

### Stamp Collecting Month Overview

Stamp Collecting Month (SCM) provides an exciting way for middle and upper primary school students and teachers to engage with interesting learning areas through stamps. This year's SCM stamp issue, In the Garden, focuses on themes highlighted by primary school teachers as appealing to students and providing learning opportunities that are linked to both the curriculum and real life. SCM 2019 encourages learning about sustainable living, kitchen gardening, biodiversity, plant and animal behaviours, and minimising our environmental impact.

### Lesson Overview

This is an inquiry-based lesson which will give students the opportunity to research a key question to generate and design possible solutions to a real-world problem. They will then design and implement a school vegetable patch which supports local pollinators (birds and bees) and contributes to the school's sustainability plan. The lesson uses the 5Es teaching and learning model of the which divides the project into separate activities to encourage a holistic approach to the solving the problem.

Throughout this project students will take an in-depth look at pollinators in Australia and the types of plants and habitats that will encourage and support them to thrive. Students will research and design a viable veggie patch for the school with the aim of it becoming an integral part of the school community and a key resource contributing to the nutrition and lifestyle of both students and the local wildlife. Students will take ownership of the project by researching, planning and implementing the veggie patch; to ensure it is a work of collaboration, passion and student engagement.

### Learning intentions

Students will understand:

- How pollinators and plants in Australia interrelate
- The impact of pollinators on food production
- The importance of bees and other pollinators in the production of food
- How the school community can help support the local wildlife
- How to improve the school's environmental footprint through a sustainable, year-round veggie patch

- How to obtain information to inform the progression of a project
- How to design and create a year-round veggie garden
- How to maintain and consistently harvest from a year-round veggie garden







### Resources

- Teacher interactive whiteboard (IWB) resources • and activity sheets
- Gardening equipment such as spades, shovels, rakes, gardening gloves, watering cans
- A raised bed container of suitable size (see below) made from recycled materials such as pallet timber
- A variety of seeds such as fruit, vegetable, native grasses and flowering plants
- Pencils, felt tip pens, rulers, post-it notes and paper or workbooks

## Curriculum links

### Science

ACSSU094 The growth and survival of living things are affected by physical conditions of their environment (ACSSU094 - Scootle)

## **Civics and Citizenship**

ACHASSK147 The shared values of Australian citizenship and the formal rights and responsibilities of Australian citizens (ACHASSK147 - Scootle)

### **Design Technology**

ACTDEP028 Develop project plans that include consideration of resources when making designed solutions individually and collaboratively (ACTDEP028 - Scootle)

## Health and Physical Education

ACPPS054 Plan and practise strategies to promote health, safety and wellbeing (ACPPS054 - Scootle)

ACPPS059 Explore how participation in outdoor activities supports personal and community health and wellbeing and creates connections to natural and built environments (ACPPS059 - Scootle)

### Assessment

There are a number of informal assessment opportunities throughout this lesson including:

- Class discussion
- Student questioning
- Work samples
- Observation
- Student reflection
- A summative assessment of the finished veggie patch

## Differentiation

As with all of our lesson plans, we encourage teachers to differentiate the activities by making any necessary modifications in order to cater for diverse student learning needs.

Note: the suggested duration of the activities found within this module may require adjustment to cater for the needs of your students.

# General capabilities

- Literacy
- Numeracy
- Critical and Creative Thinking
- Personal and Social Capability
- Ethical Understanding

### **Cross curriculum priorities**

Sustainability



Aboriginal and Torres Strait Islander Histories and Cultures





# ENGAGE

## Activity 1

- 1. Explain to the students that they will be working together to solve a real-life problem in this project using research and collaboration.
- 2. Display the problem to the class on the IWB:

'How can we sustainably support our native pollinators while growing and harvesting our own produce throughout the year?'

- 3. Invite a discussion of the students' first thoughts about the problem. Record key words and phrases.
- 4. Establish and reinforce the idea of creating a school veggie garden if this has not already been volunteered by students.
- 5. Split the class into groups of 3 or 4, these will be their groups for the entirety of the project.
- 6. Distribute the *What do we already know?* brainstorm activity sheets to each group. Encourage groups to note their ideas on the sheet.
- 7. Bring the class back together and provide each group the opportunity to share their ideas, creating a class brainstorm on the IWB. This document can be used for assessment purposes later in the topic as evidence for how much the students have learned across the project.

# EXPLORE

### Activity 1

- 1. Explain to the students that they will need to create a plan for how to approach this project. They must identify what they think they might need to learn in order to answer the main question thoroughly.
- 2. Invite a speed thinking exercise to generate ideas for what the class will need to find out. Give the students 60 seconds to compose a list of as many ideas as possible individually before sharing these with the rest of the class.
- 3. Using the students' ideas, create a class plan of what to research. You may wish to create a timeline of topics or give each group a topic to research if you plan on a shorter project timeline.
- 4. Throughout the project students may generate more questions about the content. Use these as opportunities for further research. This will give students the feeling of ownership over their learning, creating a meaningful and engaging learning environment.







## Activity 2

- 1. Invite a discussion about who students might need to collaborate with, i.e. who has expert knowledge to help answer the main question?
- 2. Create a list of people or groups of people to interview. This might include the school's canteen staff, groups of students from each year group, and the senior leadership team.
- 3. Gather students' ideas about the types of questions they may need to ask each group of people to gain the knowledge and information needed for this project.
- 4. Challenge each group to write a short survey for a particular audience, i.e. one of the groups they have identified in the first point.
- 5. Give groups appropriate time to conduct their surveys and collect the responses to help inform their projects.
- 6. Bring the class back together to share what they have learned from conducting their surveys.
- 7. Discuss how students can use this information in their project. Has it changed or annulled any of their initial ideas?

### EXPLAIN

### Activity 1

- 1. Recap the definition of a pollinator. Can students think of different examples of pollinators? Record these and keep as a document to refer to when designing your veggie garden.
- Using the IWB, show the students the video Why are bees important? (<u>https://www.youtube.com/</u> watch?v=YaaQUGPXtnU&t=51s)
- Discuss the content of the video and encourage students to think about the following questions and record their ideas on the 'building a hive of knowledge' resource:



- Why do we need bees?
- What can affect bee habitats?
- What do bees need from us?
- How do bees support the environment?
- What are the possible consequences of bees becoming endangered or extinct?
- 4. Establish an understanding that bees are key pollinators and veggie gardens should aim to support their needs.

## Activity 2

- Invite a discussion about what plants need in order to survive and flourish.
- 2. Revisit data collected in the surveys and create a list of foods that students like to eat that could be grown in the school grounds.
- Direct each group to research the needs of a different fruit or vegetable plant that could be included in the veggie patch.
- 4. Provide each group an opportunity to present their findings and record them on the *Comparing Fruit and Vegetable Needs* resource. Compare the results.
- 5. As a class, decide on a list of 5 or 6 plants that have similar needs which would be good choices for growing in the school veggie patch.
- 6. Review and evaluate this list with what is known about bees and other pollinators, and the needs and preferences of the school.







## ELABORATE

### Activity 1

- 1. Explain that for the veggie patch to flourish, students must find a suitable location for it. Consider placing your veggie garden in a sunny area, preferably near a rainwater tank for ease of watering.
- 2. Conduct a class walk around the school grounds and evaluate possible sites for the veggie patch.
- 3. When a suitable location has been decided (and approved by appropriate bodies) find a raised container to plant in, preferably made from recycled materials such as pallet timber. The ideal width for a raised bed garden for growing edibles is around 1.2 to 1.3 metres, with a height of around 30-50 cm. This lets you easily reach the centre of the bed without having to step on the soil.



- 4. To help weed-proof your bed, ensure the area it sits upon is well weeded or treated before placement. Consider a layer of stones, mulch or screening underneath.
- 5. Fill the container with good quality soil. Leave approximately 10cm of space at the top to allow for mulch. If your bed is deeper than 50cm, you can fill the base with sand, crushed sandstone or a mixture of coarse bark, ash and sand.
- 6. Dig the soil over well and break up any lumps before raking to produce a smooth even surface.
- 7. Plant your crops over several weeks to prevent all your crops maturing at one time. This makes it easier for students to learn how to take care of them.
- 8. Ensure you provide space for your crops space to grow. Consider how much they will spread and how tall they will grow. Taller plants should not be placed in front as they will shade the other plants which may stunt their growth.
- 9. Plant a range of edibles but include some flowering plants to attract other pollinators such as birds and beetles that are attracted to different colours.
- 10. Traditional scarecrows may not be the best choice for protecting the veggie patch as these can deter smaller birds from visiting.
  Consider a small windmill as a better option. This could be a good opportunity for an extension design activity.
- 11. Consider setting up a gardening club for each year group in the school to contribute to, harvest and maintain the veggie patch to ensure it is well looked after and an integral part of the school community.

### Top tip:

Australian Organic Schools is a great website to visit to find a detailed guide to what fruit and veg is in season so you can find out when it should be planted. https://www.organicschools.com.au/parents-carers/whats-season/







# EVALUATE (Plenary)

### Activity 1

- 1. Observe and record wildlife activity around the new veggie patch over the next few weeks. Is there a noticeable increase in wildlife visiting the school grounds? How many species of pollinators have been sighted?
- 2. Distribute the *Pollinator Bingo* activity sheet to each student. Challenge them to be the first to spot and mark off every species on the sheet.



# Activity 2

- After the plants have matured and begun producing edibles, evaluate the school's use of the veggie garden. Are the fruits and veggies being used regularly in the school canteen for lunches, breakfasts and snacks? Is the garden being maintained regularly by staff and students? Is there an active cycle of compost being used to nourish the soil in the veggie patch?
- Continually encourage students to make use of the veggie patch and take ownership of it. Projects maintained with passion and projection tend to stand the test of time.

### Further Reading

- ABC (2019). *Planting for Pollinators*. [online] GARDENING AUSTRALIA. Available at: https://www.abc.net.au/gardening/factsheets/planting-for-pollinators/9432648 [Accessed 12 Feb. 2019].
- Primaryconnections.org.au. (2019). 5Es Teaching and Learning Model. [online] Available at: https://www. primaryconnections.org.au/5es-teaching-and-learning-model [Accessed 12 Feb. 2019].
- Tandfonline.com. (2012). *Birds as pollinators of Australian plants.* [online] Available at: https://www.tandfonline.com/doi/pdf/10.1080/0028825X.1979.10432566 [Accessed 12 Feb. 2019].
- The Honeybee Conservancy. (2019). *Bee lesson plans*. [online] Available at: https:// thehoneybeeconservancy.org/bee-lesson-plans/ [Accessed 12 Feb. 2019].
- Wild Pollinator Count. (2019). *How to Count Pollinators*. [online] Available at: https://wildpollinatorcount. com/count-pollinators/ [Accessed 12 Feb. 2019].
- YouTube. (2019). Why are bees important?. [online] Available at: https://www.youtube.com/ watch?v=YaaQUGPXtnU&t=51s [Accessed 12 Feb. 2019].
- <sup>1</sup>The 5E Model, developed in 1987 by the Biological Sciences Curriculum Study, promotes collaborative, active learning in which students work together to solve problems and investigate new concepts by asking questions, observing, analysing, and drawing conclusions.
- https://www.sgaonline.org.au/crop-rotation/
- https://www.sgaonline.org.au/designing-productive-gardens
- https://www.sgaonline.org.au/bees-their-role-in-your-garden/
- https://www.sgaonline.org.au/butterflies/
- https://www.organicschools.com.au/parents-carers/whats-season/







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<b>Pollinator Bingo</b> Observe your veggie patch and tick off the pollinator you spot! Who will be the first to complete the grid?			
Bees	Butterflies	Other birds	
Ladybird beetles	Moths	Lorikeets	
Other Beetles	Hover flies	स्र Wasps	