

7-12 SCIENCE



CHOOSING THE RIGHT PROGRAM

SECOND NATURE EDUCATION

www.sn-ap.com.au





WHERE TO START

Second Nature offers a huge variety of customised, educational experiences. These include incursions, excursions and field studies, as well as domestic and international tours. The first step is to decide how far you are willing to travel with us!

WHAT YOU WANT

You already know what you'd like your students to take away from their trip with Second Nature. Maybe the outcomes are **experiential**, maybe they are commitments to objectives in the Australian **curriculum**, or maybe they are simply to collect **primary data**. These will depend on the year level and unit your students are studying. All of our programs can be tailored to your needs, and this resource will direct you towards programs appropriate to your class' learning stage.



HIGH SCHOOL

Year 7

Science Programs for Year 7 Students

One of the biggest changes that occurs as a student progresses from primary to high school science is that topics of biology, chemistry and physics become more distinguishable and separate. There is then a choice to pursue some or all of these fields. Although Second Nature's trips have a biological focus, we link natural processes to physical processes in the environment, and to chemical reactions in the metabolism of organisms. We therefore teach a holistic view of natural systems and aim to show how science's many divisions provide answers to major environmental issues. We can offer:

Incursions or field work programs within school grounds

Single day field trips to natural environments

Multi-day camp programs

International tours

Aboriginal cultural programs targeting cross-curricular objectives

The following is an example of a program we offer to year 7 students...



Field Trip: Living World

Single day trip to a local mangrove forest. Suggested activities are: identifying mangrove trees, snails and crabs using dichotomous keys; discussing the interactions between these organisms in the context of food chains and food webs; and discussing adaptations of mangrove trees. The following objectives will be addressed along with key scientific enquiry skills:

- There are differences within and between groups of organisms; classification helps organise this diversity (ACSSU111)
- Describe interactions between organisms in food chains and food webs, including producers, consumers and decomposers (ACSU112)
- Predict how human activities can affect interactions in food chains and food webs, including examples from Australian land or marine ecosystems (ACSSU112)
- Cells are the basic units of living things and have specialised structures and functions (ACSSU149)
- Multicellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce (ACSSU150)
- Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world (ACSHE119 and ACSHE134)



5 Hours



Work Booklets



Pre/Post Activities



\$15-20/ Student



Charter (Optional)



Meals (Optional)

HIGH SCHOOL

Year 8

Science Programs for Year 8 Students

By year 8, students are a little more settled into high school life. Teachers move beyond introductory science concepts to some more challenging topics such as those that explain the baffling phenomena which shape planet Earth. Second Nature can help teachers apply these global concepts at a local scale, making them more digestible and engaging for students. We can offer:

Incursions or field work programs within school grounds

Single day field trips to natural environments

Multi-day camp programs

International tours

Aboriginal cultural programs targeting cross-curricular objectives

The following is an example of a program we offer to year 8 students...



Field Trip: Earth and Space

Single day trip to a mountain. Suggested activities are: finding examples of sedimentary, igneous and metamorphic rocks in a natural setting; looking at the geological record preserved in exposed rocky outcrops; identifying natural resources within the environment; and using the national park as a case study for sustainable development. The following objectives will be addressed along with key scientific enquiry skills:

- Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales (ACSSU153)
- Explain that predictable phenomena on the Earth, including day and night, seasons and eclipses are caused by the relative positions of the sun, the Earth and the moon (ACSSU115)
- Classify a range of the Earth's resources as renewable or non-renewable (ACSSU116)
- Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121 and ACSHE136)

 **5 Hours**

 **Work Booklets**

 **Pre/Post Activities**

 **\$15-20/ Student**

 **Charter (Optional)**

 **Meals (Optional)**

HIGH SCHOOL

Year 9

Science Programs for Year 9 Students

Science in year 9 is much about making links between year 7 and year 8 concepts to achieve a fuller understanding of the characteristics of natural systems. Once students understand what natural systems look like and the physical processes they depend on, a discussion of how these systems and processes work can begin. This is the year where teachers have the freedom to delve into some more complex biological concepts. Second Nature can then work with teachers to show students where these concepts are exemplified in real ecosystems. We can offer:

Incursions or field work programs within school grounds

Single day field trips to natural environments

Multi-day camp programs

International tours

Aboriginal cultural programs targeting cross-curricular objectives

The following is an example of a program we offer to year 9 students...



Field Trip: Ecology

Single day trip to a rainforest. Suggested activities are: identifying keystone species in rainforest communities; drawing rainforest food chains and food webs; comparing primitive and modern plant species; discussing adaptations; and using the national park as a case study for sustainable development. The following objectives will be addressed along with key scientific enquiry skills:

- Multicellular organisms rely on coordinated and interdependent internal systems to respond to changes in their environment (ACSSU175)
- Recall that ecosystems consist of communities of interdependent organisms and abiotic components of the environment (ACSSU176)
- Outline using examples how matter is cycled through ecosystems such as nitrogen (ACSSU176)
- Describe how energy flows through ecosystems, including input and output through food webs (ACSSU176)
- Advances in scientific understanding often rely on developments in technology, and technological advances are often linked to scientific discoveries (ACSHE158 and ACSHE192).
- The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence (ACSSU185)

 **5 Hours**

 **Work Booklets**

 **Pre/Post Activities**

 **\$15-20/ Student**

 **Charter (Optional)**

 **Meals (Optional)**

HIGH SCHOOL

Year 10

Science Programs for Year 10 Students

Year 10 is an important crossroad in the science career of many students. At most schools, this is the year where students must elect which science subject/s they intend to pursue in future grades. As a teacher, this is your last chance to make an impression on your students. We want to encourage students to continue with Biology or Earth Sciences so that their generation has the capability to step up to the global stage and address the ever more pressing environmental issues that threaten humanity. This is therefore a great year to offer an informative, fun and memorable experience with Second Nature. We can offer:

Incursions or field work programs within school grounds

Single day field trips to natural environments

Multi-day camp programs

International tours

Aboriginal cultural programs targeting cross-curricular objectives

The following is an example of a program we offer to year 10 students...



Field Trip: Earth and the Universe

Single day trip to an observatory. Suggested activities are: learning about the features of space; talk from a scientist on satellite imaging; drawing the many layers of Earth's atmosphere; discussing changes in the earth's crust; and a comprehensive discussion of global warming. The following objectives will be addressed along with key scientific enquiry skills:

- Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community (ACSHE157 and ACSHE191)
- The theory of plate tectonics explains global patterns of geological activity and continental movement (ACSSU180)
- People use scientific knowledge to evaluate claims, explanations or predictions in relation to interactions involving the atmosphere, biosphere, hydrosphere and lithosphere (ACSHE160 and ACSHE194)



4 Hours



Work Booklets



Pre/Post Activities



\$15-20/ Student



Charter (Optional)



Meals (Optional)

SENIOR

Year 11

Biology Programs for Year 11 Students

In the senior years, there is a growing emphasis on field work and conducting scientific investigations that result in original, primary data. Field trips offered by Second Nature to year 11 and 12 students are therefore more rigorous than those offered to previous grades. This is because they are structured around the scientific process, include assistance with field work, and result in quality primary data that can be used for assessment. Year 11 content focuses on the application of biological concepts to conservation and environmental management strategies, and Second Nature helps students to understand the scope and opportunity in modern science careers where they might use their newfound skills. We can offer:

Incursions or field work programs within school grounds

Single day field trips to natural environments

Multi-day camp programs

International tours

Aboriginal cultural programs targeting cross-curricular objectives

The following is an example of a program we offer to year 11 students...



Field Trip: Biodiversity and the Interconnectedness of Life

Single day trip to a World Heritage Listed rainforest or marine reserve. Suggested activities are: field work measuring human impacts on the selected environment; identifying evolutionary distinct animals and looking at the EI Index as a method for prioritising conservation; drawing food webs from the selected environments; identifying keystone species and evaluating this as a method for prioritising conservation; discussion of the 2010 Biodiversity target; talk from a scientist responsible for monitoring biodiversity at the study site; and a talk from a local Indigenous person. The following objectives will be addressed along with key scientific enquiry skills and field work requirements:

- Technology as a tool to measure, analyse and monitor biodiversity (ACSBL009 and ACSBL010)
- International biodiversity protection (ACSBL008, ACSBL011 and ACSBL014)
- Biodiversity targets (ACSBL008 – ACSBL009 and ACSBL015 – ACSBL021)
- Indigenous knowledge of ecosystem interactions and change (ACSBL009 and ACSBL011)
- Marine reserves (ACSBL011 and ACSBL013)
- Keystone species and conservation (ACSBL009, ACSBL012 and ACSBL022 – ACSBL029)

This is interchangeable with a multi-day domestic tour to the Daintree Rainforest and adjacent Great Barrier Reef in Far North Queensland.



**5 Hours
or 3 Days**



**Work
Booklets**



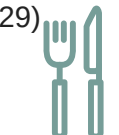
**Pre/Post
Activities**



**\$18-20/
Student**



**Charter
(Optional)**



**Meals
(Optional)**

SENIOR

Year 12

Biology Programs for Year 12 Students

In the senior years, there is a growing emphasis on field work and conducting scientific investigations that result in original, primary data. Field trips offered by Second Nature to year 11 and 12 students are therefore more rigorous than those offered to previous grades. This is because they are structured around the scientific process, include assistance with field work, and result in quality primary data that can be used for assessment. Year 12 content focuses on the implications of environmental change on human physiology and societies. This may be the inspiration students need to pursue careers in science. We can offer:

Incursions or field work programs within school grounds

Single day field trips to natural environments

Multi-day camp programs

International tours

Aboriginal cultural programs targeting cross-curricular objectives

The following is an example of a program we offer to year 12 students...



Field Trip: Maintaining the Internal Environment

Multi-day camp to a semi-arid or arid environment. Suggested activities are: presentation on human thermoregulation and homeostasis; discussing the concept of heat stress; making observations of how animals respond to heat stress; listing plant and animal adaptations that allow them to cope with heat; guided investigation on heat stress; and a discussion of the effects of climate change on arid environments around the world. The following objectives will be addressed along with key scientific enquiry skills and field work requirements:

- Modelling human thermoregulation (ACSBL013 and ACSBL106).
- Homeostasis involves a stimulus-response model in which change in external or internal environmental conditions is detected and appropriate responses occur via negative feedback; in vertebrates, receptors and effectors are linked via a control centre by nervous and/or hormonal pathways (ACSBL110)
- Changes in an organism's metabolic activity, in addition to structural features and changes in physiological processes and behaviour, enable the organism to maintain its internal environment within tolerance limits (ACSBL111)
- Endothermic animals have varying thermoregulatory mechanisms that involve structural features, behavioural responses and physiological and homeostatic mechanisms to control heat exchange and metabolic activity (ACSBL114)
- Animals, whether osmoregulators or osmoconformers, and plants, have various mechanisms to maintain water balance that involve structural features, and behavioural, physiological and homeostatic responses (ACSBL115)



3 Days



Work Booklets



Pre/Post Activities



\$200-250/ Student



Charter (Optional)

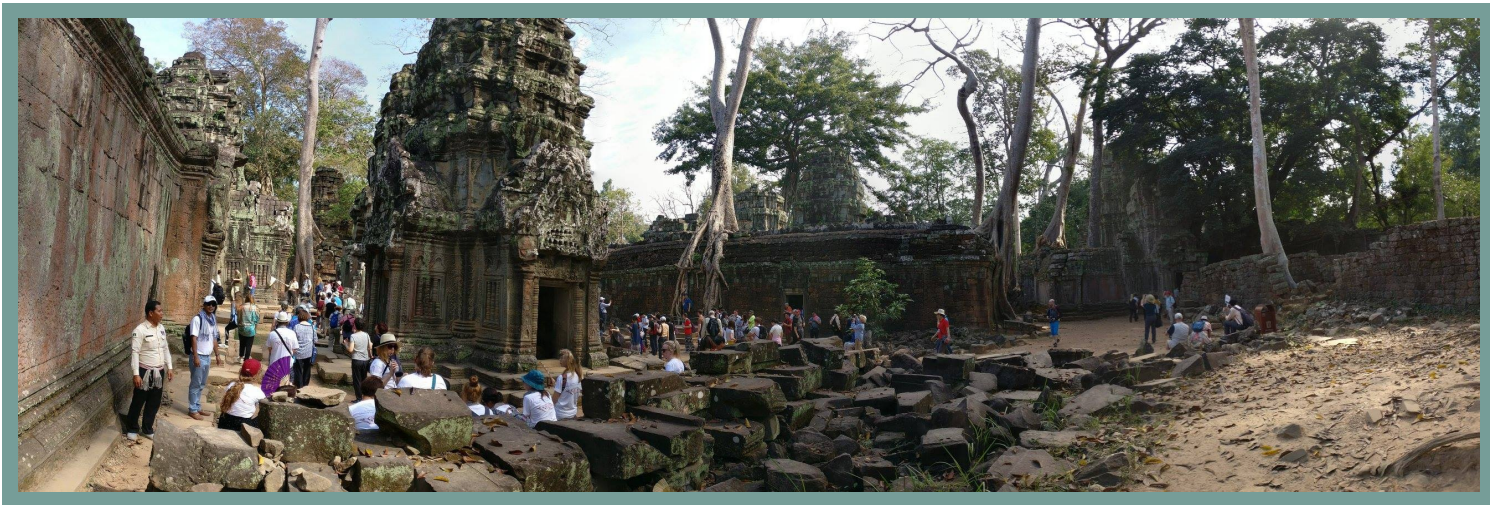


Meals (Optional)

✈ INTERNATIONAL TOURS ✈

available for year 6 students and above!

Second Nature offers amazing opportunities for international science learning and cultural immersion across 32 destinations in Asia, Europe, North America, South America and North Africa! One of our education officers will work with you to design an itinerary that covers syllabus objectives and provides an unforgettable experience for your students. All trips include highly trained facilitators, risk assessments, travel insurance and a money-back guarantee. Get in touch with us today to learn more about travel opportunities for your school.






TAILORED FOR YOU

NO MATTER WHAT YEAR LEVEL, NO MATTER WHAT DESTINATION...

All of our excursions can be tailored to the needs of your school. This means that the excursions you have read about here can be adapted for any year level, ecosystem, length of time or distance of travel. If you would like to book one of our programs, make sure to mention any special requests in your enquiry. We will be happy to oblige.

ABOUT US



We offer a resource for teachers wanting to expand their students' understandings of key science concepts beyond the classroom to real-life environments (such as rainforests, mangroves, rocky shores & catchments). We provide: transport, catering, accommodation, guides, risk assessments, equipment, pre/post excursion activities & work booklets.

GET IN TOUCH

MAIN OFFICE

30 Esperance Close
Elanora, QLD 4221

CONTACT

T: 07 5559 5977
M: 04 0102 3133
info@sn-ap.com.au

ON THE WEB



www.sn-ap.com.au