

Dung Beetles – 3-4

Learners are given the opportunity to investigate the fascinating world of dung beetles. They will study their life cycle and discover why they are beneficial to the farm. Learners will **walk across the farm** looking for evidence of their presence and **dig among the dung** to try and discover some hard at work.

ACHIEVEMENT STANDARDS

Design and Technologies

Food and Fibre Production (Years 3 & 4)

Students describe how social, technical and sustainability factors influence the design of solutions to meet present and future needs. They describe features of technologies that influence design decisions and how a range of digital systems can be used.

Science

Students group living things based on observable features and distinguish them from non-living things. (Year 3)

Students discuss how natural processes and human activity cause changes to Earth's surface. They describe relationships that assist the survival of living things and sequence key stages in the life cycle of a plant or animal. (Year 4)

CONTENT DESCRIPTORS

Design and Technologies

Food and Fibre Production (Years 3 & 4)

Investigate food and fibre production and food technologies used in modern and traditional societies. (ACTDEK012)

Recognise the role of people in design and technologies occupations and explore factors, including sustainability that impact on the design of products, services and environments to meet community needs. (ACTDEK010)

Supporting Learning Area

Science

Science knowledge helps people to understand the effects of their actions. (ACSHE05) (Year 3)

Living things have life cycles. (ACSSU072) (Year 4)

[Food and Fibre connections to the Australian Curriculum are available here](#)

GENERAL CAPABILITIES

Personal and Social Capability

To become confident, resilient and adaptable.

Level 3 - persist with tasks when faced with challenges and adapt their approach where first attempts are not successful.

Critical and Creative Thinking

Pose questions to expand their knowledge about the world

Level 3 - discuss actions taken in a range of contexts that include an ethical dimension.

CROSS CURRICULUM PRIORITY

Sustainability

Organising idea 2

All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival.

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 that living things have life cycles.
- Understand that dung beetles play an important role in improving 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 why they might see dung beetles at Hagley Farm. These can be recorded on a class chart.

Suggested tuning in questions:

- What are animals life cycles?
- Do you know any examples of different types of lifecycles? (frogs, mammals, birds, butterflies etc)
- Where do dung beetles live?
- Are dung beetles all the same species?
- Where did dung beetles come from?
- 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 work in collaborative teams to complete a puzzle on the life cycle of a dung beetle.

Farm safety and hygiene will be discussed, and then a tractor/trailer ride will take learners to 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. They 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 learners return to the classroom.

Supporting Experiences

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 could draw a labelled diagram of the lifecycle of a dung beetle.

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

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

Learners could 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

- Order the life cycle of a dung beetle.
- Identify dung beetle habitats and evidence of their presence.
- 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.

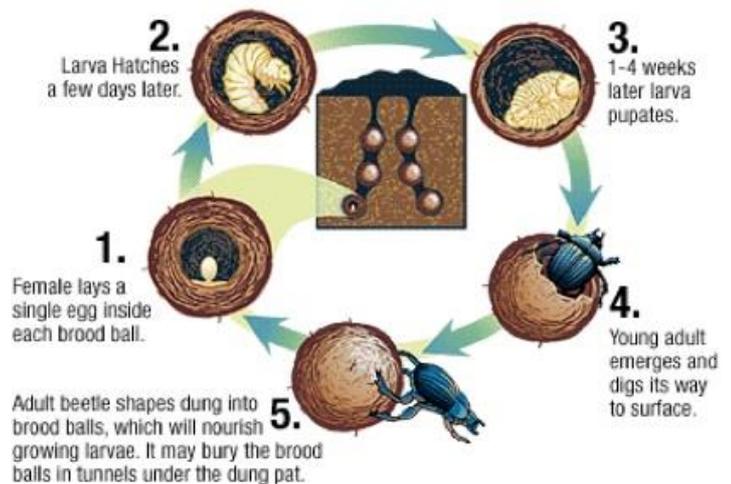
Habitat - the natural home or environment of an animal, plant, or other organism.

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.

Dung Beetle Life Cycle



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.