au/facts057.html
 Lead paint is a major health risk. It is very important that you follow specific control measures for the removal of lead dust or old paint, as outlined in these fact sheets. Most buildings and homes decorated in Australia before 1970 contain lead paint. Beware – do not construct vegetable gardens anywhere near such buildings if they have painted walls, unless you fully decontaminate the area. It is highly likely that the soil next to the building contain lead from paint flakes.

• Interactive Periodic Table

www.touchspin.com/chem/asppages/index.asp
 This interactive periodic table uses Macromedia Flash and is a great way to encourage students to explore the chemistry of elements. It makes searching for elements very easy. As your mouse moves over each individual element, data for that element appears in a separate box. If you click on each element you will be linked to data on that element in Wikipedia.

• Interactive biology site

<http://biology.touchspin.com/>
 This presents biology as seen through the microscope using flash animations. It is a great site which will enable students to explore the microscopic world.

•••••
 • Education is what remains •
 • after one has forgotten what •
 • one has learned in school. •
 •••••
 ... Albert Einstein •
 •••••

Some Eggsiting Experiments

Eggs are very versatile and can be used experimentally to cover a number of areas in Science. The following experiments can be done at school or as assignments at home. They work really well and should add interest to your Science teaching and enrich student learning.

Biology

Structure and function of eggs

Research the structure of a hen's egg and the function of each part with respect to the chicken embryo.

Eggstrordinary animals

Two Australian monotremes are egg-laying mammals. Name these monotremes and state how they are different to other mammals.

Whose egg is that?

Name some different groups of animals other than monotremes that lay eggs. Choose one of these animals, and research how often it lays eggs, how many eggs it lays at a time, what size the eggs are, what care do the eggs need, and how long the eggs take to hatch.

Hatching eggs

Obtain some silkworm or butterfly eggs (see advertisements below) and keep them until they hatch and observe the lifecycle of this insect.

Chemistry

Acid on egg

Place a raw hen's egg into a beaker (or jar) of vinegar and observe what happens to the shell over a number of days. How would you describe the appearance of the shell after several days? Describe the chemical reaction that has taken place between the acid and shell.


Physics

Eggstra strong

You can test how strong an egg is in several ways. Firstly, hold an egg in your hand and then squeeze hard but evenly all around the egg at once. Remember to remove any rings that might touch the egg! Then hold a raw egg lengthways between both hands and push in as hard as possible on each end. Describe what happens each time. Research how eggs are packed in cartons at the supermarket. Why do you think some eggs get broken before they are sold?


Floating or sinking eggs


Fill a beaker (or jar) with fresh water. Gently lower an egg into the water to determine whether it floats or sinks. Repeat this with a beaker (or jar) of very salty water. Then half fill a beaker (or jar) with salty water, and slowly pour some fresh water on top to create a second layer on top of the salty water. Gently add an egg. Where does the egg float this time? Why?

SILKWORMS Available soon! 

Must have access to Mulberry tree.
Eggs due to hatch in September. Orders completed by end Term 3.

To order silkworm eggs:
Mrs Monica Fenner, 30 Keyes St, Ashburton VIC 3147
Ph: (03) 9885 3169. Email: billmonniefenner@bigpond.com
\$10 per 100 eggs (incl p/h + instructions)



BREED BUTTERFLIES AT SCHOOL 

Order now for Term 4

Eggs, plants & re-usable cage \$129 (plus p/h)

Ph: (03) 8802 0023, Fax: (03) 8802 0573, www.butterflykarma.com.au


Butterflies are low maintenance, inexpensive, unusual pets!
Only 4-6 weeks is required to experience a complete life-cycle.

Egg decorating

Different cultures have different egg traditions


Several different cultures blow eggs and then decorate them, especially around Easter time. This is done by using a straight pin and slowly twisting it to make a small hole in the pointed end of the egg, making sure that the pin pierces the egg membrane inside. The same is then done at the other end of the egg. The contents are removed by blowing into one hole until the egg is empty. The egg then needs to be rinsed using cold water and allowed to dry. After the egg is completely dry, it can be decorated using textas, paint, food colouring, or natural dyes from plant leaves, flowers or vegetables. Research some of the different egg decorating techniques, the numerous traditions of giving eggs and at what time of year this occurs.

– by Catherine Odlum

WIN A FAMILY PASS TO SYDNEY AQUARIUM 

Sydney Aquarium at Darling Harbour is a great science excursion venue. It showcases Australian aquatic habitats, their fauna and flora, information on habitat characteristics, animal adaptations and conservation issues. Bookings are essential. Excursions are self-guided. Information: www.sydneyaquarium.com.au

TO WIN A FAMILY PASS TO SYDNEY AQUARIUM:
(for 2 adults & 2 children worth \$68) ... send in your name, school, & school address on an envelope by **26 September 2008** to:
Sydney Aquarium Teacher Offer, PO Box 442, Freshwater NSW 2096

WINNER: Brad McElroy, Monaro HS won the Sydney Aquarium family pass for *SciTalk No. 2-2008*. 

WIN A FAMILY PASS TO IMAX

IMAX Sydney, at Darling Harbour, is open every day. More than 8 storeys high, it has the world's biggest cinema screen to give the ultimate film experience. IMAX films are entertaining and educational. They constantly change and cover a wide range of themes. Quality resource materials & teacher guides are provided for schools.

★ ◆ ★ ◆ ★ ◆ ★

TO WIN A FAMILY PASS* TO IMAX: (for 2 adults and 2 children worth \$50) ... send in your name, school, & school address on an envelope **by 26 September 2008** to:
IMAX Give Away, PO Box 442, Freshwater NSW 2096

* This pass will be valid for any one film for any session, except public holidays and films advertised as 'no free list'.

WINNER: Linley Matthews, St Euphemia College won the IMAX Sydney family pass for *SciTalk No. 2-2008*. 

IMAX THEATRE

WIN A FAMILY PASS TO SYDNEY WILDLIFE WORLD 

Sydney Wildlife World at Darling Harbour is a great Science excursion venue. It opened back in 2006 and displays Australian fauna and flora in 9 different habitats. With over 6000 animals, this will link well to the syllabus. Details: www.sydneywildlifeworld.com.au

TO WIN A FAMILY PASS TO SYDNEY WILDLIFE WORLD
(for 2 adults & 2 children worth \$68)

Send in your name, school, & school address on an envelope by **26 September 2008** to: *Sydney Wildlife World Teacher Offer PO Box 442, Freshwater NSW 2096*

WINNER: Kerri Rundle, Aquinas College won a Sydney Wildlife World family pass for *SciTalk No. 2-2008*. 



FUN PARK EXCURSIONS

2008 DATES*

March 14, 17, 31. May 8, 9, 30.
June 2, 6. Aug 15, 18.
Oct 17, 20, 24, 27. Nov 10, 14,
21, 24, 28. Dec 5, 12.

Note: ALL OTHER SCHOOL DAYS (not Tues/Wed) are also available ... from \$22* per student ...

TIME 11 am–6 pm

COST \$21* / student (2008) plus \$20* booking fee / school

Teachers **FREE:** 1/8 primary or 1/15 secondary students.

Entry to Luna Park is FREE. Extra teacher ride tickets are \$24.50* ea.

* plus 10% GST (schools can claim this back, only if doing a curriculum-specific excursion).

SPECIAL SCHOOL PRICES ONLY THROUGH PHYSICS IS FUN

A RISK ASSESSMENT, TAX INVOICE and BOOKING FORM are available on our website at: www.odlumgarner.com

Come for a great day. Hands-on learning is fantastic fun!

Save \$\$\$... Why pay more? We offer the cheapest DISCOUNT SCHOOL PRICES for FUN DAYS or EDUCATIONAL DAYS

ALL school faculties can book through Physics is Fun and save \$\$\$.

Numbers are limited to ensure minimal queues. Come and join us for a fun-filled day at LUNA PARK Sydney. Curriculum-based worksheets are available, unless you just want a fun day.

Interactive learning is a great way for your students to discover that learning is not so dull after all! Students will learn as they ride at these fun-filled excursions, which are presented by experienced teachers.

WORKSHEETS ... secondary / primary

Secondary: Science 7–10, Physics, Biology, Senior Science; Technology; Visual Arts; Maths; Peer Support; Commerce; Business Studies, Tourism; Photography.

Primary: Science & Technology, English, & Mathematics; Art; or Peer Support.

JOINT EXCURSIONS

Save \$\$\$ – see an IMAX film or visit Sydney Aquarium, before or after Luna Park ... see p4.

Physics is Fun Fun Park Excursions

The original and best

Physics is Fun was co-authored in 1983 by Robert Garner and Sylvia Jennings and was based on their earlier excursions at Luna Park in the 1970s. Robert has conducted these fun park excursions since their inception ... both at Luna Park (1983-1987, 1995, 2004-2007) and Wonderland Sydney (1990-2004) – covering many different subject areas. With the closure of Wonderland Sydney in early 2004, these Fun Park Excursions have been at Luna Park Sydney since its re-opening in April 2004.

Please note: Our excursion notes are only for use when on an excursion day booked through Physics is Fun. It is an offence under Copyright Laws to use them on any other occasion without written permission from Physics is Fun.

★ Book NOW – don't miss out! ★

ENQUIRIES/BOOKINGS

Book now by ph/fax/email, then send a deposit of \$100 (+ 10% GST) to confirm your booking and receive your worksheets.

Robert Garner or Catherine Odlum
PO Box 442, Freshwater NSW 2096

Ph (02) 9939 6107 Fax (02) 9939 6105

Email: robertgarner@mac.com

Physics is Fun – The original and best
ABN 54 942 891 924

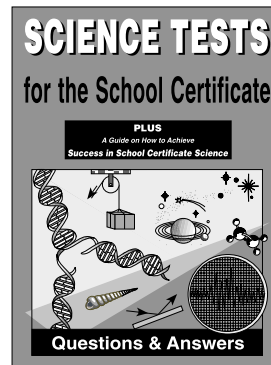
BOOK FUN PARK EXCURSIONS FOR ALL SCHOOL FACULTIES TO LUNA PARK SYDNEY THROUGH PHYSICS IS FUN

★ For Success in School Certificate Science ★



Understanding Science for Years 9 & 10

- Comprehensive coverage of the Science Syllabus Dot Points for Years 9 and 10, using questions and answers
- Ideal revision guide
- Covers all the Prescribed Focus Areas, plus the Knowledge and Understanding and the Skills sections of the Science Syllabus



Science Tests for the School Certificate

- 6 specimen Science Tests, complete worked answers (= Band 6) that would score full marks, explanations for all MC answers, & BONUS section of longer free response questions
- Glossary of Terms, & Appendices on use of syllabus verbs in Science Tests.
- Includes: HOW TO ACHIEVE SUCCESS IN SCHOOL CERTIFICATE SCIENCE

THESE BOOKS WILL PROVIDE STUDENTS WITH ESSENTIAL REVISION AND PRACTICE FOR SUCCESS IN THEIR SCHOOL CERTIFICATE SCIENCE TEST

Make sure each student in Year 10 has these books. Order your class sets now.

ORDER FORM Please supply:

.... copies *Science Tests for the School Certificate* ISBN 978-1-875918-49-2 \$32.95 ea

.... copies *Understanding Science for Years 9 & 10* ISBN 978-1-875918-06-5 \$26.95 ea

Name:

School:

Address:

..... Postcode:

Phone no.

Please send invoice to school: Yes / No *If yes ... please send a School Order form. If no ... please send a cheque OR your Mastercard / Visa Card details (name on card, card no, expiry date)*

Orders of 15+ books of the one title are supplied at 20% discount and are delivered freight free.

All other orders attract a delivery charge of \$6.00

TO ORDER/ENQUIRIES:

Send order to: Odlum & Garner
(ABN 54 942 891 924)
PO Box 442, Freshwater NSW 2096
Ph: 9939 6107 Fax: 9939 6105
Email: robertgarner@mac.com
Website: www.odlumgarner.com



2001-2007 Past HSC Papers with Worked Solutions



- **Biology** • **Chemistry** • **Physics**
 - **Earth & Environmental Science** • **Senior Science**
- Top HSC students and science teachers use and recommend
Odlum & Garner books for Past HSC Questions & Answers



Each book contains:

- complete copy of 2001-2007 HSC Exams **WITH ALL DIAGRAMS, GRAPHS, PHOTOS, TABLES, & ALL QUESTIONS** PLUS blank answer spaces for ALL questions (including Multiple Choice & Options Answer Booklets)
- complete **WORKED ANSWERS** that would score full marks and are an appropriate length for ALL the Core and **ALL OPTIONS** ... with full **EXPLANATIONS** for all multiple choice questions.
- includes Periodic Table, Data Sheet (Phys/Chem), Formulae Sheet (Phys), Geological Time Scale (EES)

PLUS

- **QUESTION BY QUESTION TOPIC GUIDE** for all HSC exam questions
- comprehensive **GUIDE ON HOW TO ACHIEVE SUCCESS IN THE HSC** ... with essential exam techniques and how to study effectively to help students maximise their marks in the HSC
- **GLOSSARY OF EXAMINATION TERMS**

Starting from only \$17.60 with discount* AS 20% DISCOUNT FOR BULK ORDERS



ODLUM & GARNER

NEW 2008 EDITIONS

Produced by Science teachers for Science teachers and their students

ORDER FORM Please supply:

.... copies 2001–2007 BIOLOGY Past HSC Papers with Worked Solutions	AVAILABLE NOW	ISBN 978-1-875918-89-8	\$22 ea
.... copies 2001–2007 CHEMISTRY Past HSC Papers with Worked Solutions	AVAILABLE NOW	ISBN 978-1-875918-90-4	\$25 ea
.... copies 2001–2007 PHYSICS Past HSC Papers with Worked Solutions	AVAILABLE NOW	ISBN 978-1-875918-91-1	\$28 ea
.... copies 2001–2007 EARTH & ENV. SCIENCE Past HSC Papers with Worked Solutions	AVAILABLE NOW	ISBN 978-1-875918-92-8	\$30 ea
.... copies 2001–2007 SENIOR SCIENCE Past HSC Papers with Worked Solutions	AVAILABLE NOW	ISBN 978-1-875918-93-5	\$30 ea

ORDERED BY:

Name:

School:

Address:

..... Postcode:

Phone no.

Please send invoice to school: Yes / No

... If yes, please send a School Order form.

... If no, please send payment (cheque to Odlum & Garner) OR Mastercard / Visa Card details (name on card, card no, expiry date)

TO ORDER/ENQUIRIES:

Send order to: **Odlum & Garner**
(ABN 54 942 891 924)
PO Box 442, Freshwater NSW 2096
Ph: (02) 9939 6107 Fax: (02) 9939 6105
Email: robertgarner@mac.com
www.odlumgarner.com

*20% discount only available for orders of 15+ books (Biol/Chem/Phys – may be mixed) or 15+ Earth books or 15+ Senior Science books and are delivered freight free. All other orders attract a delivery charge of \$6.00

Photo Spot

Dendritic structure in a nickel alloy

Nickel (Ni) is a silvery white metal that takes on a high polish. It is hard, malleable, ductile, somewhat ferromagnetic, and a fair conductor of heat and electricity. Native nickel is very rare in nature and is always alloyed with iron. Nickel is found as a constituent in most meteorites (around 6–20%) and often serves as one of the criteria for distinguishing a meteorite from other minerals.

An alloy is a solid solution (mixture) of two or more elements, at least one of which is a metal, and characterised by metallic resulting properties. Nickel alloys are most commonly Ni-Cu or Ni-Cr-Fe alloys.

Nickel and nickel alloys, like the stainless steels, offer a wide range of corrosion resistance. However, nickel can accommodate larger amounts of alloying elements, chiefly chromium, molybdenum, and tungsten. Therefore, nickel-base alloys, in general, can be used in more severe environments than the stainless steels. Nickel and nickel alloys are important because of their ability to withstand a wide variety of severe operating conditions involving corrosive environments, high temperatures, high stresses, and combinations of these factors. Many nickel alloys are superalloys due to their mechanical strength and creep resistance at high temperatures, good surface stability, and corrosion and oxidation resistance. This makes

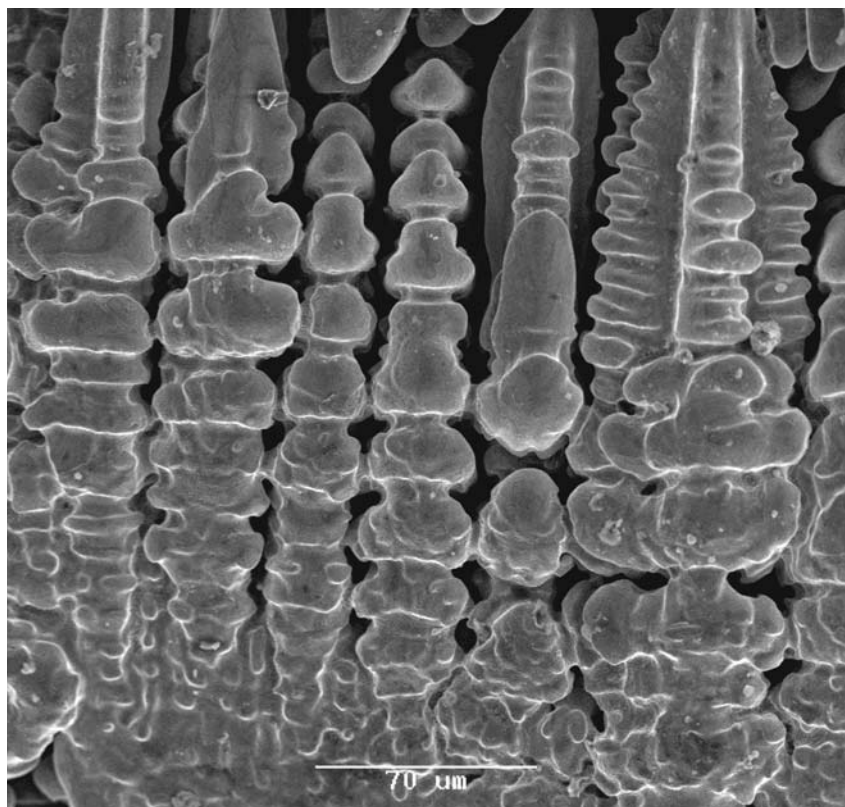


FIGURE 1: ‘Dendritic structure’ – seen in a nickel alloy. This photomicrograph is an SEM secondary electron image (see Box 1). It was taken by Huijin Li, ANSTO.

Box 1 Scanning electron microscopy

Scanning electron microscopy (SEM) is a method for high-resolution imaging of surfaces. The SEM uses electrons for imaging, much as a light microscope uses visible light. The advantages of SEM over light microscopy include greater magnification (up to 100 000X) and much greater depth of field. An incident electron beam is scanned across the sample’s surface, and the resulting electrons emitted from the sample are collected to form an image of the surface. Imaging is typically obtained using secondary electrons for the best resolution of fine surface topographical features.

them especially useful, for example, in the hot zones of gas turbines.

The dendritic structure in nickel alloys is formed during the casting process and rapid solidification. Dendrites are crystals characterised by a tree-like branching pattern being most evident in cast metals slowly cooled through the solidification range. The nickel alloy in the SEM photograph above displays a typical multi-branching tree-like form. Interestingly, the term ‘dendrite’ comes from the

Greek word *dendron*, meaning ‘tree’.

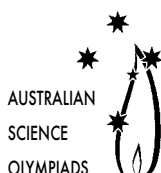
Nickel and its alloys have many uses, e.g. as superalloys, in steels, rechargeable batteries, catalysts, coinage, foundry products, armour plates, burglar-proof vaults, in plating, in crucibles for chemical labs, for smart wire or shape memory alloys in robotics, the alloy alnico is used in magnets, and because Cu-Ni alloys are highly resistant to corrosion they are used for ship propellers, kitchen supplies, and in chemical industry plumbing. □

AUSTRALIA’S SCIENCE OLYMPIANS EXCEL AGAINST OTHER BRIGHT SPARKS

Students representing Australia in the 2008 International Science Olympiads during July in Hanoi (Physics), Mumbai (Biology) and Budapest (Chemistry) achieved impressive results – with a medal tally of 2 Gold, 6 Silver, 3 Bronze, and 1 Honourable Mention.

The Australian Science Olympiad (ASO) program enables bright young minds to extend their scientific knowledge, understanding and skills. After the gruelling ASO National Qualifying Exams, 63 students went on to be ASO Scholars and attended a

residential training school in Canberra. The teams were selected after completing a final exam in March and 13 students represented Australia.



“Our Science Olympians are the future of scientific research and development in Australia, and their success against the best in the world shows that our up-and-coming scientists have world-class potential,” said Dr Chris Stewart, Executive Director of Australian Science Innovations, the organisation that runs the Olympiads in Australia.

Congratulations to the following students:

● PHYSICS:

39th International Physics Olympiad

1 Silver Medal – Jake Glidden (Qld Academy for Science); 3 Bronze Medals – John Biun (Scotch College, VIC), Rocky Yip (Brisbane Grammar, Qld) & Jowa Chan (James Ruse Ag HS, NSW); 1 Honourable Mention – Bonnie Zhang (James Ruse Ag HS, NSW).

● CHEMISTRY:

40th International Chemistry Olympiad

3 Silver Medals – Mingyue Kardashinsky (Sydney GHS, NSW), Yufeng Shi (James Ruse Ag HS, NSW) & Daren Tan (Christ Church Grammar, WA); 1 Bronze Medal – William Jackson (Fort St HS, NSW).

● BIOLOGY:

19th International Biology Olympiad

2 Gold Medals – Ruby Kwong (James Ruse Ag HS, NSW) & Jonathan Marwick (NBSC, Manly Selective Campus, NSW); 2 Silver Medals – David Leitinger (The University HS, VIC) & Keshinie Rasaratnam (MacRobertson GHS, VIC).

Enquiries: ph 61259645, www.aso.edu.au □

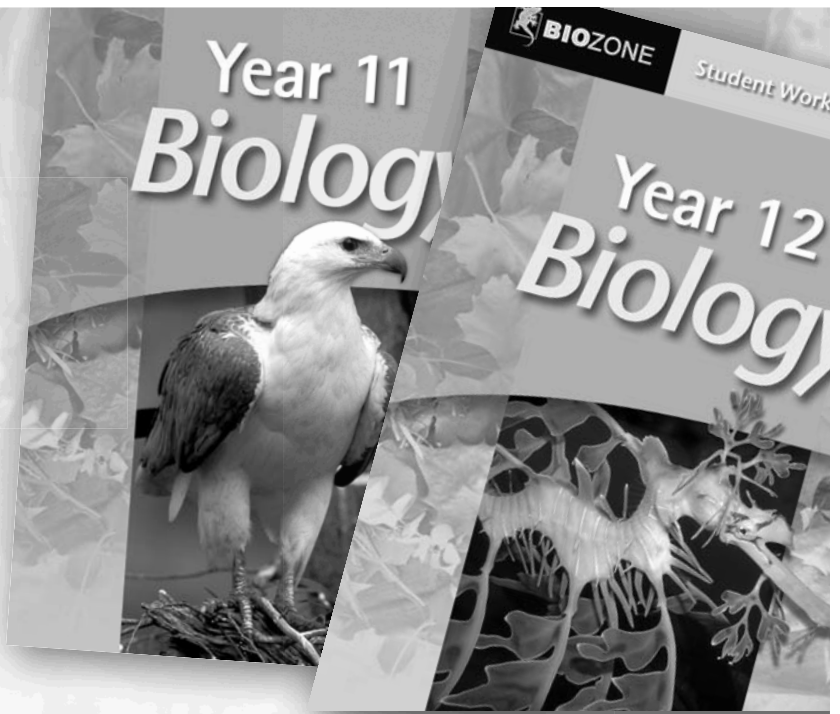
2008 BIOLOGY WORKBOOKS for HSC

Year 11 Biology / Year 12 Biology:

Full Purchase Price:	\$38.50 each
Student Discount Price*:	\$22.95 each
Model Answers:	\$7.70 each
Teacher Resource CD-ROM:	\$59.95 each

* Only available for a minimum purchase quantity of 5 or more workbooks.
Please contact us and we will email, fax or mail you our order form.

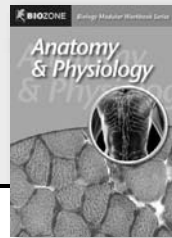
Weblink: www.biozone.com.au/Products_AUS.html



New for 2008!



May 2009



MODULAR WORKBOOKS

Each book contains approximately 100 pages of activities.

Price: \$11.95 each

Weblink: www.biozone.com.au/modular.php

PRESENTATION MEDIA

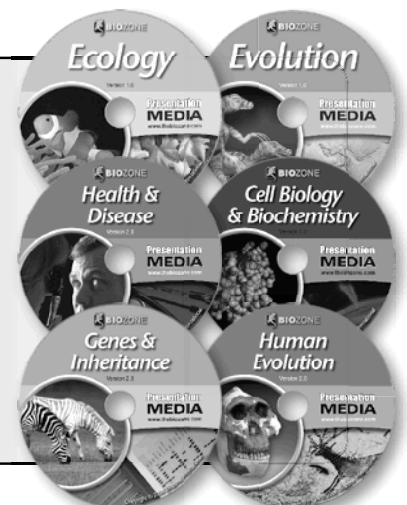
Provided in the following formats:

- PowerPoint® (editable)
- Keynote™ (editable)
- QuickTime® slideshow
- Adobe® Acrobat® PDF

Ideal for your classroom lectures.
Includes comprehensive site licence.

1) Ecology	\$ 299.95
2) Health & Disease	\$ 199.95
3) Cell Biology & Biochemistry	\$ 299.95
4) Genes & Inheritance	\$ 239.95
5) Evolution	\$ 179.95
6) Human Evolution	\$ 119.95
Genetics & Evolution Bundle (titles 4-6)	\$ 479.95
Super Bundle (titles 1-6)	\$ 1199.95

Weblink: www.biozone.com.au/media.php



Biozone Learning Media Australia

P.O. Box 7523, GCMC, QLD., 9726, Australia

Phone: (07) 5575-4615

Fax: (07) 5572-0161

E-mail: sales@biozone.com.au

Website: www.biozone.com.au



As Winter becomes Spring, the night skies will provide some great viewing

... Robert Garner and Catherine Odlum

It's time to get out your binoculars to observe the night skies from August into October.

Planets

Jupiter is still well placed for observation over the next few months. It is directly north and overhead around 9 pm near end of August. This gets progressively earlier, being overhead around 7 pm by end September. In October, it will be in the northwest sky soon after nightfall.

Since May, Jupiter has been in retrograde motion, appearing from Earth to move from east to west against the background stars. This can be seen by observing the planet on successive nights at the same time and sketching its position against the background stars. On 8 September, Jupiter appears to be stationary and on successive nights it will resume its west to east movement against the background stars.

It is still a good time to observe Jupiter's four Galilean Moons, Callisto, Europa, Ganymede and Io. Binoculars are needed and an ideal viewing position is lying on a deckchair using the arm rests to steady your elbows as they hold your binoculars. An air mattress will do instead. A good date to see all four moons will be on 29 August at 7.15 pm, when Europa and Io are to the east of Jupiter, while Ganymede and Callisto are to the west.

Mercury, Venus, Mars and Saturn are close together in the western sky soon after sunset by end August. Saturn will disappear into the sunset by September. The others will remain in the western sky in the early night skies around 7–8 pm. If you observe them on 1–3 September, they will be easy to find as they will be near the Moon.

Constellations

In the southwest night sky, the pointers, α and β *Centauri*, will point almost vertically down to the Southern Cross (*Crux*), which will appear on its side (Figure 1). It will be visible all night and is easily found by students. Since it can be seen throughout the year, *Crux* is a great example to use when teaching how a culture such as the Aboriginal people explain the world around them (see Box 1).

If you can find Mercury, Venus and Mars during this period, then you will be looking into the *Virgo* constellation.

The *Scorpius* constellation will be overhead and to the northeast of *Crux*. The brightest star in *Scorpius* is the red star, *Antares*. The Moon will be really close to *Antares* on 4 October and 1 November, so it can be used as a pointer to finding *Scorpius*.

The *Sagittarius* constellation will be overhead, to the east of *Scorpius*. The Milky Way spans the sky overhead, running almost north and south through *Sagittarius*.

Meteors

Although the *Perseid* meteor shower activity was at a peak in early August it should still be visible until around 21 August. The *Orionids* meteors should be visible from 15–29 October and peak around 21 October. □

Note about Sky Charts & Planispheres

- You can download free sky charts each month to explore the night sky from: <http://skymaps.com/downloads.html>
OR www.sydneyobservatory.com.au
- Better still, there is a planisphere to print and use at: <http://members.ozemail.com.au/~starrylady/Planis1.htm>

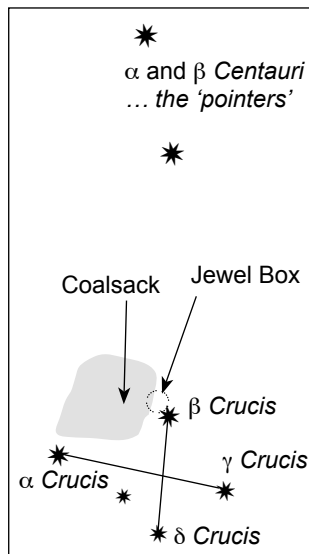


Figure 1: Southern Cross (*Crux*)

Box 1. Some Aboriginal stories to explain:

The Southern Cross

Because of its conspicuous, almost diagrammatic shape, the Southern Cross is linked with various characteristic objects in different areas. Around Caledon Bay on the east coast of Arnhem Land, it is taken to represent a stingray (the Cross) being pursued by a shark (the Pointers) by the Yirrkala people (Figure 2).

On Groote Eylandt, where fish is the staple diet of the Wanamoumitja people, the four stars of the Cross represent two brothers (*Alpha* and *Beta Crucis*) and their respective camp fires (*Delta* and *Gamma Crucis*) where they cook a great black fish (the Coal Sack), which they have caught in the Milky Way (Figure 3). The Pointers are their two friends who have just returned from hunting.

Some desert tribes see the kite shape of the Southern Cross as the footprint of a wedge-tailed eagle called Waluwaru, while the Pointers represent a throwing-stick that has been used to hunt the eagle and the dark patch (Coal Sack) is the eagle's nest.

Source: Hayne RF *et al* (1996). *Explorers of the Southern Sky*. Cambridge Uni Press.

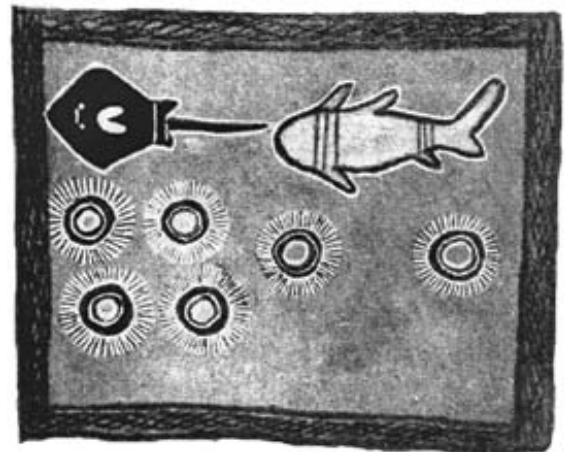


Figure 2. Drawing of a bark painting from Yirrkala showing the stars of the Southern Cross as a stingray being chased by the Pointers, a shark.

Source: Mounford Collection, State Library of South Australia.

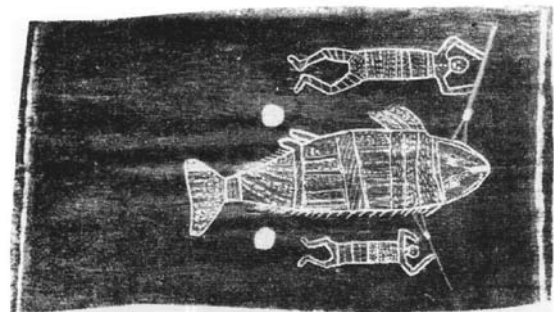


Figure 3. Drawing of a bark painting of the Southern Cross from Groote Eylandt showing the two Wanamoumitja brothers spearing the fish (the Coal Sack). The two white circles are their cooking fires.

Source: Mounford Collection, State Library of South Australia.

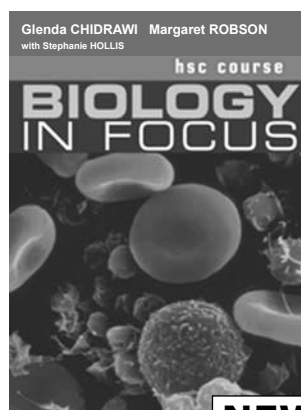
Note: The Spring Equinox will occur on 23 September 2008.

Biology in Focus

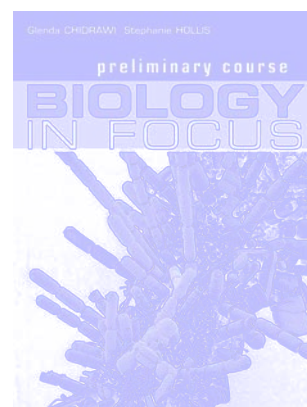
Written to address the core modules of the NSW Stage 6 Biology syllabus, the *Biology in Focus* series offers teachers clear and concise coverage of the course requirements. Order now and find out for yourself why so many schools are turning to *Biology in Focus* as the solution to their syllabus needs.

Key features of the *Biology in Focus* series:

- **Dot Points** covered sequentially
- Integrates first-hand and secondary source **investigations** in context
- Emphasises the **Prescribed Focus Areas** and **Biology Skills**
- **Complete package** including student CD-ROMs and comprehensive Teacher Resource CD-ROMs
- *Biology in Focus Preliminary Course* was short-listed in the **Australian Publishers Association Awards for Excellence in Educational Publishing**



NEW



Texts

Biology in Focus Preliminary Course
(published August 2007)
... \$56.95 ISBN 9780074717875

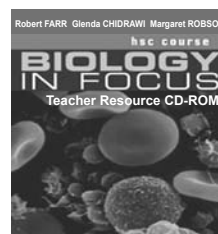
Biology in Focus HSC Course – out now
... \$56.95 ISBN 9780074717882

Biology Options Shrink-wrap Packs
... available now – see special offer!

Teacher Resources

Biology in Focus HSC Course Teacher Resource CD-ROM
... \$129.95 ISBN 9780074717905

Biology in Focus Preliminary Course Teacher Resource CD-ROM
... \$129.95 ISBN 9780074717899



Special Offer

Biology Options Shrink-wrap Packs

Shrink-wrap packs featuring *Biology in Focus HSC Course* with titles from the *Biology Options* series – *Communication*, *The Human Story*, or *Genetics: The Code Broken?* – are now available at the special price of \$73.95.

Order your copies now!

Call your local McGraw-Hill representative for further details or to book an appointment.

Please quote Promotion Code **ST0808** when enquiring.

McGraw-Hill Education Customer Service Contact Details	
Phone	1800 646 572
Fax	02 9900 1980
Email	cservice_sydney@mcgraw-hill.com
Website	www.mcgraw-hill.com.au

Your local McGraw-Hill representative		
NSW	Jodie Ward (National Sales Manager)	0411 871 368
	Dionne Lombard (North and East)	0411 599 820
	Lisa Brandes (South)	0410 595 456
Vic/Tas	Michelle Button	0411 876 552
Qld	Trish Matthews	0411 599 506
WA	Kathryn Bushby	0411 599 937
SA	Lisa Brandes	0410 595 456



COMPETITION CORNER

Send in an entry to WIN this text:

Dot Point HSC Biology Investigations

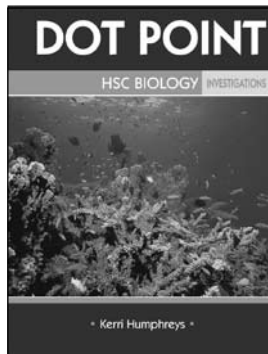
by Kerri Humphreys

Published & donated by Science Press (\$44.95 ea)

This book covers the mandatory experiments and research investigations in column 3 of the HSC Biology syllabus.

It has been designed to help students plan, record and evaluate experimental procedures and research activities.

It also includes extension questions.



ISBN 9780855835507

RRP: \$44.95

Published by
Science Press

HOW TO ENTER: Send an answer to the Quiz Question, your name, school, & school address, on an envelope to: Competition Corner, PO Box 442 Freshwater NSW 2096 – by 26 Sept 2008

SciTalk 2008 answer: asthenosphere

QUIZ QUESTION: What word is used to describe an unstable atom?

Winner for SciTalk 2008: *Dot Point HSC Physics Investigations* (\$44.95) published by Science Press was won by John Duffy, Sydney Distance Education High School.

★ NewScientist ★

SPECIAL DISCOUNT – Save up to 40%

Teachers and students can save up to 40% off the 1 year subscription rate and gain access to over 15 years of *NewScientist* online archives.

NewScientist is the world's leading science and technology weekly, reporting on the latest developments and their impact on our lives. Key developments are reported in an accessible way, highlighting implications for industry, politics, the economy, individuals and the environment.

NewScientist is essential reading if you have a passion for knowledge, exploration and discovery! Over 700 000 people have already discovered *NewScientist*. Ensure you stay in-touch with the world you live in. Subscribe or extend your subscription today & get 1 year (51 issues) for only –

Academic rate: \$240 (incl GST)

Student rate: \$210 (incl GST)

To subscribe, please call 1300 360 126 or email to subscriptions@newscientist.com.au and quote code NS08ON02. This offer expires 31 December 2008.

SUBSCRIPTIONS ... *SciTalk* is available FREE to all secondary science faculties in NSW and the ACT. However, if you would like to receive your OWN personal copy or extra copies of *SciTalk*, subscriptions are available for just \$20 per 4 issues. Please send a cheque for \$20 + GST = \$22.00 (to *SciTalk*), plus your name, address and telephone number ... and you will receive the next four issues of *SciTalk*.

SciTalk

SciTalk is a newsletter for secondary Science educators. Now in its 14th year, it is produced quarterly by Odium & Garner as a service to Science teachers. It is sent FREE-of-charge to all secondary Science faculties in schools and TAFEs throughout NSW and the ACT.

SciTalk aims to provide science teachers with up-to-date information, important dates, the latest products available, plus 'what's on' in various excursion venues.

Please pass *SciTalk* on to all Science teachers at your school so they can benefit from it – or put it up on your notice board for reference.

Contributions, advertising and inserts are welcome. Copies of *SciTalk* are also available at:

www.odiumgarner.com

© *SciTalk*, 2008

School Science Incursions

- Renewable Energies
- Astronomy
- Liquid Nitrogen Show
- Stage 6 Physics
- Lego Robotics

Fizzics Education

02 9674 2191

www.fizzicseducation.com.au

NSW DET
Authorised

Ivy Industries
Unit 6, 260 Wickham Road
MOORABBIN VIC 3189
ABN 57 052 929 978

Contact Chris or Andrea
Tel: (03) 9532 2120 Fax: (03) 9532 2126
www.ivy.com.au
email: info@ivy.com.au

LAB COATS (NEW COATS FROM \$25)

LAB COATS NEW – from \$25
White Polycotton
Sizes S, M, L, XL, XXL

1–20	\$38 ea
21–50	\$35 ea
51–100	\$30 ea
101 plus	\$25 ea
Dental Jackets	\$45 ea
Doctor Jackets	\$38 ea
★ Scrub sets (pants & top)	\$16 ea

LAB COATS – SCHOOL COLOURS \$42 ea
(plus extra for school logo)
Quantity discount available

LAB COATS SECOND HAND – from \$12.50
White or Coloured Polycotton
Sizes: S, M, L, XL, XXL

1–10	\$15.50 ea
11–20	\$14.00 ea
21 plus	\$12.50 ea

SAFETY GOGGLES

CLEAR WRAP AROUND
10-20...\$3.90 ea, 20+...\$3.00 ea

ELASTIC BACKED
10–20...\$3.20 ea, 20+...\$2.50 ea

SAFETY GLASSES BLACK RIM
\$12.80 ea

THEATRE GOWNS

Short Sleeve	\$24 ea
Long Sleeve	\$26 ea

DISPOSABLES

Aprons	plastic	box 1000	\$33
Hats	polypropylene	box 1000	\$75
Overalls	Tyvek		\$9.90 ea
Arm sleeves	plastic	box 1000	\$66

APRONS (FROM \$10 WITH QTY DISCOUNT)

Brightly coloured PVC Bib Apron \$16.50 ea
Pop over Apron - ties or velcro at sides \$24.00 ea
Plain Polycotton Bib Apron (range of colours) \$13.50 ea

PERSONAL UV SUN MONITORING KIT (pk 20) \$10

(Add delivery charge and GST to all prices above)

CONTRIBUTIONS

SciTalk is due into schools mid-term. All contributions for *SciTalk* should be directed to the Editor (see below).

CLOSING DATES

- *SciTalk* No. 1–February 2008 ... Feb 15
- *SciTalk* No. 2–June 2008 ... April 11
- *SciTalk* No. 3–August 2008 ... June 27
- *SciTalk* No. 4–October 2008 ... Sept 26

ADVERTISING & INSERTS

All enquiries to the *SciTalk* Editor:

Catherine Odium
PO Box 442, Freshwater NSW 2096
(34 Ocean View Rd Freshwater 2096)
Ph (02) 9939 6107. Fax (02) 9939 6105
Email: cathie_odlum@mac.com
ABN 54 942 891 924

The opinions expressed in *SciTalk* are those of the contributors, and do not necessarily represent those of either the Editor or the publisher.

12