Australian National Botanic Gardens

Lesson Plan

Module 2

Plant Structure

We acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging.

Plant Science Learning Hub

Students need a space to learn that is fun and rewarding. The Australian National Botanic Gardens has developed a Plant Science Learning Hub that aims to inspire and engage students in plant science and the stories surrounding Australian flora. With clear links to the Australian Curriculum for school years four to six, the Plant Science Learning Hub will provide a valuable resource for students and educators.

- Plant Life Cycles
- **Plant Structure**
- Pollination
- Seeds

This series provides educators with authoritative plant science content that has a uniquely Australian perspective. The Gardens manages globally significant scientific collections of living plants and herbarium specimens of Australian native flora. We provide educational experiences for students from pre-primary to tertiary levels, leveraging our scientific collections, participation in national and international conservation projects and outreach programs to engage the community in valuing, conserving, and appreciating Australia's diverse plant heritage.

Module learning objectives

The following learning objectives apply to the Plant Structure Module.

1. Identify the basic structural elements of a generalised flowering plant.
2. Identify the structural elements of several specific Australian plants.
3. Understand the functions and parts of a flowering plant.
4. Explore links between plant structure and the physical environment.

Each lesson within the lesson plans and the field kits has individual learning intentions appropriate to the activity.

Contents

Lesson Three: Parts of a flower

LEARNING INTENTIONS

Students will be able to:

- Identify the structural elements of a flower
- Understand the functions of flower structures

CURRICULUM LINKS

This material provides opportunities for students to engage in the following Australian Curriculum **(Version 9)** content descriptions:

Science understanding

AC9S5U01 examine how particular structural features and behaviours of living things enable their survival in specific habitats (Year 5)

AC9S6U01 investigate the physical conditions of a habitat and analyse how the growth and survival of living things is affected by changing physical conditions (Year 6)

CONTENT INFORMATION

Flowers

The primary function of flowers is reproduction. Flowers also provide food for pollinators and seed dispersers in the form of nectar, pollen, seeds and fruit. A more detailed overview of flower anatomy and function is provided below.

Why do plants have flowers?

The primary purpose of flowers is for plant **reproduction**. After pollination, flowers develop into fruit to protect their seeds and aid in their dispersal. Many flowers rely on animal **pollinators** to facilitate reproduction, often using **visual cues** to attract them. Many of the relationships that have evolved between plants and pollinators are **symbiotic**, meaning that the two organisms work together for the benefit of each other.

Although flowers have the same basic parts and functions, they can look very different due to environmental conditions and their individual pollinator relationships. Some of the interactions between Australian flowers and their pollinators are outlined below.

Large, showy flowers. Gymea Lily (*Doryanthes excelsa*) does not keep its flowers a secret! It produces flower spikes up to six metres tall that display flower heads up to 30 centimetres in diameter. Each individual flower is about 10 centimetres in diameter and stands out at a distance due to their showy pinky-red colouring. The Gymea Lily's impressive flowers attract nectar-seeking pollinators including birds and bees.

A Doryanthes excelsa flower spike can grow up to six metres tall!

Image: ©Plumley, M©ANBG, 1996

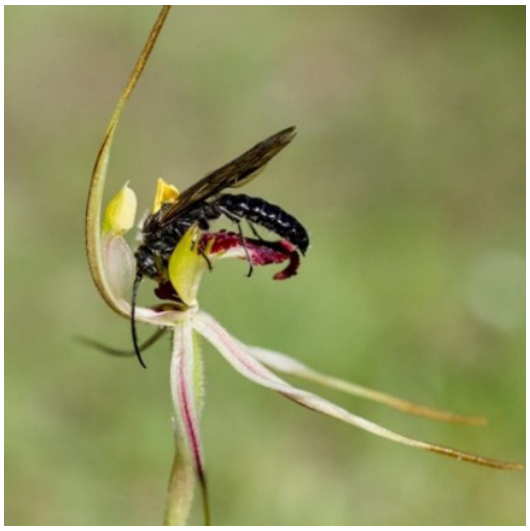
A Doryanthes excelsa flower head contains multiple flowers and can reach up to 30 centimetres in diameter.

Image: ©M.Fagg, 2009

Alluring scents

We often associate flowers with pleasant aromas, but flower scents are not intended to attract people. Many species of thynnid wasps are routinely tricked by the scents produced by **sexually deceptive** orchids, such as the Brown-clubbed Spider Orchid (*Caladenia phaeoclavia*). By producing a scent that mimics the **pheromones** of a female wasp the orchid

flowers deceive male wasps into attempting to mate with them, allowing the orchid to be pollinated in the process.



A male thynnid wasp (*Lophocheilus anilitatus*) attempts mating with a Brown-clubbed Spider Orchid (*Caladenia phaeoclavia*) flower.

Image: ©T.Hayashi

Flower shape

The shape of a flower can help or hinder certain pollinators in accessing its pollen and nectar. Some species of *Epacris* have brightly coloured, tubular flowers that encourage birds with thin, dexterous beaks such as honeyeaters and spinebills to visit and pollinate them.

The flowers of *Epacris impressa* are bright red-pink and tubular.

Image: ©M.Fagg, 2008

The tubular flowers of a Kangaroo Paw allows birds like this to pollinate them.

Image: ©B.Harvey, 2023

Buzz pollination

Some Australian plants require the specialised act of **buzz pollination** to release their pollen. This involves bees vibrating hundreds of times per second to shake pollen from a flower, allowing them to collect it and transport it to another flower. Buzz pollination cannot be performed by European Bees (*Apis mellifera*), instead being undertaken by native species including Blue Banded Bees (*Amegilla* species) and Carpenter Bees (*Xylocopa* species).

A native Blue Banded Bee 'buzz pollinating'

Image: ©S.B.Rogers, 2018

A native Blue Banded Bee can be seen on a plant stem.

Image: ©S.B.Rogers, 2022

Hidden colours

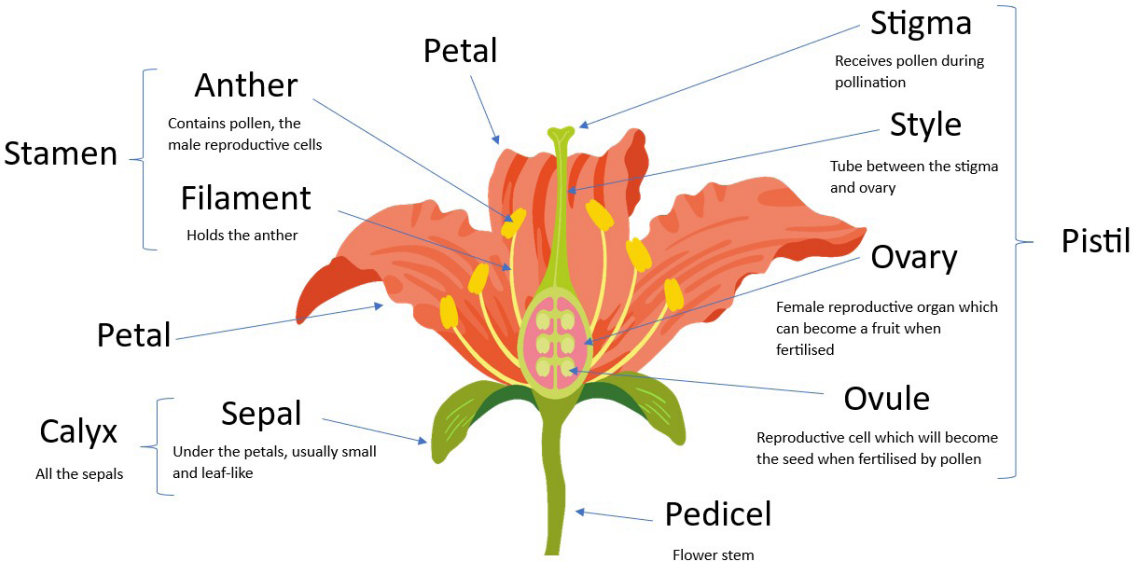
Pollinators do not see colours in the same way that humans do. Ultraviolet (UV) light is outside of the visible range for humans but within the visible range for many insect species. Nectar guides direct pollinators towards the flower's nectar and pollen but are often only visible under UV light. Bees and other pollinators often perceive **nectar guides** as dark 'pathways' towards the food, but they are hidden to humans.

Goodenia alba flower as seen by human eyes on the left and under UV light on the right. The UV light shows nectar guides that only insects can see.

Image: ©D.Oldfield

The structural elements and functions of a flower

Before a flower opens it is called a **bud**. The outside of the bud is made up of **sepals** which protect the inner parts of the flower. When the flower begins to open the sepals usually remain in place below the **petals**. Once the bud opens and a flower forms you will be able to identify its main parts (as seen in the diagram below).



Sepal - Sepals are usually green and protect the inner parts of the flower in the bud. The sepals open with the petals and usually remain at the base of the flower.

Petal - Petals help to attract pollinators to the flower. The colour and markings of the petals will attract specific pollinator types. Petals also help to protect the inner reproductive parts of the flower.

Tepal - Tepal is a term used instead of sepal and petal when it is not possible to distinguish them from each other, such as when the sepals are enlarged and coloured. (Tepals are not present in most flowers and are not shown on the graphic diagram).

Pedicel - This is also known as the flower stem. The purpose of the pedicel is to support the flower. It also helps to elevate the flower and make it attractive to pollinators.

The male parts of a flower:

Stamen - The stamen is the male reproductive organ of the flower. It has two main parts, the pollen-producing anther and the supporting filament.

1. **Anther** – The anthers are the pollen-producing organ of the flower. Pollen contains the male gametes (reproductive cells) of a flowering plant.
2. **Filament** – The filament is a stalk that supports the pollen-producing anthers, making them more accessible to pollinators. Flower filaments are usually long and slender but in some flowers are short or not present.

The female parts of a flower:

Pistil - The pistil is the female reproductive part of a flower. It is usually made up of the stigma, which is at the top and receives pollen; the ovary, which is at the bottom and contains ovules (future seeds); and the style, a stalk-like structure that connects the stigma and ovary.

1. **Stigma** - Depending on the plant's pollination strategy, stigmas receive pollen from air, water, insects or other animals. Pollen is tiny and difficult to catch so stigmas have different adaptations to improve their chance of retaining pollen. Some stigmas are hairy or lobed, some have flaps and some are specifically shaped to help catch and trap the pollen.
2. **Style** - The style is a stalk that connects the stigma and the ovary, providing a pathway for the male gametes. Once the pollen has been caught by the stigma a pollen tube may grow from the pollen grain, through the style and into the ovary, allowing fertilisation to occur.
3. **Ovary and ovules** – The ovaries contain the ovules, which store the female gametes (reproductive cells). When fertilisation is successful the ovules grow into seeds and the ovary wall often expands into a fruit that protects the seeds.

INQUIRY QUESTIONS (ENGAGE)

Explain the learning intentions for the lesson and introduce the topic to the students. Ask the students a series of questions such as:

Do all plants have flowers? If they don't have flowers, how do they reproduce?

Do you know the parts of a flower? Can you name them? What is each part for?

What is pollination? How does pollination occur?

Can you tell which pollinators pollinate which plants by looking at their flowers?

Is there a difference between pollination and fertilisation?

STRATEGIES TO FACILITATE QUESTIONING AND DISCUSSION:

- Talk with a partner (turn and talk).
- [1]Think, Pair, Share. (Project Zero Thinking Routine).
- KWL Chart to track what a student knows (K), wants to know (W) and has learned (L) about a topic, can be used before during and after research projects.
- Write in journal and share with others.
- Individual student writing.
- Drawing.

Record students' answers and wonderings on the board or a flipchart.

LESSON SEQUENCE (EXPLORE)

This lesson gives students opportunities to identify the structural elements of a flower and learn about the function of the different parts. There are three activities in this lesson:

In Activity 1, students will explore the parts of a flower by deconstructing a real flower and completing supporting worksheets.

In Activity 2, students will design a flower for the purpose of being pollinated. The design can be presented in a 2D, 3D or virtual format.

In Activity 3, students will undertake field work and dissect or draw a flower.

[1] The Think, Pair Share thinking routine was developed by Project Zero, a research center at the Harvard Graduate School of Education. Project Zero adapted this routine from Frank Lyman: Lyman, F. T. (1981). The Responsive Classroom Discussion: The Inclusion of All Students. In A. Anderson (Ed.), Mainstreaming Digest (pp. 109-113). College Park: University of Maryland Press.

ACTIVITY 1 – EXPLORE PARTS OF A FLOWER

In this activity students identify the parts of a flower and the functions of each part. They label diagrams and deconstruct a real flower to identify its parts.

To do this, you will need:

Teacher Preparation:

- Different images of flowers
- Flowers to pull apart
- Camera/tablet to take photos of deconstructed flowers
- Resource: Flower Fact Sheet for each student or group
- Resource: Flower Parts Worksheet 1 or 2 for each student
- Resource: Flower Parts Worksheet Questions for each student
- Resource: Flower Photos
- Students' science journals

Note: Activity 2 builds on Activity 1 so it is recommended that these two activities are done in sequence.

Part 1 – Explore flower parts

1. Start by asking the inquiry questions and explaining the learning intentions.
2. Ask students to draw a flower in their science journals. Most will draw a basic flower shape without details. Show them some different images of flowers to encourage them to think about the structure of flowers (some images can be found in the Resource: Flower Photos found in the Resources section of this document).
3. Discuss with students the basic function of a flower, which is primarily to allow the plant to reproduce. Some plants rely on animal pollinators (like birds, bats or insects) to transfer pollen between flowers and achieve pollination. Flowers give-off signals to attract the type of pollinator they need to facilitate pollination.
   To encourage them to think about the structure of a flower, ask students to add more detail to their drawing. *What colour is it? What are the shapes of the petals? What is the 3D shape of the flower? What does it smell like? Does it have nectar? What kind of pollinator would this flower attract? Where is the pollen? Does the shape make it easy or hard for the pollinator to access pollen and nectar?*
4. Show each of the flower images again and ask students what they think the purpose of the flowers' structural features are.
   They probably won't identify the detail but encourage questions and wonderings.
5. Provide students with real flowers to use, such as *Leptospermum* species (Tea Trees), *Prostanthera* species (Mint Bushes), *Correa* species (Native Fuchsias) or daisies. Ask them to gently pull apart the flower and make a flower card like the ones shown below. Labels can be added now or later. The flowers shown in the example are Australian natives but you can use any available flowers, such as lilies. The intention is not to do a full dissection but to explore the parts they find. Depending on the flowers used and the skills/interests of the students, this could be completed as a photography activity

6. Read the Flower Fact Sheet or watch the Plant Science Learning Hub plant structure video (available in the search feature of the Plant Science Learning Hub).
7. Complete the Flower Parts Worksheet provided. There are two options: the first option names the parts of a flower, the second option gives the definition of that part. Select the option that is appropriate for each student. There is an accompanying Question sheet for this activity (Resource: Flower Parts Worksheet Questions).

   Alternatively (or in addition), you can create an anchor chart as a class. Instructions are provided in Activity 2 for this.

Part 2 – Create an Anchor Chart

In this activity students research flower parts and their functions to create an anchor chart. They then apply this knowledge to Australian native plants.

To do this, you will need:

- Prepared anchor chart/s (butcher's paper, sticky notes and pens)
- Resource: Flower Fact Sheet for each student or group
- Resource: Australian Flower Parts Worksheet for each student
- Students' science journals

Note: Activity 2 builds on Activity 1 so it is recommended that these two activities are done in sequence.

Instructions

1. An anchor chart holds ideas, thoughts and processes in place (like an anchor) throughout a learning journey. It provides a visual scaffold for students to refer to and can be added to as more learning takes place.

   Prepare the central idea, headers, graphics and questions for students in advance. The images below show examples of a prepared anchor chart and a completed one.

   TIP: Use a projector, smartboard or tablet (underneath the paper) to trace the central image. In this example, the central idea is the structure of a flower, so draw a picture of a flower.

Prepared anchor chart (left) and completed anchor chart (right).

2. You will need a sheet of pre-prepared butcher's paper and markers for each student.
3. Have students read the Resource: Flower Fact Sheet (if they haven't already). You could read the material out loud yourself or have individual students each read a part.

   Alternatively, you can watch the Plant Structure video (available in the search feature of the Plant Science Learning Hub). Information can also be found by researching books in the library, the internet or asking others.

4. Create the anchor chart as a class. The chart should include:
    - Central diagram
    - Labels (petal, sepal, pedicel, stamen, anther, filament, pistil, stigma, style, ovary, ovule)
    - Functions
    - Extra information/facts (if desired)
5. Explain to students that they are going to apply what they have learned about flower structure to Australian native plants. Daisies, wattles, grevilleas, banksias and eucalypts are iconic Australian plants that students may recognise. Establish students' existing knowledge about these plants, including how they look, where they live and where students have seen them before.
6. Provide each student with a copy of the Resource: Australian Flower Parts Worksheet. There are four different worksheets showing different native flowers but students do not have to complete them all.
7. Once completed, the worksheet can be displayed in the classroom or glued into the students' science journals. Displaying examples of each of the four flower types will allow students to become familiar with the structure of different native flowers.

Discussion:

What have you noticed about the structure of this flower?

What does this flower have or do that might attract a pollinator?

How can you use this knowledge in other contexts?

What connections can you make to flowers you have seen around school or your home?

ACTIVITY 2 – DESIGN A FLOWER

This activity reinforces previous learning and helps students to apply their knowledge to a given environmental context. It draws on knowledge from Activity 1 and introduces the idea of flowers adapting to the environment.

To do this, you will need:

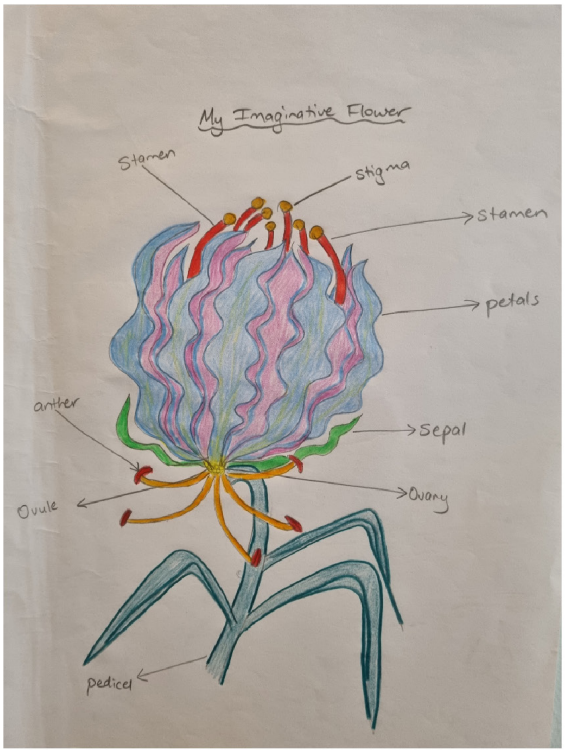
- Resource: Design a Flower Worksheet for each student

Instructions:

1. Design a flower. Your flower must be designed for a specific purpose: to attract a pollinator and be fertilised through pollination.
2. Think about the parts of a flower and their function. Which features will you design for each part of your flower? Now you know that flowers are not just a round centre with five petals (like your first drawing), you can be creative and let your imagination run wild! Create your flower using the Design a Flower Worksheet. Remember to use all the labels in the word bank in your picture.

My Flower

Remember to use all the labels in the word bank in your picture.



Stamen	Sepal	Ovary	Petal
Pistil	Stigma	Pedicel	Style
Calyx	Anther	Filament	Ovule

3. Create your flower by drawing a picture, building a model, making a collage, writing a descriptive paragraph or creating a stop-motion animation of it being pollinated.
4. Give your flower a name. It needs a scientific name as well as a common name. If students are yet to learn about classification, you can explain that a plant often has a common name that describes a physical feature, for example:
    - the Soft Tree Fern is softer than the Rough Tree Fern
    - parts of a Snotty Gobble can be eaten and looks like snot
    - Bottle Brushes looks like brushes that clean bottles.

    Scientific names are often from Latin or Greek words and describe a plant's appearance, where it grows or who discovered it, for example:

    - *Epacris longiflora* has long flowers (longi-flora)
    - *Grevillea rosmarinifolia* has leaves that look like rosemary leaves (rosmarini-folia)
    - I*ndigofera australis* grows in the southern hemisphere (australis means south)
    - *Eucalyptus gregsoniana* was named after the Gregsons, Eucalyptus enthusiasts from NSW.
5. Share your picture, model or artwork with your class OR write a report or a persuasive text about how your flower would attract pollinators and survive in environment.

Discussion:

Which features did you design to help the flower fulfill its purpose?

Will each of those features be effective?

How could you improve your flower? (after sharing work with others)

ACTIVITY 3 – PLANT STRUCTURE FIELD KIT (FLOWER DISSECTION AND DRAWING)

The Gardens has produced a field kit for the Plant Structure Module that contains activities designed to help students learn about collecting specimens and identifying plants. It uses a field journal introduced in the field activity for the Plant Life Cycles unit.

There are four field activities to select from:

Activity 1 Collect flowering plant specimens for pressing, botanical art or dissection

Activity 2 Pressing specimens

Activity 3 Introduction to botanical illustration

Activity 4 Collecting for dissection

Our tools are designed so that lesson plans and field kits remain as separate resources. Whilst there is crossover of learning outcomes there is a distinct context for each resource: lesson plan activities are mostly conducted in the classroom, while field kit activities are mostly undertaken outdoors. Field kits provide a window into the practical elements of the role of a scientist.

For this lesson on flower parts, we recommend teachers draw on Activity 3 and/or Activity 4 from the Plant Structure Field Kit and conduct them in the classroom.

Activity instructions can be accessed in the Plant Science Learning Hub Plant Structure module or by searching Plant Structure Field Kit in the search function

CONCEPTS EXPLAINED AND VOCABULARY DEFINED (EXPLAIN)

The following resources are provided to assist teachers to facilitate a class session to explain concepts and terms that have been introduced to students through the activities.

- Plant Structure Teachers' Notes
- Plant Structure Video. If you have not already shown the video produced by the Australian National Botanic Gardens in a previous lesson, you could use this to engage students. The Plant Structure video uses botanical illustration, along with a visit to the National Herbarium and the Australian National Botanic Gardens to engage students.
- This video can be found in the Plant Structure Resources section of the Plant Science Learning Hub.
- Word wall
- Discussion questions

APPLYING AND EXTENDING THE LEARNING (ELABORATE)

Applying the Learning

Alive with Learning: Floral Emblems. Do you know what Australia's national floral emblem is? Download the Floral Emblem resource developed by the Australian National Botanic Gardens to find out and learn about the floral emblem of each state and territory, available at https://parksaustralia.gov.au/botanic-gardens/pub/emblems.pdf.

- Research and write a news article or story about your state/territory's floral emblem and why it was chosen.
- Make an information display poster about your floral emblem.
- Paint or draw your floral emblem or colour in the line drawings provided in the online resource.
- Vote to choose a floral emblem for your class or school. As part of the voting process, you could develop your persuasive writing skills through producing a persuasive speech or article outlining why your chosen plant should be the class or school emblem.

Alive with Learning: Plant Families. This document has a graphic of a flower from each of the major Australian plant families, available at https://parksaustralia.gov.au/botanic-gardens/pub/aus_plant_families.pdf. Choose one plant or family group to research and draw a picture of it.

Flower survey. Survey different types of flowers from around the school, from your local nursery or botanic gardens. Design a worksheet to capture data such as: the number of petals, the shapes, the colours, when it is flowering etc. Look in books or other references to identify the plants and find their names.

Make a book for a younger grade. Write a creative or factual story about how flowers grow and reproduce. Add pictures, photographs or your own drawings.

Write a poem. Celebrate the beauty of flowers by writing a poem.

Extension ideas for further research

Research radial symmetry. Look for repeating patterns in flowers such as whorls or spirals. Find out about radial symmetry (actinomorphy) and bilateral symmetry (zygomorphy). Take a look at this website: https://www.matheasel.com/art/flower.html Photocopy flowers and fold the paper to analyse the symmetry.

Explore flowers in the ALA database. The Atlas of Living Australia is Australia's national biodiversity database. It provides free, online access to information about Australia's amazing biodiversity. Visit the database and select the schools tab. You will find links to explore Australia's iconic plant and animal species and will be able to filter the list to look at images of flowers. www.ala.org.au

How colours relate to pollination. In addition to their structural parts flowers have other features to increase their chance of being pollinated. Research how the colours of a flower attract animal and insect pollinators. There is more information on this topic throughout the Pollination Module.

QUESTIONS AND ACTIVITIES FOR REFLECTION (EVALUATE)

Students review and reflect on their learning journey by:

- Revisiting the learning intentions and original inquiry questions:

  Do all plants have flowers? If they don't have flowers, how do they reproduce?

  Do you know the parts of a flower? Can you name them? What is each part for?

  What is pollination? How does pollination occur?

  Can you tell which pollinators pollinate which plants by looking at their flowers?

  Is there a difference between pollination and fertilisation?

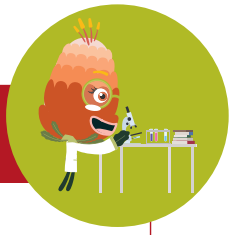
- Identifying further questions.

  What questions haven't I had answered yet?

- Identifying what they learned from others and their own research.

  What new knowledge do I have about plant parts and their functions that I didn't have before?

RESOURCE – WORD BANK



stamen	**sepal**	**ovary**	**petal**
pistil	**stigma**	**pedicel**	**style**
calyx	**anther**	**filament**	**ovule**
bud			

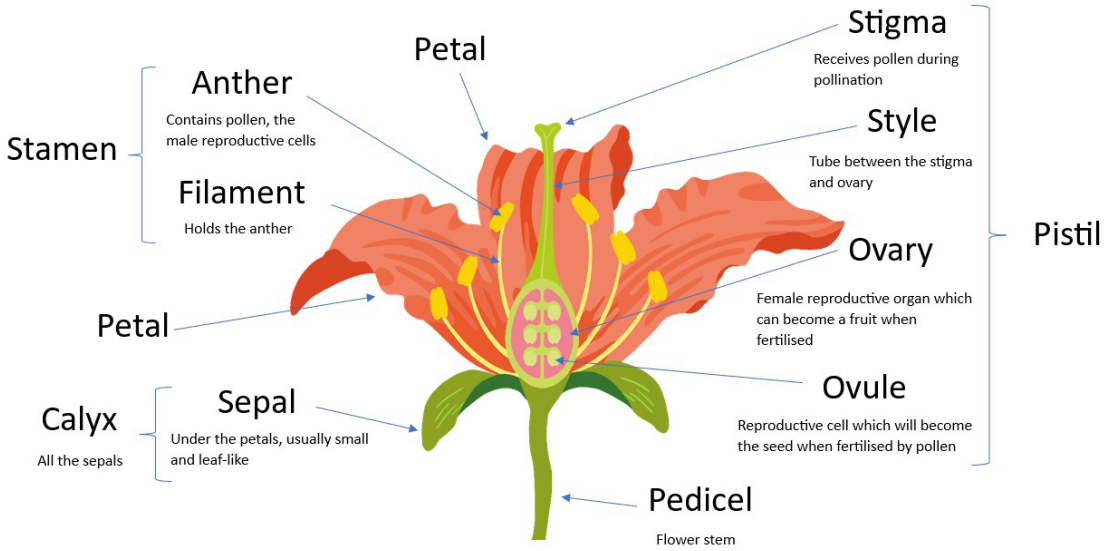
RESOURCE – FLOWER FACT SHEET

What are flowers for?

Flowers can be pretty to look at and often smell nice, but many people don't realise they play a very important role in the survival of plants.

Flowers allow flowering plants to reproduce. Like animals, reproduction in plants requires male and female cells to combine to form an embryo. Flowers rely on pollination to bring these cells together. Fertilisation happens after pollination and produces embryos contained in seeds.

Pollinators help to move pollen and include wind, water, insects and other animals. Some flowers can pollinate themselves (if they contain male and female parts together) but often plants need pollen to move to another flower or plant for pollination to happen.



Flower parts	Flower parts and functions
The **perianth** is the pollinator-attracting part of the flower	**Petals**: Brightly coloured and smelly to attract pollinators like insects and birds.
	Sepals: Look a bit like green petals and protect the flower while it is developing (as a bud).
The **stamen** is the male part of the flower	**Anther**: Produces pollen which contains the plant's male cells.
	Filament: The long, thin stalk that holds up the anther.
The **pistil** is the female part of the flower	**Stigma**: Receives pollen from pollinators. Pollen is tiny and difficult to catch so stigmas are often sticky and different shapes to help them hold onto it.
	Style: The stalk that connects the stigma and the ovary. Once pollen has been caught by the stigma it grows a pollen tube through the style. The male cells travel down the pollen tube into the ovary, allowing fertilisation to happen.
	Ovary: Houses the ovules containing the female cells. Once fertilised, the ovules grow into seeds and the ovary wall develops into a fruit that protects the seeds until they are dispersed.

RESOURCE – FLOWER PHOTOS

Anigozanthos 'Bush Bonanza'

Image: ©M.Fagg, 2014

Anigozanthos 'Bush Bonanza'

Image: ©M.Fagg, 2014

Hakea 'Burrendong Beauty'

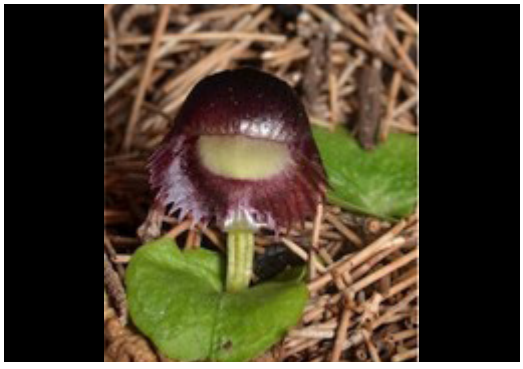
Image: ©M.Fagg, 2008

Hakea 'Burrendong Beauty'

Image: ©M.Fagg, 2008

Corybas diemenicus

Image: ©M.Fagg, 1992



Corybas dilatatus

Image: ©M.Fagg, 2014

Thysanotus dichotomus

Image: ©M.Fagg, 2019

Thysanotus baueri

Image: ©M.Fagg, 2013

Adenanthos argyreus

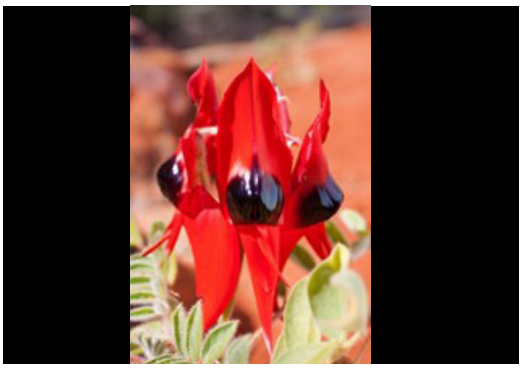
Image: ©K.R.Thiele, 2008

Adenanthos barbiger

Image: ©K.R.Thiele, 2009

Swainsona Formosa

Image: R.Hotchkiss©ANBG, 1991



Swainsona Formosa

Image: A.Tatnell©ANBG, 2013

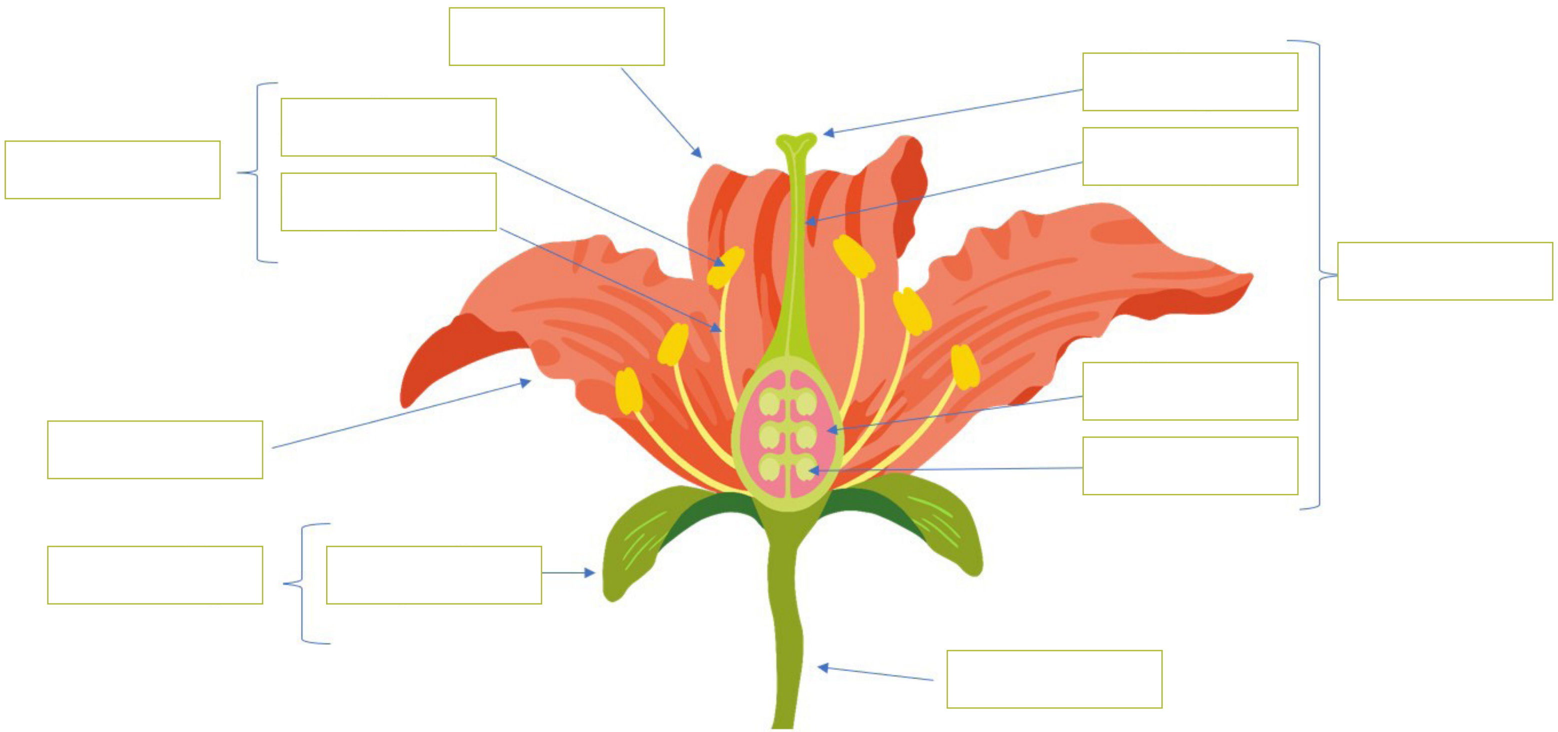
Thysanotus dichotomus

Image: ©M.Fagg, 2019

Thysanotus baueri

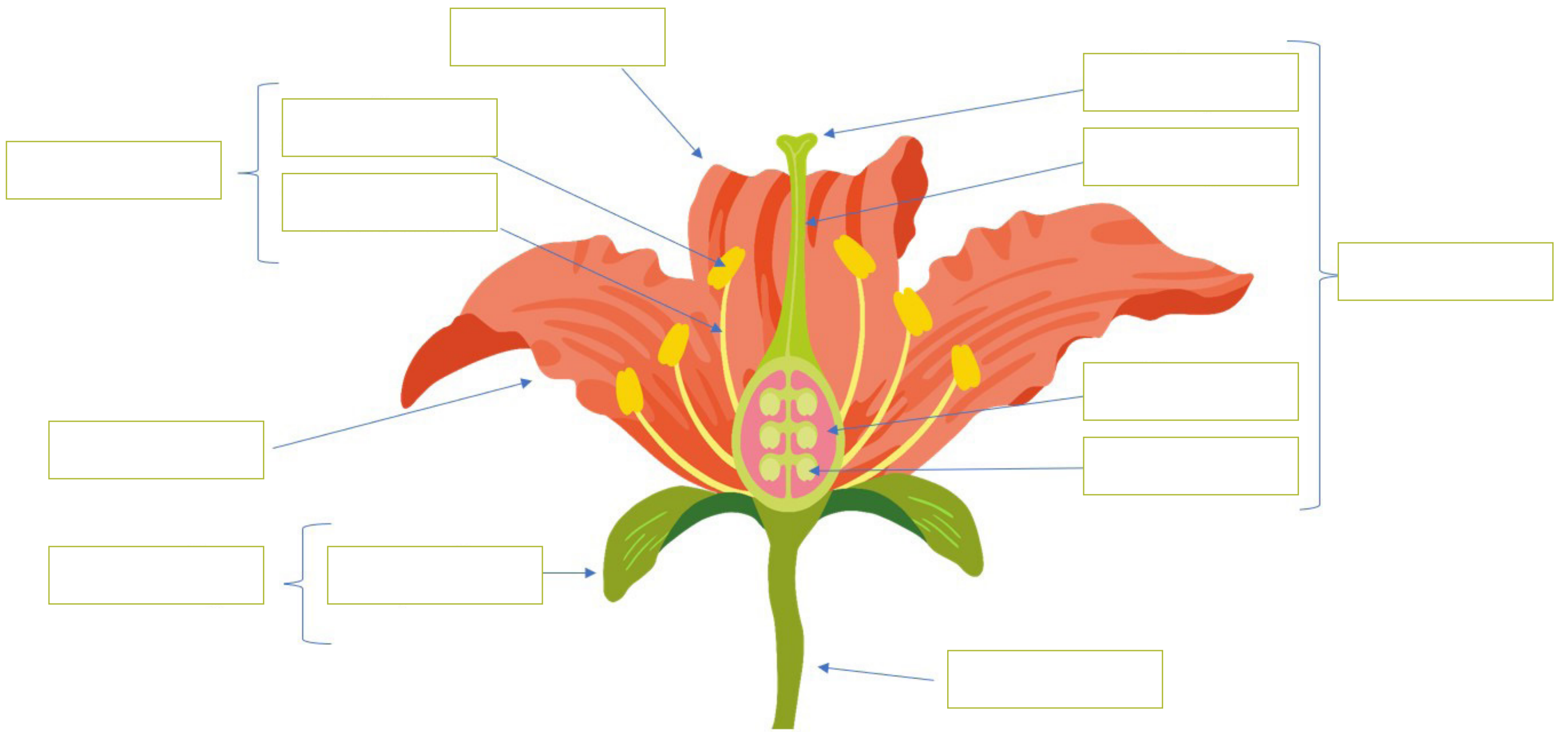
Image: ©M.Fagg, 2013

RESOURCE – FLOWER PARTS WORKSHEET 1



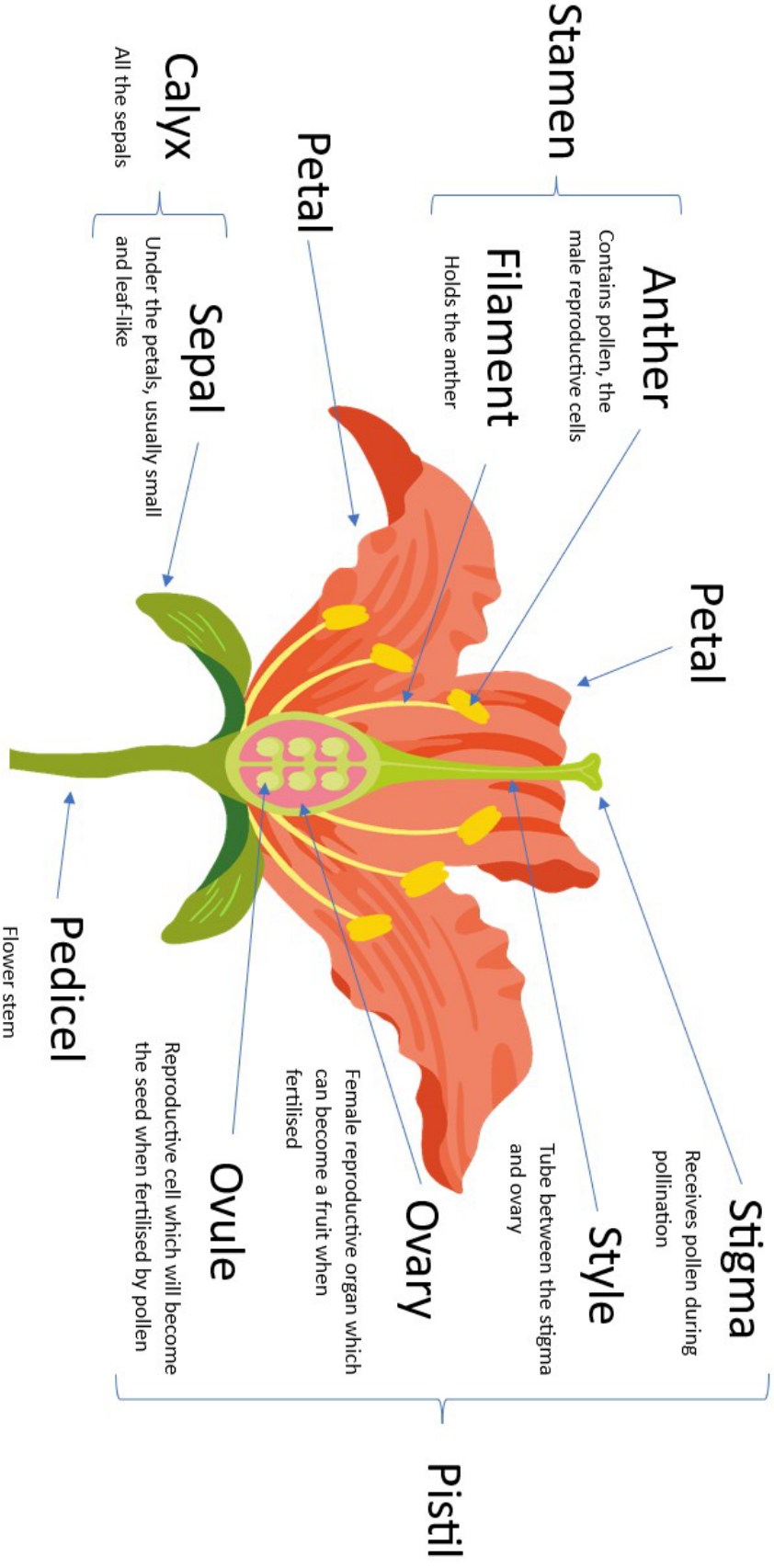
Sections	Parts		
Stamen	Sepal	Ovary	Petal (use twice)
Pistil	Stigma	Pedicel	Style
Calyx	Anther	Filament	Ovule

RESOURCE – FLOWER PARTS WORKSHEET 2



Sections	Parts		
Stamen	___________ Small, usually leaf-like under the flower	___________ Female reproductive organ	___________ Petal (use twice)
Pistil	___________ Receives the pollen during fertilisation	___________ Stem	___________ Tube on top of the ovary
Calyx	___________ Contains pollen, the male reproductive cell	___________ Holds the anther	___________ reproductive cell which will become the seed when fertilised by pollen

RESOURCE – FLOWER PARTS ANSWER KEY



RESOURCE – FLOWER PARTS QUESTIONS

1. **What are flowers for?**

2. **Why are flowers often brightly coloured and scented?**

3. **Where are sepals found and what is their job?**

4. **What is the male part of the flower called?**

5. **What is responsible for producing pollen?**

6. **What is the female part of the flower called?**

7. **Which part of the flower receives the pollen?**

8. **What is the name for the stalk of the pistil?**

9. **What are ovules and where are they found?**

10. **Where are plant embryos found?**

RESOURCE – AUSTRALIAN FLOWER PARTS

***Acacia* flowers**

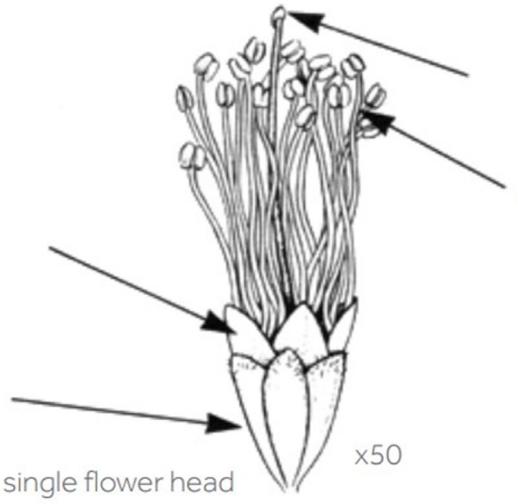


Image: ©M.Fagg, 2006

Sepal	Anther	Petal	Stigma

***Correa* flowers**

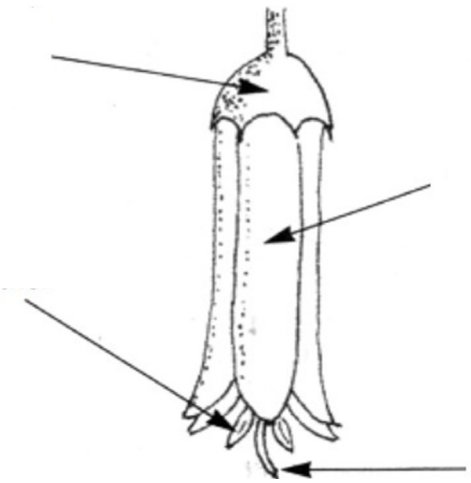


Image: ©M.Fagg, 2006

Sepal (fused)	Anther	Petal (fused)	Stigma

RESOURCE – AUSTRALIAN FLOWER PARTS

***Callistemon* flowers**

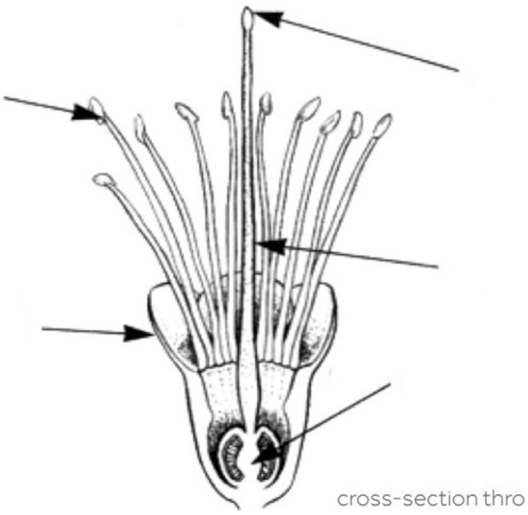


Image: ©M.Fagg, 2006

Sepal	Anther	Petal	Stigma

***Boronia* flowers**

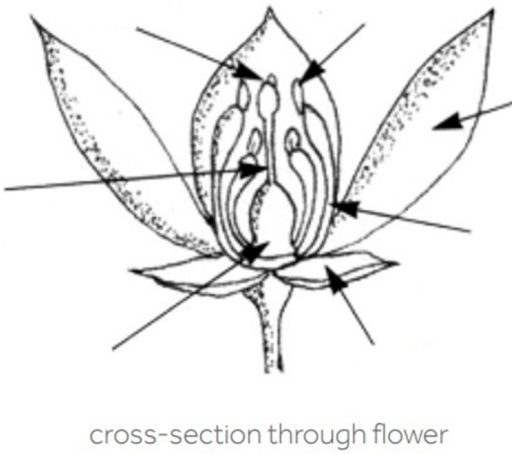
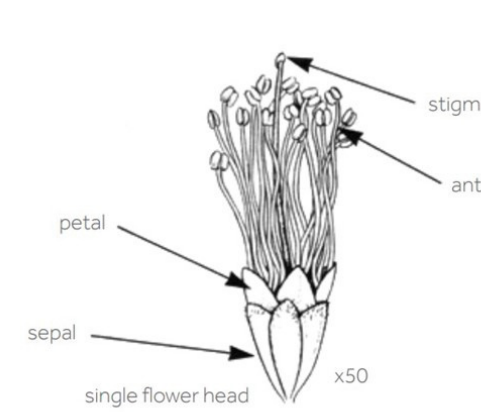
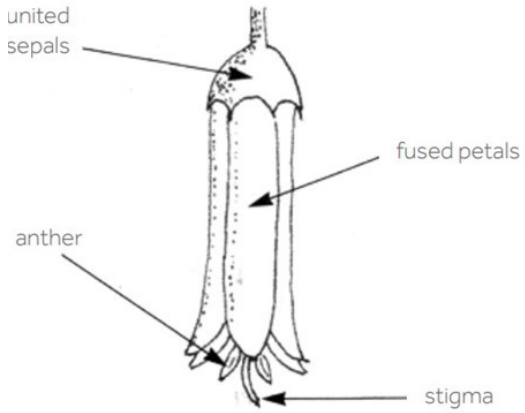


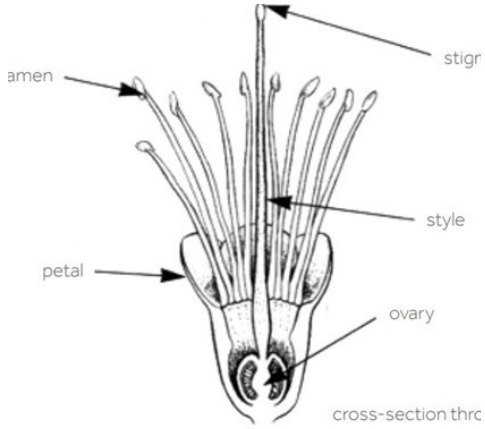
Image: ©M.Fagg, 2006

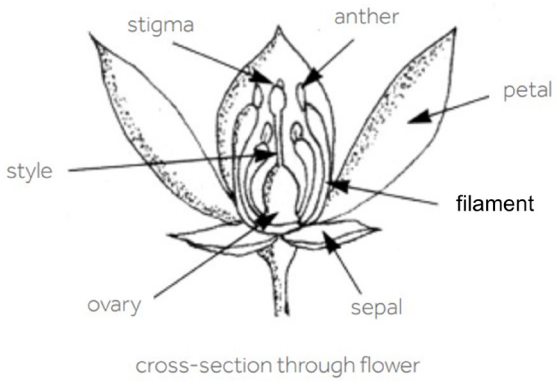
Ovary	Anther	Petal	Stigma	Style	Sepal	Filament

RESOURCE – AUSTRALIAN FLOWER PARTS ANSWER KEY









RESOURCE – DESIGN A FLOWER

Instructions:

1. Design a flower. Your flower must be designed for a specific purpose: to attract a pollinator and be fertilised through pollination.
2. Think about the parts of a flower and their function. What features will you design for each part of your flower? You know that flowers can be more than a round centre with five petals, be creative and let your imagination run wild! Create your flower using this worksheet and remember to use all the labels provided in your picture
3. Create your flower by drawing a picture, building a model, making a collage, writing a descriptive paragraph or creating a stop-motion animation of it being pollinated.
4. Give your flower a name. It needs a scientific name as well as a common name. A plant often has a common name that describes a physical feature, for example:
    - the Soft Tree Fern is softer than the Rough Tree Fern
    - a Snotty Gobble can be eaten and looks like snot
    - Bottle Brushes looks like brushes that clean bottles.

    Scientific names are often from Latin or Greek words and describe a plant's appearance, where it grows or who discovered it, for example:

    - *Epacris longiflora* has long flowers (longi-flora)
    - *Grevillea rosmarinifolia* has leaves that look like rosemary leaves (rosmarini-folia)
    - *Indigofera australis* grows in the southern hemisphere (australis means south)
    - *Eucalyptus gregsoniana* was named after the Gregsons, *Eucalyptus* enthusiasts from NSW.
5. Share your picture, model or artwork with your class OR write a report or a persuasive text about how your flower would attract pollinators and survive in its environment. Remember to reference its parts and their functions in your written, verbal or digital creation.

My flower's common name	
My Flower's scientific name	
My flower's features for pollination and survival	

My Flower

Remember to use all the labels in the word bank in your picture.

Stamen	**Sepal**	**Ovary**	**Petal**
Pistil	**Stigma**	**Pedicel**	**Style**
Calyx	**Anther**	**Filament**	**Ovule**

RESOURCE: STUDENT REFLECTIONS

Consider displaying sentence starters or questions, such as below, in the classroom. Alternatively they could be turned into laminated thought bubbles that are directly passed to students. Students could choose two or three to complete in their journal then share their responses with the class.

End of lesson reflections	
Today I discovered ...	I am most proud of ...
I want to know more about ...	I feel confident about ...
Something new I found out was ...	I am enjoying ... because ...
I am excited about ...	I am confused by ...
Something I am finding interesting is ...	Today I asked ...
The most challenging thing was ...	A question I have is ...

Guiding students to reflect on their own thinking	
I am starting to think differently about ...	This idea is useful for ...
I got stuck when ... and I got back on track by ...	Some things I didn't understand are ...
I figured out that ...	To help me understand better I will ...
I solved a problem by ...	Before I didn't know ...
I first thought ... but then I realised that ...	Now I realise/know ...

Reflecting on stewardship and taking action	
This information can make a difference by ...	Something I will now help others understand is ...
It is important to know about this because ...	I can make a difference by ...
Something I will now do as a result of my learning is ...	An action I/we can take is ...
Something I want to do next is ...	If we don't ... the consequences could be ...
	It is important to ... because ...

End of unit reflections – where I was and where I am now	
I used to think ...	**Revisit** your first journal entry. What do you understand now that you didn't back then?
Now I know ...	
This causes me to (re)think/ wonder ...	
I didn't know how to ...	**Review** your work so far. What has been the biggest discovery/learning/ challenge?
Now I can ...	
In the future I will ...	**Reconsider** your initial ideas. Have your ideas changed? If so how?

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