Dung Beetles – 5-6

Learners are given the opportunity to **investigate** the fascinating world of dung beetles. They will study their life cycle and discover why they were introduced to Tasmanian farms. Learners will **walk across the farm looking for evidence** of their presence and possibly discover some hard at work.

ACHIEVEMENT STANDARDS

Design and Technologies

Food and Fibre Production **(Year 5 & 6)**

Students explain how social, ethical, technical and

sustainability considerations influence the design of solutions to meet a range of present and future needs.

Science

Students analyse how the form of living things enables them to function in their environments. **(Year 5)**

Students describe and predict the effect of environmental changes on individual living things. **(Year 6)**

CONTENT DESCRIPTORS

Design and Technologies

Food and Fibre Production **(Year 5 & 6)**

Investigate how and why food and fibre are produced in managed environments and prepared to enable people to grow and be healthy. (ACTDEK021)

Science

Living things have structural features and adaptations that help them to survive in their environment. (ACSSU043) **(Year 5)**

The growth and survival of living things are affected by physical conditions of their environment. (ACSSU094) **(Year 6)**

Food and Fibre connections to the Australian Curriculum are available here

GENERAL CAPABILITIES

Ethical Understanding

Explore ethical concepts in context

Level 4 - pose questions to clarify and interpret information and probe for causes and consequences.

CROSS CURRICULUM PRIORITY

Sustainability

Organising idea 1

The biosphere is a dynamic system providing conditions that sustain life on Earth.

Organising idea 7

Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments.

Learning Goals

Learners will:

- Know how dung beetles are designed to perform a specific task.
- Understand the role that dung beetles play on farms to reduce flies and improve soil quality.
- Identify appropriate dung beetle habitats, and evidence of their presence on the farm.

Learning Sequence

Activating and Engaging

Suggested pre-Hagley experience

Learners can brainstorm where and why they might see dung beetles at Hagley Farm. These can be recorded in a class chart.

Suggested tuning in questions:

- What are dung beetles?
- Where do dung beetles live?
- What adaptations do dung beetles have that enable them to be of assistance to farmers?
- Why would farmers introduce dung beetles from other countries?
- Why would farmers want dung beetles on their farms?

Exploring and Discovering

Hagley experience

(Led by Visitor Centre teachers and staff)

Learners are asked to share what they know about dung beetles, focusing on the tuning in questions.

Learners watch a short video clip about the lifecycle, benefits and history of the dung beetle. They discuss the differences between native and introduced species of dung beetles.

Farm safety and hygene will be discussed, and then learners will visit designated parts of the farm to search for evidence of dung beetles at Hagley.

VC staff will explain where to explore for dung beetles, the signs to look for and how to safely dig for them. The will discuss other insects that might be found in this ecosystem.

Learners will work in collaborative teams to investigate the paddock, collecting any beetles carefully in a petrie dish to share with the class.

Groups will share their findings and all insects will be safely returned to their habitat before returning to the classroom.

<u>Supporting Experiences</u>

Mixed Farm Study

Topics covered may include: animals, crop and soil management, water usage, fencing, farm machinery, economic aspects of farming, animal reproduction. A farm walk and/or tractor ride is included.

Pond Study

Students will catch and identify a variety of pond life from a farm dam. Features of the pond life and life cycles will be discussed.

Synthesising and Applying

Suggested post-Hagley experience

Learners will draw a labelled diagram of the lifecycle of a dung beetle.

Learners will investigate the life cycles of various other animals/insects.

Learners will describe the benefits of introducing dung beetles to Tasmania.

Learners will draw a labelled diagram of a dung beetle.

Learners could investigate other introduced species to Tasmania and their impacts.

Learners could complete a Venn Diagram comparing the native dung beetle and the introduced dung beetle.

Success Criteria

Learners will be able to

- Illustrate the unique features of dung beetles.
- Explain why dung beetles are valuable in agriculture.
- Describe why dung beetles were introduced to Tasmania and the benefits they provide.

Resources

- http://www.primezone.edu.au/
- http://education.abc.net.au/home#!/digibook/2738977/dung-beetle-heroes

Glossary

Decompose - make or become rotten; decay or cause to decay.

Detritivore - animals that eat decomposing organic matter.

Dung - the excrement of animals; manure.

Ecosystem - a biological community of interacting organisms and their physical environment.

Egg - an oval or round object laid by a female bird, reptile, fish, or invertebrate, usually containing a developing embryo. The eggs of birds are enclosed in a chalky shell, while those of reptiles are in a leathery membrane.

Excrement - waste matter discharged from the bowels; faeces.

Habitat - the natural home or environment of an animal, plant, or other organism.

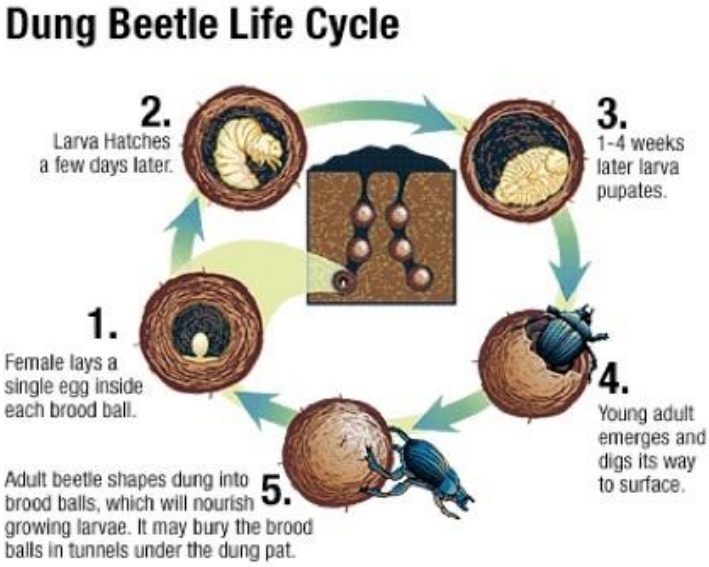
Fertilise - cause (an egg, female animal, or plant) to develop a new individual by introducing male reproductive material. 2. make (soil or land) more fertile or productive by adding suitable substances to it.

Habitat - the natural home or environment of an animal, plant, or other organism.

Introduced Species – any living thing that has been imported into the environment.

Larva - the active immature form of an insect, especially one that differs greatly from the adult and forms the stage between egg and pupa, e.g. a caterpillar or grub.

Lifecycle - the series of changes in the life of an organism including reproduction.



Metamorphosis - (in an insect or amphibian) the process of transformation from an immature form to an adult form in two or more distinct stages.

Native Species – any living thing that occurs naturally in the environment.

Pupa - an insect in its inactive immature form between larva and adult, e.g. a chrysalis.