

INTERNATIONAL YEAR OF BIODIVERSITY

YEAR 10 SAVING THE TASMANIAN DEVIL ACTIVITY

TEACHERS GUIDE

This activity has been developed by UniServe Science, in conjunction with staff in the Faculty of Veterinary Science. The aim is to give students a general understanding of Tasmanian Devil and Devil Facial Tumour Disease(DFTD).

This activity and associated learning in the classroom address the following outcomes from Stage 5 of the current NSW curriculum.

PRESCRIBED FOCUS AREAS

5.2 A student describes the processes that are applied to test and validate models, theories and laws

5.2e Students learn to use examples to show that scientists isolate a set of observations, identify trends and patterns and construct hypotheses or models to explain these

5.3 A student evaluates the impact of applications of science on society and the environment

5.3d Students learn to give reasons why society should support scientific research

5.5 A student analyses how current research may affect people's lives

5.5a Students learn to describe some recent scientific contributions made by male and female scientists, including Australians, and discuss the effect of their contribution

5.5d students learn to identify some possible career paths in science

KNOWLEDGE AND UNDERSTANDING

5.8 A student relates the structure and function of living things to models, theories and laws

5.8.1 Students learn about cell theory

SKILLS

5.16 A student accesses information from a wide variety of secondary sources

5.17 A student explains trends, patterns and relationships in data and/or information from a variety of sources

5.19 A student uses critical thinking skills in evaluating information and drawing conclusions

VALUES AND ATTITUDES

5.25 A student recognises the relevance and importance of lifelong learning and acknowledges the continued impact of science in many aspects of everyday life.

5.26 A student recognises the role of science in providing information about issues being considered and in increasing understanding of the world around them

5.27 A student acknowledges their responsibility to conserve, protect and maintain the environment for the future

LEARNING PROCESSES

Students will:

- demonstrate that investigation can take many forms.
- recognise that the results of investigations can lead to more questions.
- give examples of predictions that are sometimes supported, sometimes disproved

SKILLS

Students will be able to investigate natural and made environments.

This activity and associated classroom activities also address the following Content Descriptors for the draft Australian Science Curriculum

SCIENCE UNDERSTANDING

Year 10

DNA- The structure and function of DNA, genes and chromosomes

Genetics – the role of genes in determining patterns of inheritance and the chemical processes in cells

Year 9

Disease- The types and causes of disease in humans and other animals, how the organism responds and methods of disease control

SCIENCE AS HUMAN ENDEAVOUR

Year 9 & 10

Influence of science – Science provides reliable knowledge and enables valid predictions and conclusions to inform choices

Collaboration in science – Science research commonly involves teams of scientists with expertise from a diversity of specialisations

Contributions of scientists – Scientists are recognised by society in various ways for their contribution to human understanding

SCIENCE INQUIRY SKILLS

Year 9 & 10

Questioning and Predicting – research information from a variety of sources to formulate scientific questions and develop testable hypotheses

Analysing results- Represent and analyse data appropriately, including using simple statistical methods and ICT

Developing explanations – Draw conclusions that are consistent with the evidence and critique these conclusions with reference to scientific concepts

MATERIALS NEEDED

Background information on Tasmanian Devil and Devil Facial Tumour Disease (DFTD) (See below for more details)

Copy of Save the Tasmanian Devil newsletter

Student Activity sheets

OUTCOMES OF ACTIVITY

On successful participation and completion of this activity students will be able to

- explain DFTD and the effect this is having on the Tasmanian Devil
- Describe measures being undertaken to protect the Tasmanian including the Captive Breeding Insurance population
- Synthesise data into tabular and graphical format
- Draw conclusions based on this data
- Research information from a newsletter to compare and contrast different insurance populations.

TIMING

This activity has been designed as a brief overview or introduction and takes approximately 30 minutes. This can be extended through more detailed discussion of the genetics involved and inclusion of further activities (see suggestions at end of guide)

THE ACTIVITY

1. A brief overview is given of the Tasmanian Devil and the DFTD that is threatening its extinction – we did this with a powerpoint presentation based on a presentation made by Dr Kathy Belov for Dept of Education (links to these and other sources of information are provided at the end of this document)
2. Students are divided into pairs or small groups and each provided with a copy of the March 2010 issue of Save the Tasmanian Devil newsletter (copy attached) and directed to read the article titled Captive Population Grows
3. Students are provided with a copy of the Student Activity Sheet (attached) and instructed to work in their pairs to answer all questions. (A copy of the Activity Sheet with sample answers is also attached)

ADDITIONAL ACTIVITIES IN CLASSROOM

1. This activity can lead to a more detailed discussion and investigation into genetics, including uses of genetics such as genetically modified foods and cloning – the pluses and minuses
2. This activity can lead to a more detailed study of disease – in animals and humans ; different types of diseases, how are they spread and preventions/cure
3. Students can conduct research into a current famous Australian scientist, such as Kathy Belov, and present a summary to the class of their work and its impact on society
4. Students could compare the laboratories of a modern-day scientist to that of 100 years ago – how has technology changed; are labs safer today
5. Students can investigate animals from their local area which may be on the endangered list and what is happening to try and protect that species
6. Students can become involved in the Devil Rock program – get together with a group of friends, compose a song about the Tasmanian Devil and enter the competition (You might like to consider enlisting help from music and/or English staff with this)

ADDITIONAL RESOURCES

Background Information on Tasmanian Devil and DFTD

Devils Lair – This is a site specially developed by UniServe Science in collaboration with staff from Faculty of Veterinary Science to highlight the Tasmanian devil. This included resources and activities develop by us plus links to external sites http://sydney.edu.au/science/uniserve_science/school/curric/devil_rock/devils_lair.html

Australian Scientists

Faces of Science – a site with transcripts from a range of Australian scientists, explaining their work and life as a scientist http://sydney.edu.au/science/uniserve_science/faces/gallery.html

World-Wide Day in Science - a unique resource for high school and university students wanting to know where science can take them, anytime in their career, anywhere in the world
<http://www.dayinscience.unsw.edu.au/index.html>

Famous Australian Scientists- webpage developed by UniServe Science with links to external sites containing general resources and activities
http://sydney.edu.au/science/uniserve_science/school/curric/stage4_5/famozsci.html

Genetic Engineering

Genetic Engineering - webpage developed by UniServe Science with links to external sites containing general resources and activities. http://sydney.edu.au/science/uniserve_science/school/curric/stage4_5/geneticeng.html

DNA

DNA Tutorial – detailed information site with practice quizzes <http://www.dnatutorial.com/>

DNA from the beginning - The science behind each key concept is explained by: animation, image gallery, video interviews, problem, biographies, and links <http://www.dnafb.org/>

INTERNATIONAL YEAR OF BIODIVERSITY
 Helping to Save the Tasmanian Devil
 Year 10 Student Activity – Sample answers

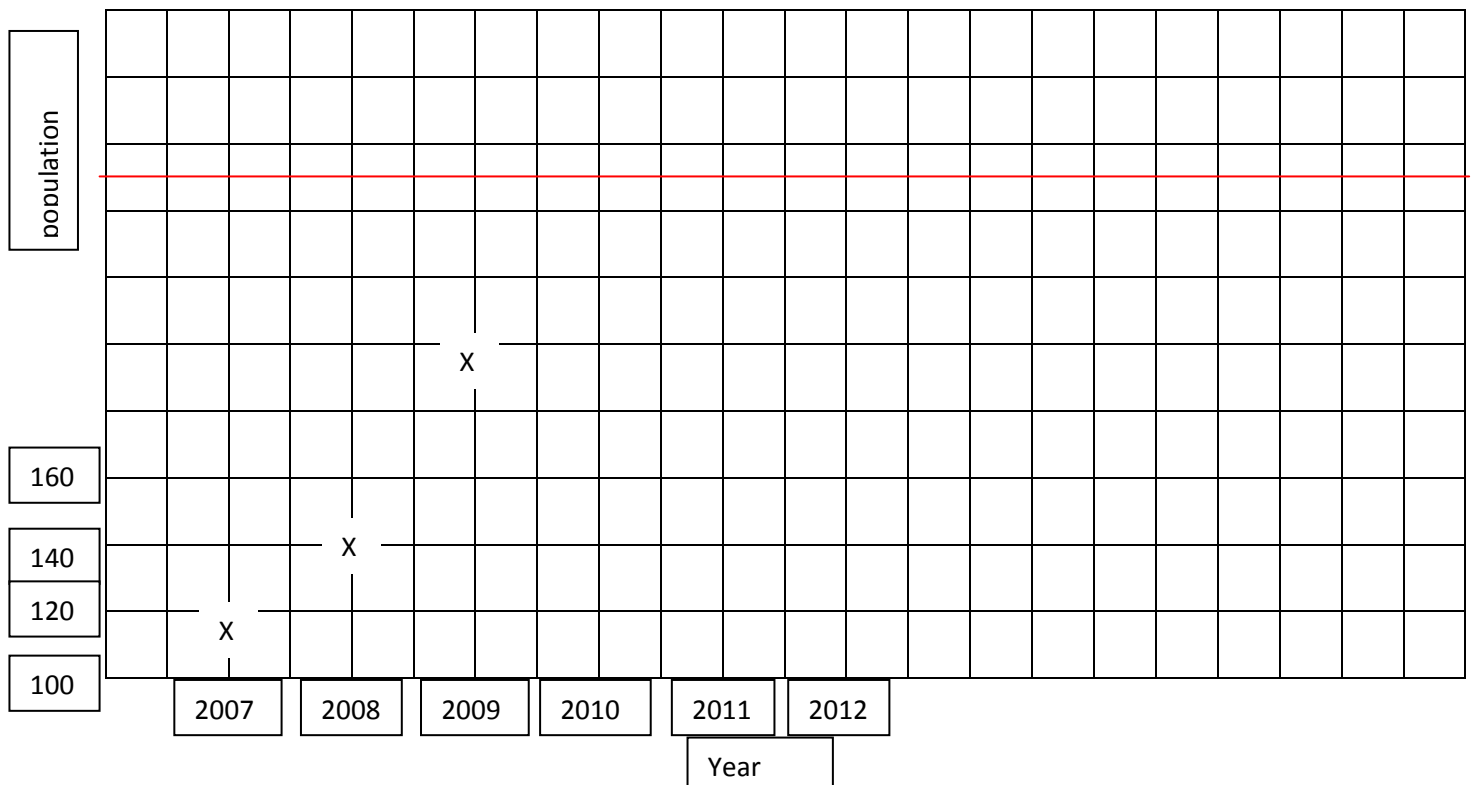
For this activity you will be working in pairs or small groups to analyse some information on the captive breeding Tasmanian Devil Insurance population and reach sound scientific conclusions.

You will need a copy of the Save the Tasmanian Devil newsletter (March 2010 Issue). This can also be downloaded from [http://www.tassiedevil.com.au/tasdevil.nsf/downloads/D595436FECB69A66CA2576ED0083D3F6/\\$file/Devilnews_March_2010.pdf](http://www.tassiedevil.com.au/tasdevil.nsf/downloads/D595436FECB69A66CA2576ED0083D3F6/$file/Devilnews_March_2010.pdf) (852kB)

1. Read the article titled “Captive Population Grows”
2. Complete the following Table using the information in this article

Year	Population	Births	Deaths
2007	116		
2008	140	34	
2009	196	57	1

3. From this information draw a graph using the grid below to show the increase in population of Tasmanian Devils in the captive breeding Insurance populations



4. From the information and graph , draw conclusions about the following

Hazel Jones, UniServe Science

a. When should the Insurance Population reach its target population?

.....2010-2011.....

b. What are some factors that could affect this and will these mean it will be easier or more difficult to reach that target?

.....Increase in deaths - more difficult

.....Introducing more devils to program - easier

.....
.....
.....
.....

5. Look through the newsletter and find another article on Insurance populations then answer the following questions

a. How is this program going to work?

Article ...Devils on offshore islands

New population placed on offshore island – initially males sterilised to determine effect on local ecology , then breeding allowed

.....
.....

b. How does this program differ to the captive breeding program?

Devils in wild/natural habitat

Breeding won't be controlled.....

.....
.....
.....
.....