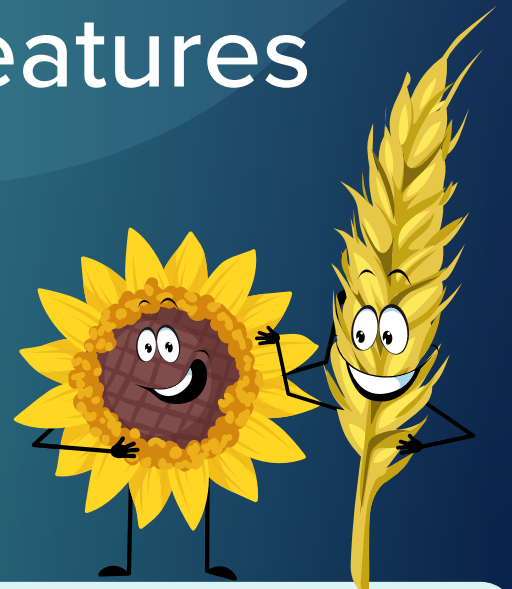




# The Needs and Features of Winter Wheat and Summer Sunflowers

## TEACHER GUIDE



FOUNDATION – YEAR 2

This resource has been developed by:















**GRDC**  
GRAINS RESEARCH  
& DEVELOPMENT  
CORPORATION

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## LEARNING AREA AND YEAR LEVEL

### Design and Technologies (Foundation – Year 2)

## AUSTRALIAN CURRICULUM CONTENT

- Explore how plants and animals are grown for food, clothing and shelter. **(AC9TDE2K03)**
- Identify the basic needs of plants and animals, including air, water, food or shelter, and describe how the places they live meet those needs. **(AC9S1U01)**
- Observe external features of plants and animals and describe ways they can be grouped based on these features. **(AC9SFU01)**

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## LESSON OBJECTIVE

Students learn about the characteristics and features of wheat and sunflower plants and their basic needs for germination, growth, and development. They will also learn about some of the different varieties of these cereal and oilseed crops that are grown in Australia, their suitability to different areas and climates, and their end uses.

## LESSON OVERVIEW

- **Activity 1.1 – The Parts of a Plant** (60–90 minutes)
- **Activity 1.2 – Winter Wheat** (35 minutes)
- **Activity 1.3 – Summer Sunflowers** (30 minutes)
- **Activity 1.4 – Crop Characters** (25 minutes)

### ATTRIBUTION, CREDIT & SHARING



Primary Industries Education Foundation Australia's resources support and facilitate effective teaching and learning about Australia's food and food industries. We are grateful for the support of our industry and member organisations for assisting in our research efforts and providing industry-specific information and imagery to benefit the development and accuracy of this educational resource.



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# Resources and Equipment

## ACTIVITY 1.1 – The Parts of a Plant

1. **Zoom In (1)** (Stimulus activity) – Sunflower seeds
2. **Zoom In (2)** (Stimulus activity) – Wheat flour
3. [Life Cycle of Sunflower Time Lapse 75 Days – Seed to Seeds](#) (2:23)
4. **Worksheet 1.1a – Germination and Growth** (Literacy activity)
5. **Worksheet 1.1b – The Wheat Plant** (Labelling activity)
6. **Worksheet 1.1c – The Sunflower Plant** (Labelling activity)
7. Range of plants/cuttings/seeds for observation (indoor or outdoor options)
8. Playdough – range of colours
9. **Worksheet 1.1d – The Needs of Sunflowers and Wheat** (Maze activity)

## ACTIVITY 1.2 – Winter Wheat

1. [Learn About Wheat With George the Farmer](#) (6:54)
2. **Worksheet 1.2a – Wheat Checklist** (Checklist activity)
3. **Worksheet 1.2b – Australian Wheat** (Literacy activity)
4. **Worksheet 1.2c – Wheat Bookmark** (Summary activity)
5. Coloured pencils, scissors (laminator optional)

## ACTIVITY 1.3 – Summer Sunflowers

1. [SERIES 30 | Episode 01](#) (5:05)
2. **Worksheet 1.3a – Questions About Sunflowers** (Question and answer activity)
3. **Worksheet 1.3b – Australian Sunflowers** (Literacy activity)
4. **Worksheet 1.3c – Sunflower Bookmark** (Summary activity)
5. Coloured pencils, scissors (laminator optional)

## ACTIVITY 1.4 – Crop Characters

1. [A Year on Our Farm](#) (5:22) or A Year on Our Farm book by Penny Matthews and Andrew McLean
2. **Worksheet 1.4a – Crop Characters** (Design activity)
3. Pencils, scissors (optional laminator), or design software

This resource has been developed by:

# Resources and Equipment (cont'd)

## OTHER RESOURCES

1. [Super Seed Kit](#)



**SUPER SEED KIT**  
TEACHER INFORMATION

HOW TO USE THE SUPER SEED KIT IN YOUR CLASSROOM

**Grains Research and Development Corporation (GRDC), Australian Grain Technologies (AGT) and Primary Industries Education Foundation Australia (PIEFA) have partnered to create the Super Seed Kit.**

This kit aims to equip you with hands-on resources and engaging classroom activities to help your students develop an understanding of Australian cropping varieties. Designed with the Science, Design and Technologies and Agricultural student in mind, the kit provides teachers with lessons, resources and information to support experiential learning about grains, oilseeds and pulses.

Curriculum linked lessons will be generated on an ongoing basis to support the **Super Seed Kit** and inspire you with new ideas. Keep up with new lessons by visiting the Primezone website.

**PRIMEZONE WEBSITE:**

 [primezone.edu.au](http://primezone.edu.au)

**GRAINS EDUCATION – PRIMEZONE WEBSITE:**

 [primezone.edu.au/grains-education/](http://primezone.edu.au/grains-education/)

**GRAINS RESEARCH AND DEVELOPMENT CORPORATION WEBSITE:**

 [grdc.com.au](http://grdc.com.au)

**AUSTRALIAN GRAIN TECHNOLOGIES WEBSITE:**

 [agtbreeding.com.au](http://agtbreeding.com.au)

2. [Growing and Changing STEM Challenge](#)
3. [How To Draw A Sunflower](#) (5:29)

This resource has been developed by:

# Lesson Guide

## > ACTIVITY 1.1 – The Parts of a Plant (60–90 minutes)

Students will explore the characteristics and functions of various plant parts, focusing on sunflowers and wheat. They will engage in an activity to label these parts of a plant and learn about the needs of seeds during germination and plants during their growth and development. To demonstrate their comprehension, students will create models of wheat and sunflower plants.

1. Select one (or both) of the **Zoom In (1)** (Stimulus activity) images and project in a central area. Allocate students into groups of four and ask them what they are looking at and why they think this. After a period of time, ask groups to share their ideas. Reveal that they are looking at sunflower seeds and wheat flour to introduce the four-lesson series.
2. Project the video [Life Cycle of Sunflower Time Lapse 75 Days – Seed to Seeds](#) (2:23) in a central area and observe the time-lapse footage.
3. After viewing, ask students to turn and talk to the person beside them and state two words to describe something that happened in the video. Allow students to share their ideas about what happened.

**Answers** 

4. Provide students with **Worksheet 1.1a – Germination and Growth** (Literacy activity), and as a class, read the information about seeds, plants, and their growth.
5. Assist students with labelling the parts of the sunflower and wheat diagram on **Worksheet 1.1b – The Wheat Plant** (Labelling activity) and **Worksheet 1.1c – The Sunflower Plant** (Labelling activity).

**Answers** 

6. Provide students with either a sample of plants/cuttings in the classroom (supplied flowers, seeds, grasses, pot plants, etc.) or the opportunity to explore a selected area of their school or vegetable garden. Allow students to observe the roots (if visible) and the stems, leaves, flowers, fruits, and seeds of different types of plants.
7. Distribute a range of playdough colours to individual students and ask them to create their own sunflower or wheat model plant. Encourage them to represent all the parts of the plant they have learned about and use different colours to represent the various parts of the plant.
8. As a fun activity to consolidate the needs of plants, distribute **Worksheet 1.1d – The Needs of Sunflowers and Wheat** (Maze activity).

**Answers** 

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## ➤ ACTIVITY 1.2 – Winter Wheat (35 minutes)

Students will observe video footage of wheat production on a farm and learn about where wheat is grown. They will read about some important varieties of wheat produced within Australia and their favourable features and create a summary bookmark to consolidate this activity.

1. As a class, view the video [Learn About Wheat With George the Farmer](#) (6:54). Provide students with **Worksheet 1.2a – Wheat Checklist** (Checklist activity) and ask students to tick the words on their checklist as they are mentioned in the video and then trace the words at the conclusion of the footage.
2. Distribute **Worksheet 1.2b – Australian Wheat** (Literacy activity) and as a class, complete the reading focused on:
  - Where wheat is produced in Australia
  - The amount of wheat that is produced in Australia
  - The value of Australian wheat
  - Australian wheat varieties

Project a labelled map of Australia (states and territories) to support students in labelling their worksheets.

3. Students select one of the types of wheat they have learned about and make a bookmark about the variety following the instructions on **Worksheet 1.2c – Wheat Bookmark** (Summary activity).

### ➤ ACTIVITY 1.3 – Summer Sunflowers (30 minutes)

Students will observe video content about sunflower production and understand where sunflowers are grown. They will also learn about some important varieties produced within Australia and their favourable features. Students will conclude the activity by creating a summary bookmark about a sunflower of their choice.

1. As a class, view the video [SERIES 30 | Episode 01](#) (5:05) and provide students with **Worksheet 1.3a – Questions About Sunflowers** (Question and answer activity) to complete during or after the video.

#### Answers

2. Distribute **Worksheet 1.3b – Australian Sunflowers** (Literacy activity) and as a class, complete the reading focused on:
  - Where sunflowers are produced in Australia
  - The amount of sunflowers produced in Australia
  - Australian sunflower varieties
3. Students select one of the types of sunflowers they have learned about and create a bookmark about the variety following the instructions on **Worksheet 1.3c – Sunflower Bookmark** (Summary activity).

### ➤ ACTIVITY 1.4 – Crop Characters (25 minutes)

Students will be introduced to the idea of seasons and life cycles on farms and understand how jobs change throughout the year. They will design two plant characters that will feature in a life cycle story in **Lesson 2 – The Life Cycles of Winter Wheat and Summer Sunflowers**.

1. Watch and listen to the reading of [A Year on Our Farm](#) (5:22) or read the story A Year on Our Farm by Penny Matthews and Andrew McLean. Students listen for any jobs the people in the story perform during the different seasons.
2. At the story's conclusion, ask students to think about/recall some jobs that might occur on a wheat and sunflower farm. Encourage them to consider why the jobs must be performed and in which season they occur. For example, preparing the soil for sowing, planting the seeds, checking the plants, testing the soil, and harvesting the plants.

#### Answers

3. Distribute **Worksheet 1.4a – Crop Characters** (Design activity) and explain to students that they will write or listen to a story about the life cycle of sunflowers and wheat in the next lesson (Lesson 2). They need to create two characters for the story in the spaces provided on the worksheets that can be the stars of the story!

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# Answers

## ▶ ACTIVITY 1.1 – The Parts of a Plant

### 3. Suggested words:

Soil, water, days, seedling, roots, shoots, hairs, green leaves, more leaves, wiggling leaves, bigger, growth, stem, some leaves died, tall, spreading, flower, spiky, yellow, opening, black seeds, petals, day 75, dying flowers, seeds.

### WORKSHEET 1.1b – The Wheat Plant

1. Flower/seed
2. Flower/seed
3. Leaf
4. Soil
5. Stem
6. Roots

### WORKSHEET 1.1c – The Sunflower Plant

1. Flower
2. Seed
3. Stem
4. Soil
5. Leaf
6. Roots

### WORKSHEET 1.1d – The Needs of Sunflowers and Wheat

See diagram to the right.



## ▶ ACTIVITY 1.3 – Summer Sunflowers

### WORKSHEET 1.3a – Questions About Sunflowers

1. A
2. D
3. C
4. C

# Answers (cont'd)

## > ACTIVITY 1.4 – Crop Characters

### 2. Wheat

#### *Preparing the soil*

**Season:** Late summer to early autumn.

This prepares the soil by making it soft and adding air spaces, ensuring the wheat seeds have the best start.

#### *Planting the seeds*

**Season:** Late autumn.

This is the best time to plant wheat seeds so they can grow during the cooler months.

#### *Checking the plants*

**Season:** Throughout winter and spring.

Regular checking ensures the plants are healthy and growing well.

#### *Testing the soil*

**Season:** Throughout winter and spring.

To make sure the soil has enough nutrients and the right moisture levels for wheat.

#### *Harvesting the plants*

**Season:** Late spring to early summer.

This is when the wheat is fully grown and ready to be harvested for making products such as pasta and bread.

### Sunflowers

#### *Preparing the soil*

**Season:** Late winter to early spring.

Preparing the soil at this time ensures it's ready for planting the sunflower seeds, providing a nutrient-rich environment for them to grow.

#### *Planting the seeds*

**Season:** Mid to late spring.

Sunflowers grow best in warmer temperatures when planted after the last frost.

#### *Checking the plants*

**Season:** Throughout spring and summer.

This helps ensure the sunflowers are growing well and not affected by pests or diseases.

#### *Testing the soil*

**Season:** Throughout spring and summer.

To maintain the right conditions for sunflowers to grow.

#### *Harvesting the plants*

**Season:** Late summer to early autumn.

Sunflowers are ready for harvest when their heads are droopy and the seeds are ripe.

This resource has been developed by:

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This resource has been developed by:

# Zoom In (1) What are you looking at?



This resource has been developed by:

# Zoom In (2) What are you looking at?

This resource has been developed by:

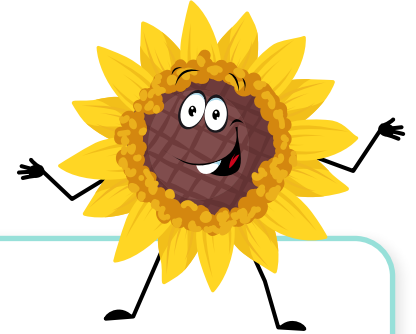


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# Germination and Growth

Read the information about what seeds and plants need to grow.



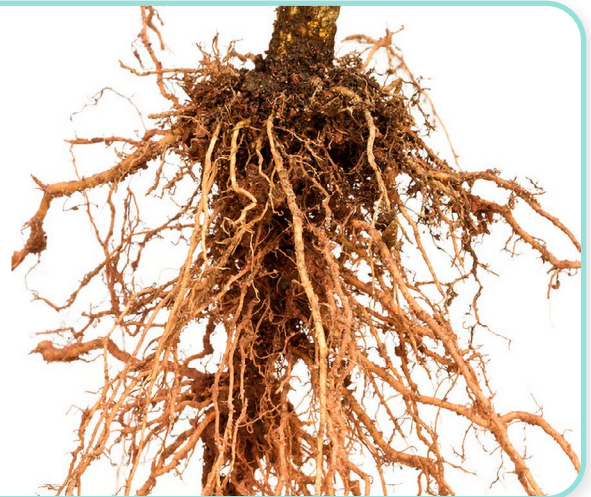
A **seed** is the part of a plant that contains the material that helps a plant to **germinate** and grow into a new plant. Seeds often have a hard cover to protect the important material inside. Seeds need water, oxygen, and warmth to germinate.



After a seed has germinated, the growing plant uses light, water, and carbon dioxide (from the air) to make energy. This process is called **photosynthesis** (*foh-toh-sin-thuh-sis*).



**Roots** are like the plant's anchor. They are the part of the plant that grows underground, helping it stay in place. The roots absorb (take in) water and nutrients from the soil.



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## Germination and Growth (cont'd)

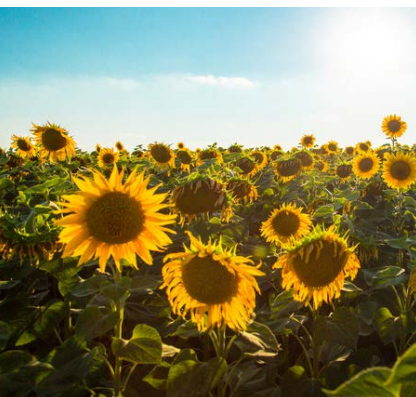
**Stems** are the part of the plant that grow above the ground, connecting the roots to the leaves and flowers. They transport water, nutrients, and energy around the plant. Stems give the plant its structure and hold up the leaves so they can reach the sunlight.



**Leaves** are mostly flat and green and grow on the stem. They use sunlight, carbon dioxide, and water to make energy for the plant through photosynthesis. Leaves release (let out) oxygen.



Some plants are planted by farmers when it is warm (spring and summer) such as sunflowers, and others are more suited to being planted when it is colder (autumn and winter) like wheat.



This resource has been developed by:

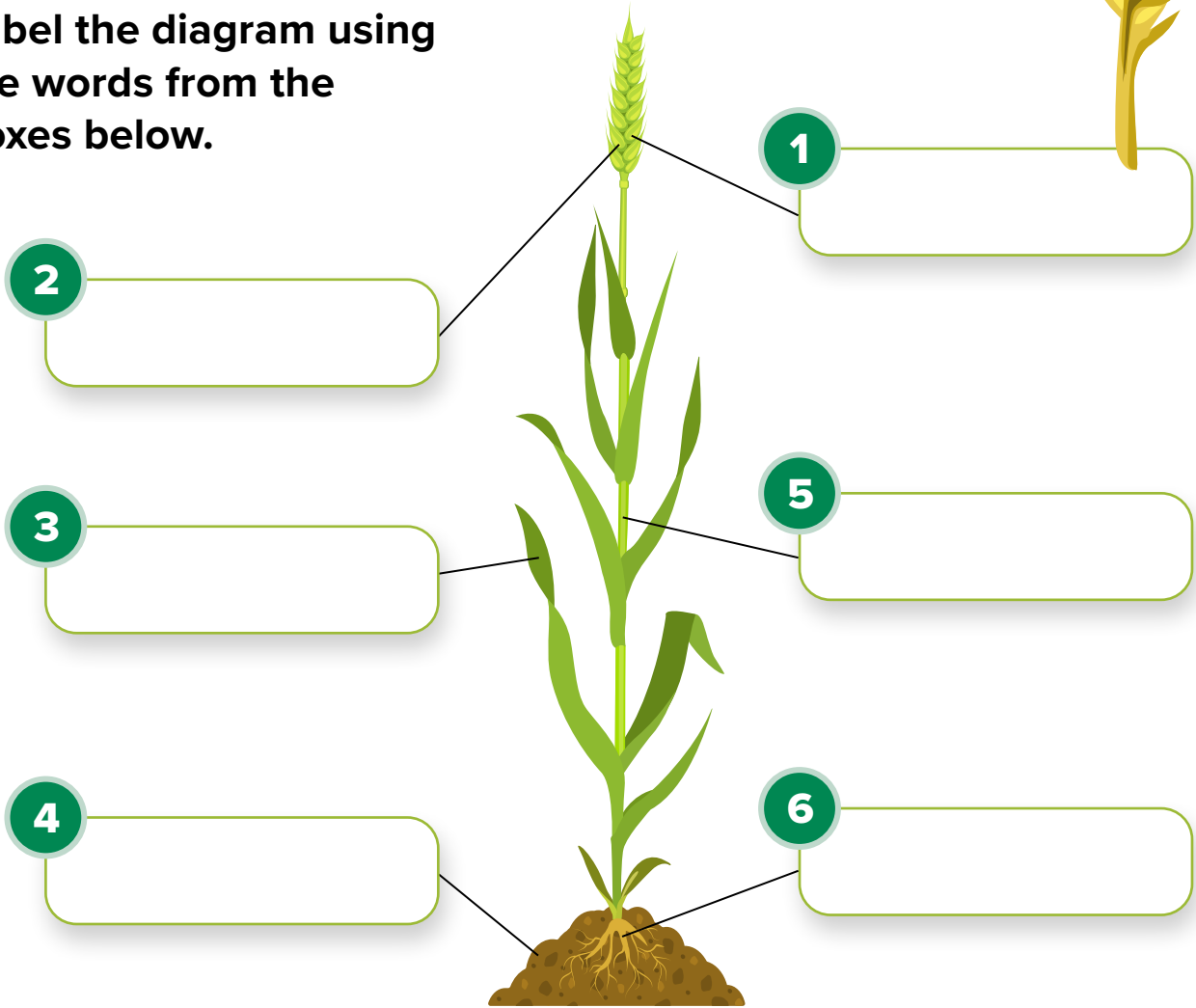
# The Wheat Plant

Wheat is a cereal grain plant grown in many places in Australia. It is mainly grown for humans to eat. It is used to produce flour, to turn it into bread, pasta, pastries, and cereals. Wheat is also fed to livestock animals. Australia grows enough wheat to sell to other countries.

Guess how many seeds one wheat plant produces? Find the hidden answer below.



Label the diagram using the words from the boxes below.



Flower	Roots	Soil
Leaf	Seed	Stem

Answer: 20-100 wheat seeds

This resource has been developed by:

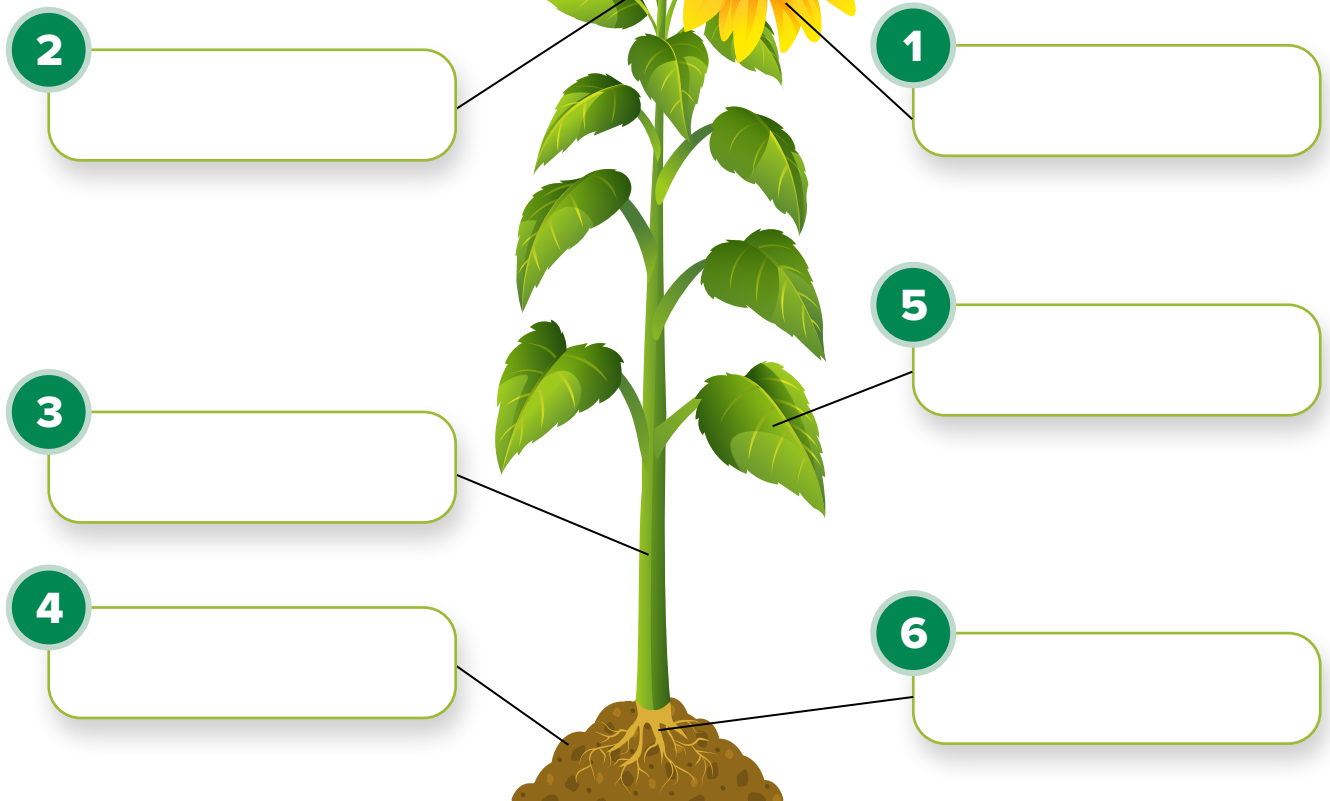
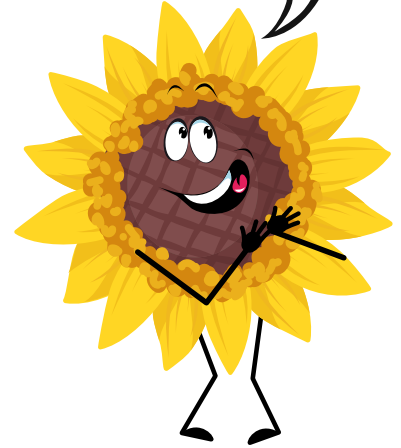


# The Sunflower Plant

Sunflowers are grown in many places in Australia. Their seeds contain oil which is used for cooking and energy production. Livestock animals can eat the leftover material after the oil has been removed from the seed. Sunflowers are also sold as flowers.

Label the diagram using the words from the boxes below.

Guess how many seeds one sunflower plant produces? Find the hidden answer below.



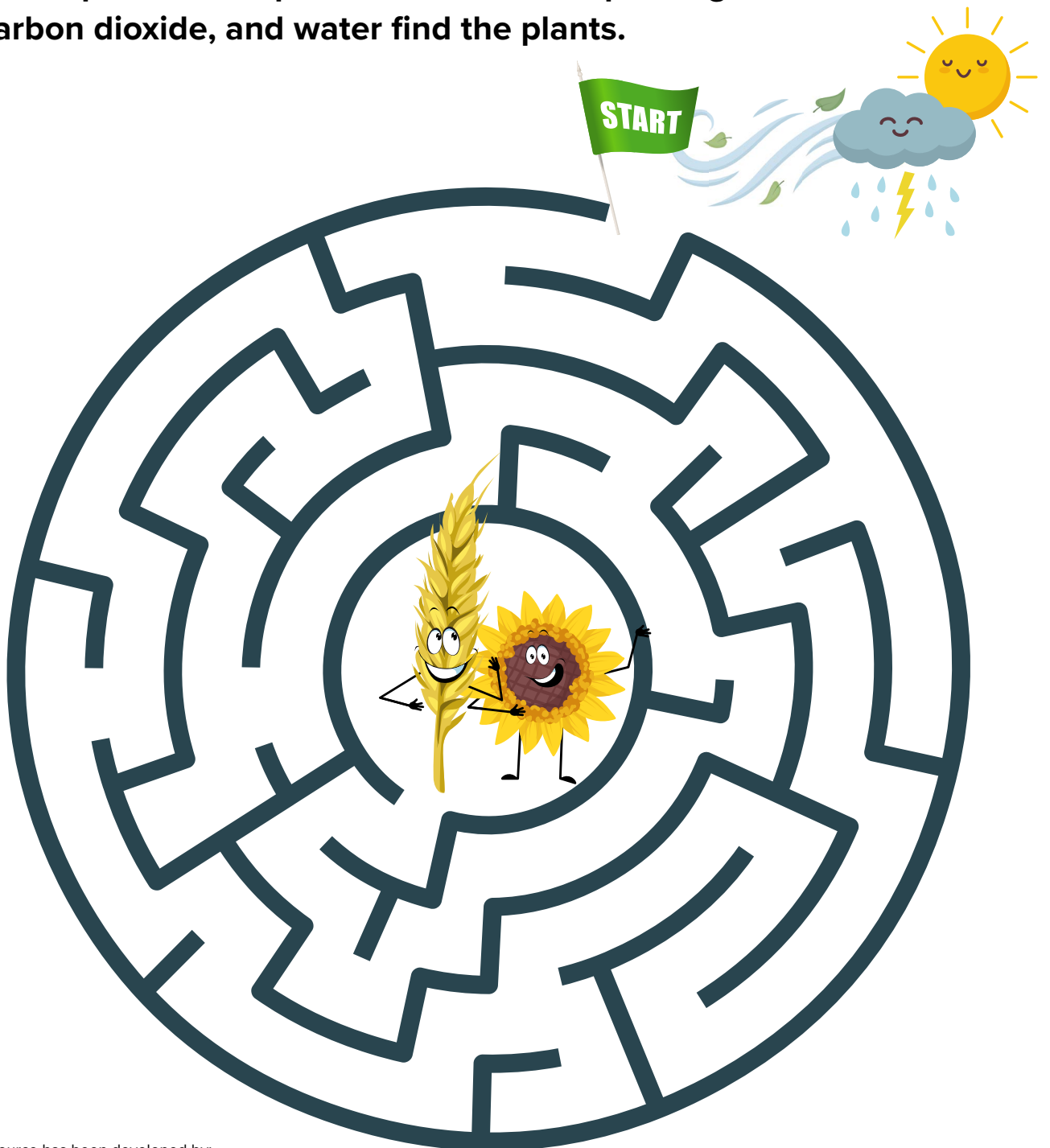
Flower	Roots	Soil
Leaf	Seed	Stem

Answer: 500-1500 sunflower seeds

This resource has been developed by:

# The Needs of Sunflowers and Wheat

Can you help the needs of plants find the sunflower and wheat plants? Complete the maze to help sunlight, carbon dioxide, and water find the plants.



This resource has been developed by:

# Wheat Checklist

Watch the video and tick the checkboxes (✓) as you hear the important words. At the end of the wheat video, trace over the letters in the words.

▶ Learn about wheat with George the Farmer (6:54) <https://www.youtube.com/watch?v=CWVrNNy6kRs>

wheat

grain

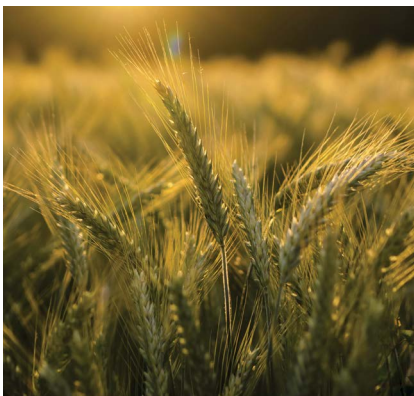
Trojan

silos

harvest

flour

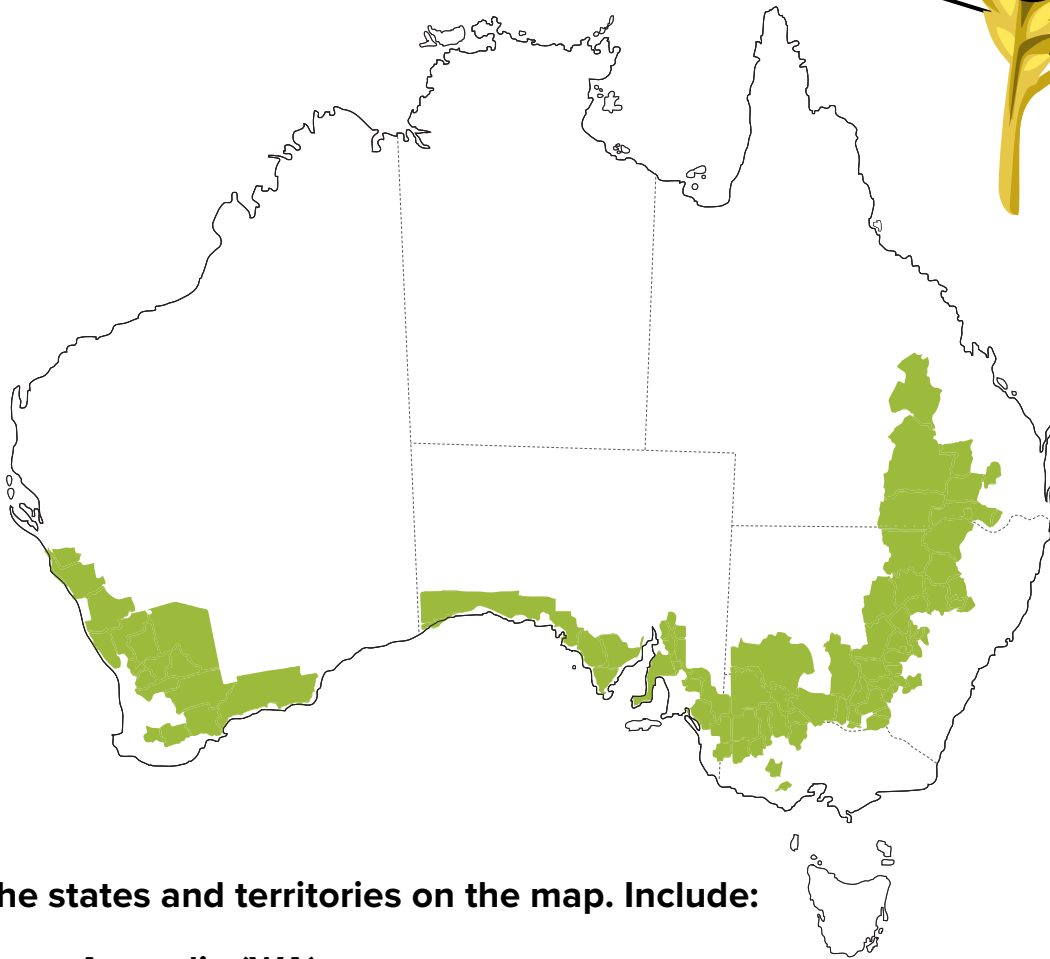
sunshine and water



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# Australian Wheat

Wheat is a very important crop in Australia. Look at the map to see where wheat is grown. Wheat grows well in these areas due to the amount of rainfall and the climate.



Label the states and territories on the map. Include:

- Western Australia (WA)
- South Australia (SA)
- Northern Territory (NT)
- Queensland (QLD)
- New South Wales (NSW)
- Australian Capital Territory (ACT)
- Victoria (VIC)
- Tasmania (TAS)

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# Australian Wheat (cont'd)

Australia grows a lot of wheat, about 25 million tonnes each year!  
That's as heavy as about 16.7 million cars!

Between 2022 and 2023, Australian wheat production reached the value of a whopping \$15 billion! That's a lot of money, and it shows just how important wheat is to Australia.

There are many different types of wheat, and farmers choose the best kind for their area's weather, whether it's sunny, rainy, or something in between.



Image credit: Ben White



This resource has been developed by:

# Australian Wheat (cont'd)

There are many different types of wheat. Some of these include:



**Durum Wheat** is a special kind of wheat used to make pasta. It's very strong and grows best in areas with warm weather. When you eat spaghetti or macaroni, it's probably made from durum wheat.



**Suntop Wheat** can grow in different soils and climates. It's especially good in hot, dry places and is used to make tasty biscuits and cakes.

Image credit: Dr Jack Christopher



**Firefly Wheat** is a new type of wheat that is really good at growing in different conditions. It is good at resisting diseases and is used for making bread and noodles. Firefly wheat helps farmers because it's reliable and produces a good amount of wheat.

Image credit: Intergrain



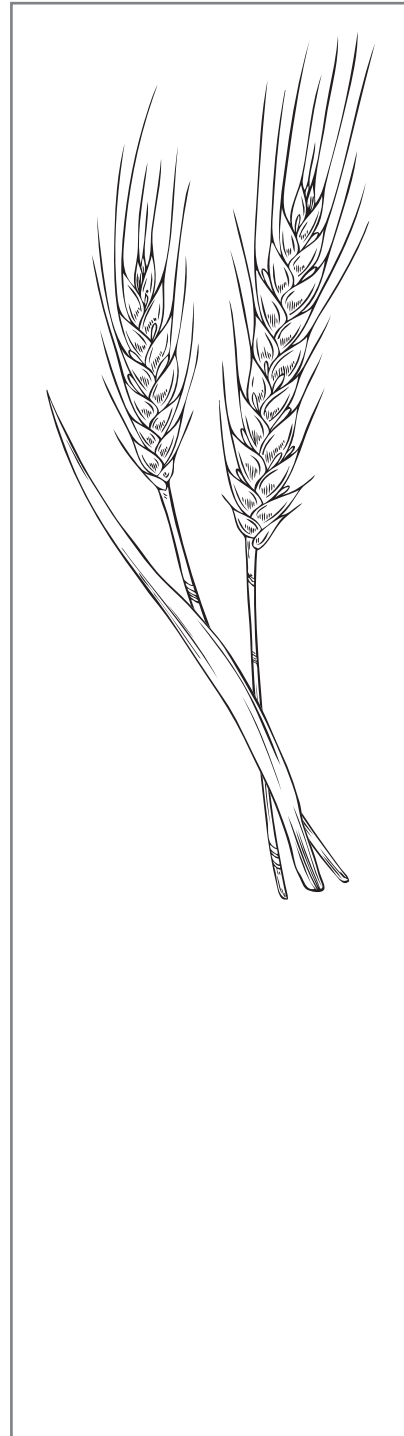
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# Wheat Bookmark

Select one of the types of wheat you have learned about and make a bookmark about the variety.

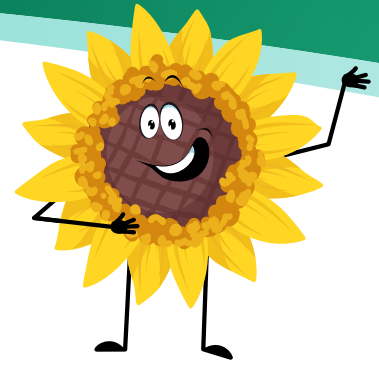
## Instructions

- 1** Record the name of the type of wheat under the picture.
- 2** Write two important words about the type of wheat under the name in the blank space.
- 3** Colour in the picture.
- 4** Cut around the outside of the bookmark.



This resource has been developed by:

# Questions about Sunflowers



Watch the video about sunflowers and circle the correct answers.

▶ SERIES 30 | Episode 01 (5:05) <https://www.abc.net.au/gardening/how-to/let-the-sunshine-in/10766070>

**1** Where was the sunflower grower that Millie visited located?

- a) West of Melbourne
- b) East of Melbourne
- c) North of Melbourne
- d) South of Melbourne

**3** What do sunflowers do when they are growing?

- a) They move to stay in the shade
- b) They dance when it rains
- c) They move their heads to follow the sun
- d) They change colours every day

**2** How tall did the tallest sunflower ever grow to?

- a) 5.17 metres
- b) 6.17 metres
- c) 7.17 metres
- d) 9.17 metres

**4** What do sunflowers need to grow well?

- a) Plenty of pollination
- b) Lots of shade
- c) Plenty of sun
- d) Cold temperatures

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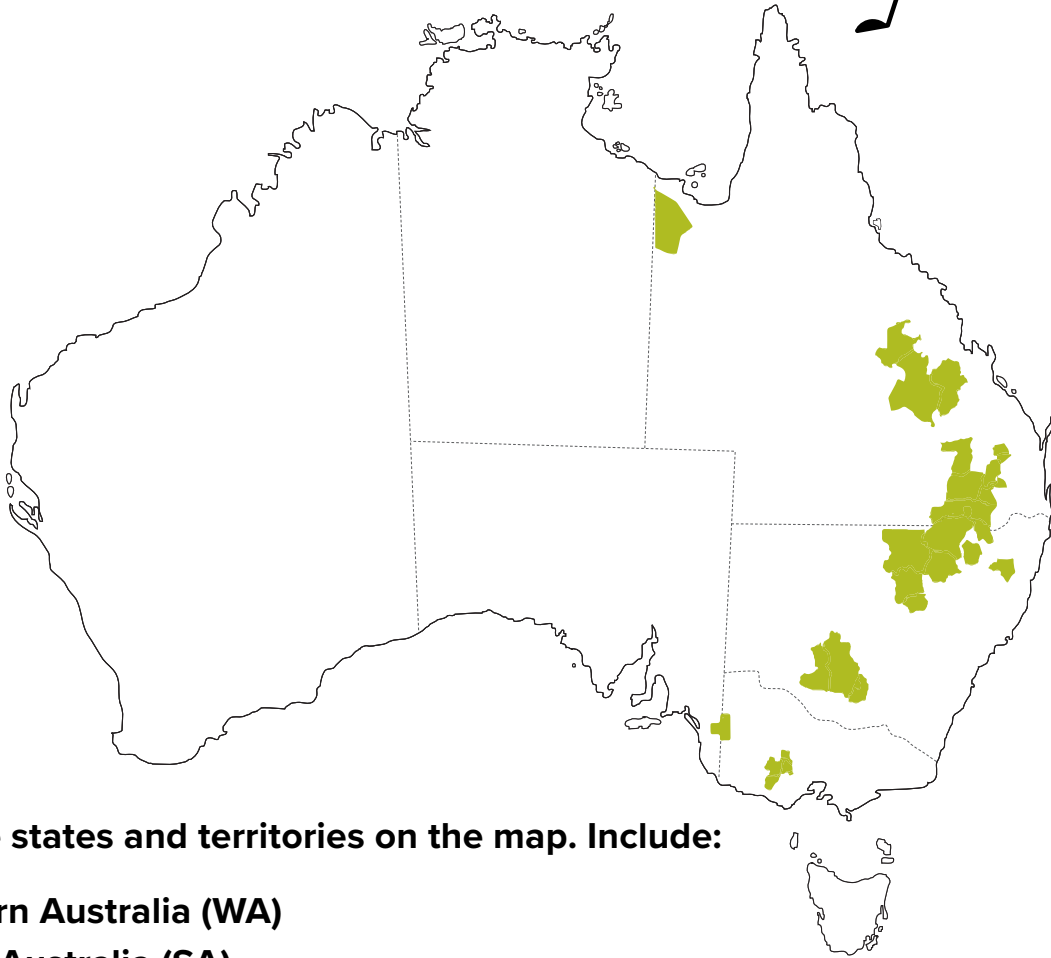
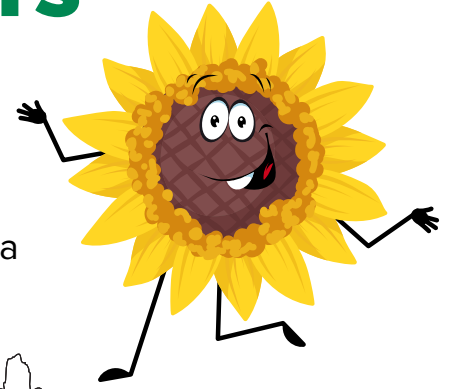


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# Australian Sunflowers

Look at the map to see where sunflowers are grown in Australia. The main areas are shaded green. These areas are perfect for sunflowers because of their warm summer climate. Sunflowers are grown in Australia to produce oil for foods like bottled oil and margarine.



**Label the states and territories on the map. Include:**

- **Western Australia (WA)**
- **South Australia (SA)**
- **Northern Territory (NT)**
- **Queensland (QLD)**
- **New South Wales (NSW)**
- **Australian Capital Territory (ACT)**
- **Victoria (VIC)**
- **Tasmania (TAS)**

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## Australian Sunflowers (cont'd)

Lots of different types of sunflowers are grown in Australia. These include the Oilseed Sunflower, which is grown for oil and eating; the Russian Sunflower, known for its large yellow blooms; the Giant Sunflower, which can grow very tall; and the Teddy Bear Sunflower, with fluffy yellow flowers.

In Australia, about 40,000 tonnes of sunflower seeds are grown each year. This is about as heavy as 28,571 average-sized cars. That's a lot of sunflower seeds!



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## Australian Sunflowers (cont'd)

There are many different types of sunflowers. Some of these include:

**Oilseed Sunflowers** are grown for their seeds. The seeds are smaller than those of the big, decorative sunflowers, but they are full of oil. The seeds are also tasty to eat. These sunflowers are important for farmers because they can sell the seeds for food or to make oil.



**Russian Sunflowers** are a popular type of sunflower in Australia. They have huge, bright yellow flowers that can be as wide as 30cm – about as big as a large pizza! These sunflowers are tall and beautiful.



**Giant Sunflowers**, just like their name suggests, are giants! They can grow up to 3 or 4 metres tall – taller than most people! Their flower heads can be huge, up to 60cm across.



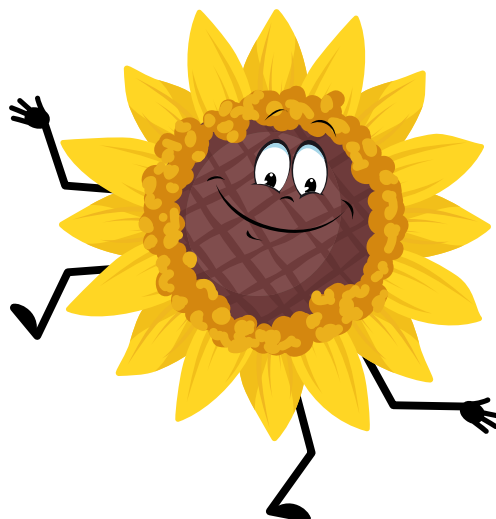
This resource has been developed by:

# Sunflower Bookmark

Select one of the types of sunflowers you have learned about and make a bookmark about the variety.

## Instructions

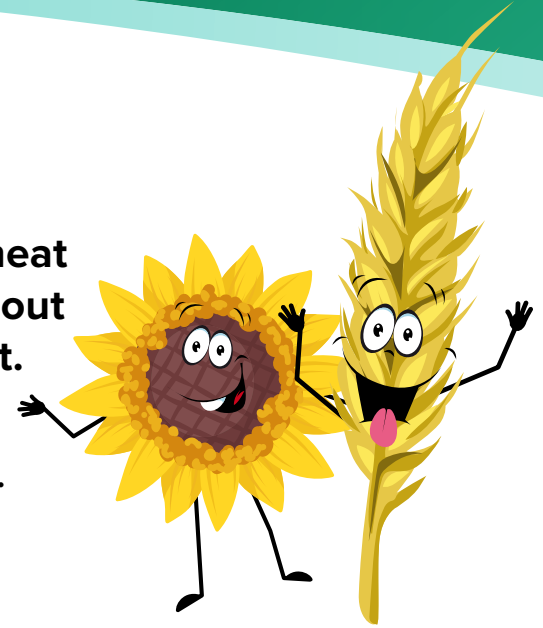
- 1 Record the name of the type of sunflower under the picture.
- 2 Write two important words about the type of sunflower under the name in the blank space.
- 3 Colour in the picture.
- 4 Cut around the outside of the bookmark.



This resource has been developed by:

# Crop Characters

Create one sunflower character and one wheat character that can be the stars of a story about the life cycle of a sunflower and wheat plant.




- 1 Make up a name for each of your characters.
- 2 Draw or design an image of your sunflower and wheat characters.

Name of sunflower character:

Name of wheat character:

Image of sunflower character:

Image of wheat character:



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