

# Teacher Notes

## Themes

- Pollination
- Animal interdependence
- Gardens and gardening

## Key learning outcomes

- Pollination is key to plant and animal reproduction
- Different animals and insects have a role in the process of pollination
- Home or community gardens play an important role in pollination

## Key curriculum areas

- **Science:** Science Understanding (Biological sciences)
- **English:** Language; Literacy
- **Cross-curriculum Priority:** Sustainability

## Publication details

*Pollination: How Does My Garden Grow?*

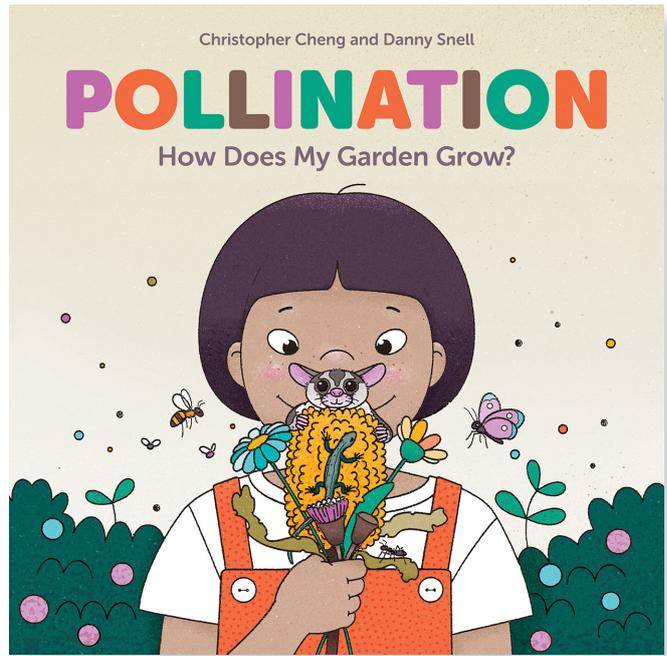
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## Pollination

*How Does My Garden Grow?*

Christopher Cheng and Danny Snell

### About the book

A child's day in the garden with their Gran and Pa leads to a wonderful exploration of pollination.

Join them in discovering how pollination happens in our gardens and backyards, and the importance it has for our environment. Meet the animals involved in pollination and the plants that depend on pollination to produce our fruit, vegetables and even our clothes!

### Recommended for

Readers aged 5 to 9 (Years 1 to 4)



PUBLISHING

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## About the author and illustrator

**Christopher Cheng** adores writing, especially picture books. He has been shortlisted for the CBCA and NSW Premier's Literary awards and won the Wilderness Society's Environment Award for Children's Literature. He is Co-Chair of the Society of Children's Book Writers and Illustrators Advisory Council. See <https://www.chrischeng.com/>.

**Danny Snell** has been working as an illustrator for over 20 years. His picture books have won awards including the CBCA Eve Pownall Award, the Wilderness Society's Environment Award for Children's Literature and more.

## Pre-reading questions or activities

Ask the class to draw their front, back or balcony garden. If they do not have a garden at home draw one they might have visited recently (e.g. grandparents/friends/school garden/community park).

Add as many features as possible including non-flowering plants, flowering plants, trees, lawn, play equipment, sheds or other items that are in their gardens. Did anyone include insects and other animals?

In small groups talk about what is the same or different about each of the gardens and visually record the results as a whole class in a simple table, for example:

Garden features	Tally
Non-flowering plants	III
Trees	II
Flowering plants	IIII
Paths	II
Clothesline	IIII IIII

Brainstorm the living and non-living features of the gardens and highlight them on the table.

## Discussion questions

### Science

If possible have some flowers/flowering plants on display for students to observe throughout the unit of work.

1. Draw or display a large bee on the board/screen. With the students' help label any body parts they are familiar with. Then as a whole class create a concept map around the bee with any important facts they already know.
2. From the story what do you think pollination is? Brainstorm and visually record the students' understanding.

*It is the process of transferring pollen between plants. Pollen is a fine powdery substance produced by the stamen (male part of a plant) that is found in the flower. The seeds germinate when the pollen is transferred to the pistil (the female part of a plant). Use the diagram of the parts of a flower on page 32 of the book to assist with learning.*

3. Can you draw and name two other animals from the story that can pollinate plants besides the bees? How were they able to spread the pollen?

*Ants, moths, butterflies, blossom bat, sugar glider, possums, garden skink.*

*They used their mouth, feet and bodies to spread pollen.*

4. Were there any plants in the story that could self-pollinate? How did it happen? Can you find some more from other sources?

*Strawberries and olives that can be pollinated by pollen floating on the wind.*

5. What attracts bees and other pollinators to a particular plant?

*Different pollinators are attracted to different colours and smells.*

*Teachers could expand on this and explore how bees can see colours that humans can't, for example ultraviolet! Refer to the following website for more information: <https://schoolofbees.com/can-bees-see-in-color/>.*

# Teacher Notes

## English

1. Use descriptive words to describe Gran and Pa's garden environment in the book. What types of plants (including flowers) and animals were part of the garden? Younger students may prefer to draw their interpretation of the garden.

*Examples: healthy vegetable garden beds, tall trees, brightly coloured flowering plants, scratching chickens, busy bees, wild blossom bats, mischievous sugar gliders, hungry ants.*

2. Pretend you are an adventurous bee. Write about your journey from leaving your hive in the morning to drink nectar and collect pollen before returning to your hive in the evening.

## Sustainability

1. If pollinators disappeared, what might happen?

*Without pollination food crops would not be able to produce their seeds, nuts, fruits, vegetables or grains. There would be no seeds for new crops.*

2. What can you find out about Australian native bees? What are the similarities and differences between Australian native bee species? Identify the species of native bees in your state or district. What differences are there between the introduced European honeybee and Australian native bees? Set your information out in a table.

# Activities

## Science

1. Visit your school garden or local park. Make a list of the different types of plants and animals (including insects) you observe. Create a collage of what you saw using recycled materials such as scraps of paper, fabric, leaf litter.
2. Research the insects mentioned in the story: bee, ant, moth and butterfly. Find out their main characteristics, draw their life cycle and present your information along with a detailed labelled diagram of each one.
3. Find out about Australian Pollinator Week at: <https://www.australianpollinatorweek.org.au/>. It's celebrated each November. What activities could you and your class be involved in?

# Teacher Notes

## English

1. Create your own interpretation of the story by making a garden diorama containing trees, vegetables, flowers, Gran, Pa and the child from the book. Don't forget to add some pollinators.
2. Find out the meanings of the words from the Glossary in the back of the book. Display your answers creatively using both words and pictures:
  - Blossom
  - Fertilisation
  - Fruit
  - Nectar
  - Nocturnal
  - Pesticide
  - Pollen
  - Pollinator
  - Seed
  - Self-pollinator
3. Using the word search worksheet on the following page, find and circle all the pollination-related words.

## Sustainability

1. With your teacher and class, find out about making a bee hotel to place in your school grounds. Visit the Eco Explorers website for some great ideas: <https://www.ecoexplorers.com.au/how-to-build-a-native-bee-hotel-with-kids/>.

# Teacher Notes

## Worksheet

### Pollination Word Search

f	g	p	o	l	l	i	n	a	t	o	r	s	p	o
a	l	k	l	g	h	d	o	s	m	u	s	s	o	p
b	h	o	r	q	w	b	e	e	s	f	v	g	l	b
a	i	a	w	b	h	w	o	y	p	a	m	n	l	v
c	n	e	e	e	d	y	s	j	n	l	m	b	e	e
p	j	t	q	e	r	w	u	f	o	y	l	j	n	g
l	k	e	s	h	v	s	g	d	i	y	u	i	w	e
a	z	q	t	i	b	u	a	w	t	g	r	e	q	t
n	x	f	y	v	d	i	r	g	a	r	d	e	n	a
t	o	g	m	e	s	g	g	v	n	x	r	b	n	b
s	e	e	l	r	u	i	l	m	i	w	g	t	j	l
d	n	e	c	t	a	r	i	w	l	b	s	w	k	e
e	p	d	f	u	i	o	d	s	l	r	g	t	g	s
m	o	t	h	s	s	e	e	c	o	e	t	h	a	w
f	r	d	e	t	f	s	r	x	p	d	x	z	b	b

flowers  
plants  
moths  
pollinators  
vegetables  
sugar glider  
pollination  
beehive

pollen  
possums  
bees  
ants  
bats  
nectar  
garden

# Teacher Notes

## Australian Curriculum Links (Version 8.4)

Year level	Learning area: Science	Other learning areas
Year 1	<b>Science Understanding: Biological sciences</b> <ul style="list-style-type: none"><li>Living things have basic needs, including food and water (<a href="#">ACSSU002</a>)</li></ul>	<b>English: Language</b> <ul style="list-style-type: none"><li>Explore differences in words that represent people, places and things (nouns, including pronouns), happenings and states (verbs), qualities (adjectives) and details such as when, where and how (adverbs) (<a href="#">ACELA1452</a>)</li></ul>
Year 2	<b>Science Understanding: Biological sciences</b> <ul style="list-style-type: none"><li>Living things grow, change and have offspring similar to themselves (<a href="#">ACSSU030</a>)</li></ul>	<b>English: Language</b> <ul style="list-style-type: none"><li>Understand the use of vocabulary about familiar and new topics and experiment with and begin to make conscious choices of vocabulary to suit audience and purpose (<a href="#">ACELA1470</a>)</li></ul>
Year 3	<b>Science Understanding: Biological sciences</b> <ul style="list-style-type: none"><li>Living things can be grouped on the basis of observable features and can be distinguished from non-living things (<a href="#">ACSSU044</a>)</li></ul>	<b>English: Literacy</b> <ul style="list-style-type: none"><li>Use comprehension strategies to build literal and inferred meaning and begin to evaluate texts by drawing on a growing knowledge of context, text structures and language features (<a href="#">ACELY1680</a>)</li></ul>
Year 4	<b>Science Understanding: Biological sciences</b> <ul style="list-style-type: none"><li>Living things depend on each other and the environment to survive (<a href="#">ACSSU073</a>)</li></ul>	<b>English: Language</b> <ul style="list-style-type: none"><li>Explore the effect of choices when framing an image, placement of elements in the image, and salience on composition of still and moving images in a range of types of texts (<a href="#">ACELA1496</a>)</li></ul>
All	<b>Cross-curriculum Priority: Sustainability</b> <ul style="list-style-type: none"><li>Ol.2: All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival</li></ul>	

## Related books from CSIRO Publishing

For younger readers:

- *Bee Detectives* (<https://www.publish.csiro.au/book/7962>)
- *Plantastic! A to Z of Australian Plants* (<https://www.publish.csiro.au/book/7956>)
- *The Butterfly and the Ants* (<https://www.publish.csiro.au/book/7965>)
- *Wonderful Wasps* (<https://www.publish.csiro.au/book/8057>)

For adults:

- *A Guide to Native Bees of Australia* (<https://www.publish.csiro.au/book/7388>)
- *Bees of Australia: A Photographic Exploration* (<https://www.publish.csiro.au/book/7786>)

## Other CSIRO resources

CSIRO has developed and delivered a broad range of high-quality STEM education programs and initiatives for nearly 40 years. Our programs aim to inspire the pursuit of further STEM education among students and the community, to equip the emerging workforce with tomorrow's skill sets, and to strengthen collaboration between industry and classrooms across Australia. For more information visit: <https://www.csiro.au/en/Education>