Preparing to teach this sequence • Year 1 • Survive and thrive

**Year 1**

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# Science journals

Create a class science journal, either in hard-copy or digitally. You might:

* use/create a large scrap book or flip chart.
* use poster/butchers’ paper so learning can be displayed in sequence on the wall.
* create a digital journal using your platform/ technology of choice.
* any combination of the above.

Plan for students’ creation of an individual science journal, either in hard-copy or digitally. They might:

* use an exercise book, scrap book or flip chart to record their thinking and gather resource sheets together.
* use a folder to store and collate resource sheets, diagrams, photographs etc.
* use a digital folder to store work samples, images and videos.
* any combination of the above.

See [Using a science journal throughout inquiry](https://primaryconnections.org.au/resources-and-pedagogies/strategies/using-science-journal-throughout-inquiry) for more detailed information on the importance of science journals.

# General preparation

* Read through the teaching sequence.
* Prepare demonstration copies of Resource sheets as required.
* Prepare student copies of Resource sheets as required.
* Determine if you will teach [Lesson 7 Food and fibre (optional lesson)](https://primaryconnections.org.au/teaching-sequences/year-1/survive-thrive/lesson-7-food-and-fibre-optional-lesson). This lesson explores how humans use animals, in this instance sheep, to meet human needs for food and fibre. It is a good opportunity to link to Design and technologies. However, it might be considered an extension to the science concept, as it explores how humans *design* their habitats to meet their needs. It may be omitted due to time constraints, or if the Design and technologies content has been met in a different context.
* Print, laminate and cut out the cards from the **Food and fibre match-up Resource sheet**, from [Lesson 7 (optional lesson)](https://primaryconnections.org.au/teaching-sequences/year-1/survive-thrive/lesson-7-food-and-fibre-optional-lesson) if needed.
* Note any adaptations you would like to make to suit your school and students’ context, including lessons you may choose to run across more than one session, for example Lessons 2 and 8.
* Determine if you would prefer or have the resources for students to observe a live animal, rather than observing the peregrine falcons via the [FalconCam Project](https://www.youtube.com/%40FalconCamProject/streams) YouTube channel. Check your school and systems policies regarding keeping live animals in the classroom or school grounds and plan accordingly. Further information below.
* Consider setting up an area in the classroom where you can build a 'nature table' over the course of the sequence. This 'table' will be a place to collect specimens of plants and animals as appropriate, or images of plants and animals. It can be used to spark conversation and curiosity about plants and animals.
* Consider how students will determine the plant or animal they are making their habitat diorama for, as is appropriate for your students and context. Students may be given free choice, asked to select from a predetermined list of familiar plants or animals, or the class may all create a habitat for the same plant and/or animal.
* Consider the type of diorama students will make and begin collecting appropriate resources. See the embedded professional learning *Adapting for your context—dioramas* in [Lesson 8](https://primaryconnections.org.au/teaching-sequences/year-1/survive-thrive/lesson-8-communicating-learning-through-dioramas) of this sequence for further information and ideas. Further information is also available below.
* Determine how students will share their dioramas and the audience they will share with. Some suggestions are:
	+ organising a gallery walk within the classroom for other classes or buddies.
	+ creating a display in a communal space such as a library/hallway
	+ involving the broader community during an open day, special person’s day or local show.

# Plant preparation

Lessons 1-4 involve the use of seedlings (seeds that have already been germinated, undergone some period of growth, and have visible, if still establishing roots) and celery to study plants. The following preparation is required:

* 1 x healthy seedling for teacher demonstration
* 1 x unhealthy seedling for teacher demonstration
	+ To prepare for this you might withhold water from a seedling until its leaves begin to droop. The time for this will vary according to the temperature and heating/cooling used in the classroom.
* 2 x seedlings per group for student investigation, required from Lesson 2 (see further information below).
* Celery stem with leaves attached, in water with food colouring (Lesson 3 only)

**Buying seedlings**

Seedlings are seeds that have already been germinated, undergone some period of growth, and have visible, if still establishing roots. You can buy seedlings from a local garden centre and large hardware retailers.

The benefits of using seedlings include:

* less risk, as seeds are already germinated and plants are established.
* students will be able to measure growth in a shorter timeframe.
* students will be able to see the impact of their variable on their seedling in a shorter timeframe, thus supporting them to answer the investigation questions more easily.

This method requires less preparation but is more costly.

Obtain the seedlings just before the investigation and provide all groups with the same seedling type. Seedlings should be approximately 4-5cm in height before the students begin the investigation.

**Growing from seed**

We recommended using seedlings, rather than seeds, for this investigation. However, you might prefer to grow from seed, or budget requires you to do so.

The benefits of germinating seeds yourself include:

* it's likely to reduce costs.
* the ‘overcrowded’ pot can easily and deliberately be planted with too many seeds.

The challenges of germinating seeds yourself include:

* seeds need to be germinated well in advance of the investigation.
* seeds need to be provided with adequate water and warmth during germination, then sunlight during the growth stage.
* germination is not guaranteed.

If using seeds, allow sufficient time for the seeds to germinate and grow to approximately 4-5cm before the students begin the investigation. Seeds from gardening stores are more likely to germinate relatively quickly and consistently than seeds collected from the environment. This is because they come from plants that have been bred to produce seeds that germinate easily and/or they have been treated to encourage germination. The length of time it takes to grow a seedling to 5cm will vary between varieties, for example sunflower (7-12 days,) radish (5-8 days.)

**Selecting the seedlings or seeds that are best for classroom growing conditions**

Plant germination and growth depend on the requirements of the specific plant and its environment. Most plants tolerate some variability in their environment, such as high and low temperatures, over the course of a day and/or a year. The closer conditions are to optimal for a particular species, the more likely they are to grow rapidly (compared to similar plants in different conditions) and/or flower more rapidly and more abundantly.

Factors such as your location in Australia, and the time of year you are planting will impact which seedlings are the best choice to grow. Resources such as those listed below will help you find information to make decisions.

[ABC's Gardening Australia: Vegetables and Herbs](https://www.abc.net.au/gardening/vegetables-herbs)

[Veggie Sowing Calendar by Australian Climate Zone](https://veggiegardenseeds.com.au/blogs/news/veggie-sowing-calendar-by-australian-climate-zone)

# Animal preparation

Lessons 5-7 study the needs of animals and require access to the [FalconCam Project](https://www.youtube.com/%40FalconCamProject/streams) YouTube channel to observe the peregrine falcons living on the Charles Sturt University campus in Orange, NSW.

**Sensitivity warning**

When viewing the [FalconCam Project](https://www.youtube.com/%40FalconCamProject/streams)'s YouTube channel live, be aware that the falcons may be eating, and that the main component of their diet is smaller birds. This means that students may be exposed to the falcons bringing birds back to their nest, consuming them, and, at certain times of the year, feeding them to their chicks. Many of the pre-recorded videos also involve the falcons consuming their prey.

Consider if this content is appropriate for your students, or what discussions you might need to have before viewing the video content. Always check the live feed privately before allowing students to view it.

**Alternative to observing the peregrine falcons**

Alternatively, students might observe a live animal in the form of a class pet. Some suggestions might include fish, hermit crabs, lizards or meal worms.
Each Australian state and territory has animal ethics requirements for school investigations involving vertebrate animals (those with a backbone such as birds or guinea pigs). You would need to comply with any requirements of the relevant Animal Welfare Act if you chose to investigate vertebrate animals. Insects and crustaceans are invertebrate animals and are not covered by the Animal Welfare Act but still require care and consideration.

Each school and state might also have policies in place addressing animal welfare in classroom settings. Consult and follow the relevant policies.

**Lungworm risk mitigation**

A variety of snails, slugs and planarians are suitable intermediate hosts of the rat lungworm, Angiostrongylus cantonensis. Human infection occurs following ingestion of raw snails, slugs or planarians, something young toddlers are particularly prone to do. Another possible source of human infection is through ingestion of improperly washed vegetables such as lettuce.

It is recommended that the following safety procedures be followed during this sequence:

* Wear gloves when handling any biological material.
* Always wash hands with soap and water after handling any biological material (particularly snails, slugs or their slime, and any vegetation such as vegetables or leaf litter), even after wearing gloves.
* When handling snails or slugs, keep hands away from the mouth, and clarify with students that they should never encourage, or dare anyone to eat raw snails or slugs.

# Diorama decisions for the Act phase

* Consider whether students will be working individually, in pairs or as a whole class to make the diorama in the Act phase. Further information about types of dioramas students might build appears in the embedded professional learning *Adapting for your context- dioramas*in Lesson 7 of this teaching sequence.
* Consider whether the Year 1 students will pair with a student from another year level. In the Primary Connections [Finding Features teaching sequence](https://primaryconnections.org.au/teaching-sequences/foundation/finding-features) for Foundation students, students design and make an animal model. These models could be paired with a suitable Year 1 habitat diorama. For example, a Foundation student might make a model of a kangaroo, and the Year 1 student could design the Australian grassland habitat–displaying both the kangaroo and its habitat together. Senior students/buddies could potentially work collaboratively with the Year 1 students for the habitat construction as well.
* Consider how and where the dioramas can be shared with others. For example: in class for peers, in a communal space such as shared learning space for the broader school community, at a science fair or open day for parents/grandparents, at a local show/fete for the local community etc
* Decide whether the dioramas will be digital or physical. See Resource: ‘Diorama Samples.’ If the students are building physical dioramas, begin collecting materials such as cardboard, shoe boxes, paper towel tubes, popsticks, twigs, sand, dried flowers, weeds etc.

# Incursion and excursion opportunities

This teaching sequence should be adapted to suit your context. The study of plant and animal needs lends itself to numerous opportunities, for example:

**Incursions**

* Invite local First Nations people to discuss the use and importance of plants and animals in the local area for survival.
* Invite a guest to discuss their role in the food and fibre industry, e.g. farmer, scientist, food and fibre delivery driver, shearer, café owner.
* Invite a guest to discuss the needs of the animals they care for, e.g. wildlife carer, dog sitter, doggy daycare provider, zoo worker, farmer.
* Keep monarch butterflies to observe their needs through their lifecycle, from caterpillar to chrysalis, adult butterfly to egg.

**Excursions**

* Local park, zoo, pond, national park, farm

# Other considerations

Mathematics link

Consider extending the theme of plants by incorporating an investigation into place value with the reSolve Maths Year 1 sequence [reSolve Garden](https://resolve.edu.au/teaching-sequences/year-1/place-value-resolve-garden).

# Gather the resources for the sequence

|  |  |
| --- | --- |
| Resource | Lesson in which this resource is required |
|  | **Lesson 1** | **Lesson 2** | **Lesson 3** | **Lesson 4** | **Lesson 5** | **Lesson 6** | **Lesson 7** | **Lesson 8** |
| Class science journal (digital or hard-copy) | X | X | X | X | X | X | X | X |
| Individual science journal (digital or hard-copy) *per student* | X | X | X | X | X | X | X | X |
| Materials to create a word wall | X | X | X | X | X | X | X | X |
| Equipment to enable the viewing of online resources including images, videos and websites |  |  |  | X | X | X | X |  |
| 1 x healthy and 1 x unhealthy seedling/plant (See [*Preparing for this sequence*](https://primaryconnections.org.au/teaching-sequences/year-1/survive-thrive?tabIndex=3#toc-plant-preparation) for advice) | X | X | X |  |  |  |  |  |
| Optional: Camera to photograph plants and animals in the schoolgrounds | X |  |  |  |  |  |  |  |
| Small hand trowel | X |  |  |  |  |  |  |  |
| Access to water and watering equipment such as sprayer(s) or bucket of water with milk bottle caps etc. |  | X | X |  |  |  |  |  |
| Popsticks |  | X |  |  |  |  |  |  |
| Permanent markers |  | X |  |  |  |  |  |  |
| 2 x potted seedlings (see ["Plant preparation" on the *Preparing for this sequence*tab](https://primaryconnections.org.au/teaching-sequences/year-1/survive-thrive?tabIndex=3#toc-plant-preparation) for further guidance) |  | X | X | X |  |  |  |  |
| 2 x pot labels *per group* |  | X |  |  |  |  |  |  |
| 3 x celery stalks1 x left unchanged2 x stalks that have had the ends trimmed and been placed in water coloured with food colouring. NOTE: It will take several hours for the celery to absorb enough food colouring to make a noticeable difference. The time required will also be dependent on the length of the celery stalks, and the ratio of food colouring to water used. It is best to prepare the celery stalks the night before and use a lot of food colouring in the water.After the food colouring has been absorbed, the leaves of the celery should be clearly coloured with the food colouring. One stalk should be left whole and the other cut into thin slices to be distributed to each student. |  |  | X |  |  |  |  |  |
| Access to the school grounds, particularly areas where plants are growing. |  |  | X |  |  |  |  |  |
| Optional: magnifying glasses |  |  | X |  |  |  |  |  |
| Optional: torch |  |  |  | X |  |  |  |  |
| Glue |  |  |  | X |  |  |  |  |
| Newspaper and or masking tape, to define an area 120cm x 65cm in size |  |  |  |  | X |  |  |  |
| Optional: magazines |  |  |  |  | X |  |  |  |
| 1 x poster displaying the word NO in large font |  |  |  |  |  |  | X |  |
| 1 x poster displaying the word YES in large font |  |  |  |  |  |  | X |  |
| Student resource sheets**Demonstration copies** for whole class discussion and representation, and **individual copies for each student/group** are typically required for each resource sheet in this sequence. Instances where **demonstration** or **individual** copies ONLY are required are noted in the list below, as well as any resource sheets that are **optional**. Teachers are best placed to make decisions about any modifications resource sheet may require to best suit the needs of their students. |
|  | **Lesson 1** | **Lesson 2** | **Lesson 3** | **Lesson 4** | **Lesson 5** | **Lesson 6** | **Lesson 7** | **Lesson 8** |
| Code for caring and hygiene Resource sheet **Demonstration only** | X |  |  |  |  |  |  |  |
| **Optional**: My five senses Resource sheet **Demonstration only** | X |  |  |  |  |  |  |  |
| My plant predictions Resource sheet |  | X |  | X\* |  |  |  |  |
| Parts of a plant Resource sheet **Demonstration only**NOTE: This resource sheet includes a sketch and a photograph, both showing the roots, stem, leaves etc. of a plant. Use the version that is most suitable for your students and context. |  |  | X |  |  |  |  |  |
| What does it go? Resource sheet **Demonstration copy required, individual copy optional** |  |  | X |  |  |  |  |  |
| Sun Resource sheet **Printed demonstration copy required only** |  |  |  | X |  |  |  |  |
| Which grew the tallest Resource sheet |  |  |  | X\* |  |  |  |  |
| Different plants in different places Resource sheet |  |  |  | X\* |  |  |  |  |
| \* These resource sheets are required at the conclusion of the plant growth investigation begun in lesson 2. The conclusion of this investigation is described in lesson 4, however you may choose to allow the investigation to continue beyond this lesson. In this case, use these resource sheets at the appropriate time. |
| **Optional:** Sorting plants needs **One required *per group*** |  |  |  | X |  |  |  |  |
| About me Resource sheet |  |  |  |  | X |  |  |  |
| Animals at home Resource sheet **Demonstration only** |  |  |  |  | X |  |  |  |
| Predator or prey Resource sheet **Demonstration only** |  |  |  |  |  | X |  |  |
| Image of a sheepNote: either source your own or enlarge the one available in the Food and fibre match up Resource sheet |  |  |  |  |  |  | X |  |
| Food and fibre match up Resource sheet **1 x set *per class***NOTE: Cards should be laminated for future use |  |  |  |  |  |  | X |  |
| My animal Resource sheet |  |  |  |  |  |  | X |  |
| Habitats Resource sheet **Demonstration only** |  |  |  |  |  |  |  | X |
| Rhinoceros diorama Resource sheet **Demonstration only**NOTE: This is a completed version of the My scientific diorama Resource sheet for modelling purposes. |  |  |  |  |  |  |  | X |
| My scientific diorama Resource sheet **Individual copy only** |  |  |  |  |  |  |  | X |