

Bugs



Activities for Years 7 - 10 Classrooms

Students gain more from web-based research or a museum visit if they are thoroughly prepared for the experience. Familiarize students with what they will see online or in the exhibition and discuss what they would like to find out. We recommend that a selection of the following 'Bug' activities are completed prior to their visit.

The following activities provide students with an understanding of some of the themes developed in the *Bugs Alive!* exhibition and on the Museum Victoria website.

BugCatcher This interactive online activity encourages children to explore the variety of bugs in the museum collection drawers, sort or label specimens and catch bugs to fill the gaps. Just for fun, catch and label a fantasy Frankenbug!

Build a bug Research, design and build a model of a giant insect or spider.

Compost – a home for bugs Become an active composter. Composting provides ready access to a myriad of small invertebrate decomposers for you to study.

Playground survey Encourage students to observe, find, collect, record, sketch, identify and classify a variety of invertebrates.

The cycle of life Students create an environment around the life cycles of the dragonfly or diving beetle.

Animals in the classroom Keeping live animals in the classroom encourages children to observe, discuss and record changes that occur as animals grow.

Using a dichotomous key Learn how to develop a diagrammatic and written dichotomous key to classify a range of items into groups.

Key to the world of bugs Develop a dichotomous key to classify a range of bugs into individual groups.

Insect body adaptation Take a look at some of the insect body adaptations that have allowed insects to survive so successfully

Bug challenges – friends and foe – what is your solution?

Research one of the following topics and find out how introduced bugs may be useful or harmful to the Australian environment.

Pests or pals Investigate bugs that assist humans, those that cause problems, those that do both and those bugs that don't seem to impact on us either way.



Bugs



Build a bug

The aim of this activity is to encourage students to observe and learn about the structure of invertebrates and use their understandings to construct a model.



You will need

Construction materials such as cardboard, wire, polystyrene and fabrics.
Illustrations or photographs of a variety of invertebrates.

What to do

Research, design and build a model of a giant insect or spider, using cardboard, wire, polystyrene and other materials you think appropriate. During the research phase, use a variety of photographs and observe live specimens. Include the following in discussion of the structure of bugs.

- insects have three body segments with three pairs of legs attached to the thorax
- arachnids (spiders and scorpions) have two body segments with four pairs of legs
- legs are made up of a number of segments
- most winged insects have two pairs of wings
- flies and mosquitoes have only one pair of wings
 - the fore-wings of beetles have evolved into hard wing covers
- there are a variety of antennae types
- many species have a tail, cerci or abdominal sting.



Alternatively, using the information above, build and name a totally imaginary giant bug. Each student or group should provide a name for their 'bug'.

The bugs can be displayed in an environment with giant grass and leaves.





Compost – a home for bugs

This activity is to encourage students to be involved in recycling and to become aware of the importance of rotting material in the life cycles of many invertebrates.

What to do

Become an active composter – at school and at home. Composting your school and household waste will provide an endless supply of nutrient rich soil for the garden, while giving you ready access to a myriad of small invertebrate decomposers for you to study. Ensure the compost heap remains moist as you continue to add grass clippings, leaves and suitable food scraps.

Advice on composting is easily obtained – for example:

The Good Compost Guide, EcoRecycle Victoria, 1998

CERES Environment Park, 8 Lee Street, Brunswick East, tel 9387 2609

The *Compost Creatures* poster, published by the Gould League, provides a guide to the animals that thrive in this environment.



Bugs

Playground survey

This classification activity encourages students to – find ... look ... collect ... record ... sketch ... and identify

What to do:

Organise a 'bugs' field trip in the school ground.

Encourage students to continue their exploration over several weeks and then report their findings.

Instruct students to cause minimal disruption to the areas they are exploring.

→ Where to look

In soil, under bark, in grass, in trees and bushes, in a garden bed, under rocks and logs, on plants, in water, in the air.

→ Record class observations

Use the *Bugs Alive!* website to assist students to identify bugs and discover food preferences.

Name of bug	Number of legs	Number of wings	Food type	Habitat

→ Classify the bugs

Collect photographs or draw pictures of each insect or bug found. This collection can be used in a variety of classification activities.

Bugs can be classified in a variety of ways:

Body structure.

Slugs, snails and worms have no legs. Insects have six legs. Arachnids have eight legs. Yabbies and slaters (Crustaceans and Isopods) have up to twenty legs. Centipedes and millipedes (Chilopods) have more than twenty legs

Food preference

Herbivores Carnivores Decomposers

Habitat

Trees and bushes Soil Grass Rocks and logs
Under bark Water Buildings Garden plants

Insect groups

Non-insect hexapods Wingless insects Rigid winged insects Folded wing insects

Class or Order

Thysanura Odonata Mantodea Phasmatodea
Diptera Lepidoptera Hymenoptera



Bugs



The cycle of life

Insects undergo complete or incomplete metamorphosis. The lifecycles of butterflies and beetles are examples of complete metamorphosis, involving larval, pupal and adult stages. During incomplete metamorphosis the young (nymphs) are similar to the adult and grow to adulthood through a series of moults. The lifecycles of leafhoppers and stick insects are examples of incomplete metamorphosis.

You will need

A copy of the diving beetle or the dragonfly lifecycle for each student. (Copies of *A Diving Beetle's Story* and *A Dragonfly's World* are provided on the following pages.)

What to do

Review the lifecycle of a common insect such as a butterfly.

Discuss the concept of metamorphosis (changing shape). The *Metamorphosis Game* will help to consolidate this process.

Introduce students to illustrations of the dragonfly and diving beetle lifecycles.

Discuss aspects of the environments in which these creatures live, including plants, shelter, food sources and predators. Be sure to include the impact of human activity.

Provide each student with a copy of the dragonfly or diving beetle lifecycle. Have them add the additional things that are important to this animal's environment. Information about predators and food can be found in the information section of this website.

Following on with drama and story writing

Act out the process of metamorphosis. Write a script, appoint a narrator, make costumes, and add some excitement by including predators, such as spiders, wasps, lizards and birds.

After rehearsals, videotape your performance.

Write and illustrate a narrative of the life of an insect. Stories can be written in a variety of serious or humorous styles.

For examples of style refer to picture storybooks such as *The Very Ordinary Caterpillar* by Gary Fleming, or watch a video of the film, *Antz*.