Early Years Activities

These activities are designed to use during the Early Phase of Learning. While the activities are aligned to the Foundation Year, Year 1 and Year 2 Australian Science Curriculum, they also take into consideration the aim of Reef Guardianship – to be stewards of the environment.

Teachers could use these activities as single science lessons or to create a series of lessons lasting a number of weeks. Teachers may also decide to just use one small aspect of the activity to meet the needs of the class.

All of these science based activities lend themselves to the development of literacy through discussions and sharing, reading both research information and what students themselves have written, and also writing various processes, procedures, stories, reports, experiences and observations.
Foundation Year (Prep) – Science Understandings – Biological Sciences

Living things have basic needs, including food and water

Recognising the needs of living things in a range of situations such as pets at home, plants in the garden or plants and animals in bushland.

Activity 1

Students grow vegetables or flowers and conduct simple experiments to identify that plants need sunlight to grow. Students plant some seedlings in a variety of places under different conditions, photograph the plants every day and as a class write a report about what happened. The class could also write a book about the investigation.

What you will need:

- Flower or vegetable seeds that will grow in your local area (this could be discussed with students and they could decide on what they would like to plant).
- Soil
- Pots
- Watering cans, hose or bucket to water seedlings.
- Camera

What to do:

- Discuss with students what they know about plants and ask them to share their experiences of growing plants at home.
- Explain to students that all plants need sun to grow and that they are going to plant some plants to investigate this.
- Go through the Investigation Planner (Resource 1) with students outlining the investigation question, what they think will happen, what they are changing and keeping the same, what equipment is needed and what the procedure is.
- Identify with students places around the school where they could place the pots with seedlings. You will need a place with sunlight, a place in the shade with a little bit of sunlight and a dark place with no sunlight. Review with students why these places were chosen.
- Plant the seeds into pots (photograph this process to create a book about the experiment).
• Place the seeds into the allocated locations and photograph them to add to the book.
• Create a roster with the students to allocate who will water and photograph the seedlings every day. Allocate time for this to be done each day.
• Discuss what is happening as the seedlings are growing. Print out some of the photos from each of the three parts of the experiment and put them up for display to generate discussion.
• After a couple of weeks, it should become obvious by the growth rate of the plants, whether or not plants need sunlight to grow.
• Discuss results with students. Answer the questions: do plants need sunlight to grow? How do we know?
• Write up or draw up the results on the Investigation Planner.
• Decide with the students if the seedlings that are still alive need to be put into bigger pots.
• Use the daily photos of the plants to write a book with the class about their experience of growing the plants.
• Share this book with families and other students in the school.

**Optional Activity**

This activity could also be carried out to investigate if plants need water to grow. Following the same procedure, alter the investigation to have some plants get water every day and some get no water. Students could do this at the same time or as a separate experiment.
Activity 2

Grow vegetables or flowers and photograph the entire procedure from preparation to planting and daily growth until the harvest/death of the plant. Write a class book based on observations.

What you will need:

- Seeds – discuss this with students to see what they would like to grow. They may even like to grow a selection of vegetables or flowers.
- Soil
- Pots or a garden bed
- Watering cans, hose or bucket for watering
- Camera.

What to do:

- Explain to the students that they are going to create a book about growing plants.
- Discuss with students their experiences of growing vegetables or flowers at home. Ask students to share their experiences.
- Ask and discuss with students why we plant vegetable or flowers.
- Discuss with students what needs to be done to plant the chosen seeds and what the plants will need to grow up healthy.
- Ask students to take photos of everything you need to grow the plants. This will form the first part of the book.
- As students go through the process of preparing the soil, planting the seeds and watering the seeds, take photos of each step.
- Create a roster with the students to select who will water the plants each day and take photos each day of the growth of the plants.
- As the plants grow, print out some of the photos for display. This will also encourage discussion of the process of the growth of plants.
- Keep photographing the plants each day until they either die or are harvested. If plants die from pests or another reason, photograph this and include it in the book.
Foundation Year (Prep) - Science Understandings - Biological Sciences. (cont.)

• Once the plants have reached the end of their life cycle, print out the photos, or view them on an interactive whiteboard to select photos for the book.

• Discuss with students the process of growing plants and review the needs of plants. This could lead into a discussion about what plants need to survive, what we need to survive, what is the same and what is different? It could also lead into a discussion about how plants help us to survive by providing us with food.

• Ask students to help you put the photos in the correct order for the book and insert words to describe the pictures. This could be done as a word document, print out photos and words to glue onto pages or students could write the words on paper next to the printed photos. Teachers will need to cater to the needs of their class.

• Students could decorate the pages of the book.

• Once the photos, words and decorations have been finalised, laminate the pages and bind into a book.

• Allow students to take the book home to share with family and to share with other classes in the school.
Activity 3

Keep chickens, an aquarium, a worm farm or mini beasts to use as a stimulus to report on how they were acquired, what their needs are and how the class cares for them. The class could also write a book about their animal.

What you will need:

- An animal for the class to keep. This will need to be decided with students and fit in with the context and resource facilities of the school.
- All necessary equipment to keep the animal safely in the school (follow The Animal Care and Protection Act 2001 and The Australian Code of Practice for the Care and Use of Animals for Scientific Purposes, 2004, 7th Edition in accordance with Education Queensland Guidelines.)

What to do:

- Discuss with students the needs of the animal they have decided to keep. Students may also be involved in the process of acquiring the animal, depending on the context and the school requirements.
- Create a roster for feeding the animal and cleaning its enclosure. In the case of worms and chickens, students may also be encouraged to bring fruit and vegetable scraps from home to feed the animal/s.
- Take photos of the animal on a regular basis as this can be used for discussion and also for writing a book about the animal.
- Print out photos of the animal, its enclosure and also find photos of other habitats the animal lives in.
- Use these photos as a stimulus for the class to construct stories together about the animal. These stories can be collected in a book and shared with families and other classes in the school.
- Use the animal as a discussion point for how to properly care for animals – what their needs are, why we need to look after all animals (our pets and those in the wild) and how we can look after animals.
- The information from these discussions could be used for the class to add to their story book about their animal.
- Students could be involved in contributing to a monthly update about their class animal to put in the school newsletter.
Foundation Year (Prep) - Science Understandings - Biological Sciences (cont.)

Activity 4

Find out about local birds and butterflies and plant trees that will attract them. Visit a nursery or have an ‘expert’ come and talk to the students. Purchase and plant the trees and create a plan to look after the trees. Teachers may choose to focus on just birds, just butterflies or include both in the activity.

What you will need:

- Books or pictures of local birds and butterflies.
- Information from a local nursery or an ‘expert’ about what plants will attract the local birds and butterflies.

What to do:

- Look at the pictures and the books of local birds and butterflies with students.
- Discuss what the students see and ask them to share experiences they may have had with birds or butterflies, especially any they recognise in the pictures or books.
- Discuss with students what birds and butterflies need to survive. This could be written up and pictures drawn as a class display.
- If possible, take students on an excursion to take photos of birds and butterflies in their local area.
- Ask a local bird or butterfly ‘expert’ or a person from a nursery to come and visit the class to talk about the specific needs of certain birds and butterflies. Ask them to provide information about what plants the students should plant for the local birds and butterflies. If someone is not available, the teacher will need to find out this information and present it to the students.
- Once students have built up some knowledge about birds and butterflies from the local area, discuss with them about where they could plant some trees in the school yard to help create food for the birds and butterflies.
- Organise for the class to talk to the groundsperson and/or principal about what they would like to do.
- Once it has been decided what plants, how many and where they will be placed, discuss with students where they will get the plants from.
- The students may even need to ask the principal for funds to buy the plants; they might hold a fundraiser and/or ask for a donation through community contacts with the school to raise funds.
- Organise a trip to the local nursery (teachers will need to make sure the nursery has the plants available that the students want to buy) for students to see all the range of plants and be involved in the process of buying them. If a trip to the nursery is not possible, teachers may need to find other community contacts that will provide the
plants for the school (council, local environmental groups or families involved in the school may have plants)

- Once the plants have been obtained, coordinate with the groundsperson to plant them. Students should be involved in this process as much as possible.
- Create a roster with the students for who will water the plants and check on their growth.
- This whole activity, from researching to buying plants, and caring for the plants could all be photographed to create a book about the experience.
- It will be an ongoing process to look after the plants until they are completely established.
- Remind students to always look out for the birds and butterflies in the trees they planted.
Foundation Year (Prep) - Science Understandings - Biological Sciences (cont.)

Living things have basic needs, including food and water

Comparing the needs of plants and animals.

Activity 5

Have an excursion to a local environment – the school grounds, the local park, the beach, a local creek or bushland. Photograph different trees and animals to then print out and use for activities. Use the photos as a stimulus to discuss, draw and write about what plants and animals need to survive, where they live, what they eat, what is a threat to them and how we can look after them.

What you will need:

• A local place to visit. It could simply be the school grounds, or it could be a specific local environment such as the beach, a creek, a local farm or garden, or the park. If possible, involve students in deciding what area of the local environment they would like to photograph.
• Cameras
• Paper and pens to create display charts.

What to do:

• Explain to students that on their excursion they are going to take photos of plants and animals to find out more about their local environment.
• Ask students if they already know about some of the plants and animals from their local environment.
• Draw up a chart with two columns – plants and animals. In each column draw and label students’ responses about local plants and animals.
• Go on the excursion.
  • Once returned from the excursion, add to the chart any more plants and animals that the students saw.
  • Print out the photos and sort them into plants and animals.
  • Ask students to again add any new plants or animals to the chart that are in the photos.
  • Students may not know the names of all the plants. Ask a knowledgeable person, such as the grounds person, if they know the names of some of the plants that the students photographed.
Create another display chart with students – plants and animals.

Put the photos onto the display charts.

Discuss with students what plants need to survive. Record their responses on the plants chart.

Discuss with students what animals need to survive. Record their responses on the animals chart.

Students may also decide to sort the animals into groups of those that eat plants, and those that eat other animals. This will depend on the needs of the class.

Discuss with students the similarities and the differences between plants and animals.

Discuss with students what the threats to animals and plants are. Record this on the appropriate charts.

Ask students what they can do to care for the animals and plants in their local environment.

Use the photos to create a book about the local environment and how it can be cared for.

The book could be shared with families and with other students in the school.
Year 1 – Science Understandings – Biological Sciences

Living things have a variety of external features

- Recognising common features of animals such as head, legs and wings
- Describing the use of animal body parts for particular purposes such as moving and feeding.

Activity 6

Students create their own creatures. They present their creatures and explain how they use their body to move and find food.

What you will need:

- A range of pictures of different animals from around the world, or from a specific ecosystem the teacher wants the students to focus on, such as the Great Barrier Reef, the rainforest and/or the Australian desert.
- Pen and paper to create a display chart of student knowledge
- Different craft materials for students to make animals
- Camera.

What to do:

- As a class, look at the pictures of the different animals. Identify the different features of the animals and discuss with students what they know about how the animals move and feed.
- Record students’ responses in a display chart.
- Discuss the similarities and differences between animals.
- Students could also role play the movements of the animals to generate discussion.
- Explain to students that they are going to create their own animal. Discuss with students how they could create their own animals. Teachers might have a simple example to show students. Have a range of materials available for students to use.
- Students create their own animal. It could be based on a real animal or a made up animal to suit a certain habitat the student or teacher identifies.
- Students might choose to draw their animal first to get an idea of the design.
- When students have finished their animal, ask them to share the name of the animal, external features of their animal, how the animal moves and explain what sort of habitat their animal would live in. Ask students to also share what their animal eats and how it gets its food.
Display animals.
Students could also write a description of their animal to be displayed.
Teachers could photograph each animal creation, print out the photos and ask students to write their descriptions with the photo. This could then be made into a book for the class to read and share with their families.
Activity 7

Create a wall display of all the main features of plants – roots, leaves, stems, trunks, branches and flowers. Take photos of the features of plants in the playground and around the community and pin these onto a class display to have different examples of the parts of plants. Create sentences to explain what each feature of the plant does.

What you will need:

- Large outline of a tree to use as a class display
- Camera.

What to do:

- Have a large outline of a tree displayed on a wall in the classroom.
- Ask students to identify different parts of the tree.
- Create labels for each part. Identify and explain those parts that students do not know.
- Ask students to explain what the different parts of the tree are used for. If students are unsure about some parts of the tree, use the display to explain to them what each part of a tree does.
- Teachers could also find YouTube clips or use books or songs to create discussion about the different parts of plants.
- Explain to students that they are going to photograph the different parts of trees in the school grounds. Teachers may also choose to use this opportunity to go on an excursion in the local community to photograph different trees in the park, bushland, beach or a backyard.
- On the excursion, ask students to identify and photograph the parts of the plant identified in the classroom. Take lots of photos of the different parts of different plants to get a range of examples of the parts of plants.
- For the roots of plants, students might photograph the large roots that stick out of the ground of some plants, or pull up weeds to photograph their roots. Teachers could liaise with the groundsperson to see if they have any plants they are planning to get rid of that they might be able to do on the day of the excursion. Students could then take photos of that plant's roots.
- Print out the photos and ask students to arrange them into the different parts of plants ready for the display.
• Display the photos in an appropriate section of the classroom tree display.
• As a class, create sentences to describe what each part of the plant does to help the plant survive. Add these descriptions to the display.
• Teachers could also use some of the photos to create a book about the different parts of plants and what each part does to help the plant survive.
Living things live in different places where their needs are met

• Exploring different habitats in the local environment such as the beach, bush or backyard
• Recognising that different living things live in different places such as land and water
• Exploring what happens when habitats change and some living things no longer have their needs met.

**Activity 8**

Photograph parts of the local community (people or places) and make a book about the local community. For example, photograph the park and explain what it is used for, what is there and what animals live there. Include a ‘what if’ section of the book – what if the park had no rubbish bins? What if the trees where chopped down? What if the creek became polluted with rubbish?

**What you will need:**

• Camera
• Materials to make a class book.

**What to do:**

• Organise a class excursion to a chosen part of the local community. Students might be involved in deciding what part of the community they visit. It should be an important place that is well used by members of the community as this will allow students to easily relate to the chosen place. It could be a park, the beach, a bikeway or even the school grounds.
• Explain to students that on their excursion they are going to photograph the living things found in their chosen place. Discuss with students what living things they might see on their excursion.
• On the excursion, photograph the living things in the chosen place.
• Throughout the excursion discuss with students what they are looking out for and what the needs of the living things are.
• Also ask students to identify the non-living things. Students may choose to photograph these aspects of the chosen place and include them in their book.
• Discuss with students any problems they can see in their chosen place – rubbish, vandalism, dead animals or weeds. Ask what could be done about it.
• Print out the photos from the excursion.
• As a class, sort the photos into an order for the book. Identify different parts of the chosen place.
Some suggestions to ask the students to answer to create the text for the book:
- Where is the chosen place?
- What is it used for?
- Who or what visits the chosen place?
- What living things are found at the chosen place?

Students may also think of other interesting facts about the chosen place to include in the book – such as personal experiences or knowledge about plants and animals that live there.

Explain to students that in the book they are also going to have a ‘what if’ section. Give an example – what if the trees where chopped down?

Teachers will need to generate a list of ‘what if’ questions according to the attributes of the chosen place.

Record student responses and ask students to find a photo that will match each question to go in the book. If no photos match, students could draw a picture to match.

Depending on the needs of the class, students could write, type or match teacher written words to pictures for the different sections of the book.

Compile the book together as a class.

Laminate and share with families and other classes in the school.
**Year 2 – Science Understandings – Biological Sciences**

**Living things grow, change and have offspring similar to themselves**

*Recognising that living things have predictable characteristics at different stages of development.*

**Activity 9**

Create a poster about an animal to identify its needs and characteristics as it grows.

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**What you will need:**

- Books, magazines, internet access.
- Materials to create posters.

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**What to do:**

- Discuss with students what they know about different animals.
- Ask students to decide on a specific animal they would like to learn about. This could be done individually, in pairs or in groups or teachers may have specific animals for students to research to fit in with other projects the students are involved with in their learning.
- Create a list of questions with students that they need to answer to create their poster. Some suggestions include:
  - What are the animal’s external features?
  - What is its habitat?
  - How does it move?
  - What is its life cycle?
  - What do their babies look like?
  - What does it need to survive?
  - What can we do to help it live safely in its habitat?
- Students research their animal using resources provided. Students may also need to draw on prior knowledge or could take the questions home to ask family members to help them to answer some of the questions.
- Once students have the answers to their questions they need to write their information into sentences ready to use for their poster.
• Students will need pictures of their animal. Depending on school resources, they could print pictures off the Internet or draw pictures for their poster.
• Demonstrate to students how to assemble their poster into organised pieces of information.
• Use the finished posters as a classroom or school display.
• Depending on the size of the posters, they could also be made into a book for the classroom.

*Generalised Life Cycle of Marine Turtles*

- Immature Turtles
- Adults: Age at first breeding about 20-50 years.
- Breeding Migration: Adult males and females
- Open Ocean Surface Feeding Zone: One lost year(s)
- Return to Feeding Areas: Breeding Migration at 2-8 year intervals
- Mating: Occurs offshore to nesting beaches
- Nesting Beach: Several clutches of eggs are laid

Living things grow, change and have offspring similar to themselves
Exploring different characteristics of life stages in animals such as egg, caterpillar and butterfly.

Activity 10

Plant and document the life cycle of sunflowers (or another type of vegetable or flower – must be one that seeds can be harvested from and replanted to show a complete ongoing life cycle). Photograph the complete process - preparation, planting, growth, harvesting and using seeds to plant again. Use the photos to write a book or create a stop animation about the life cycle of the plant. Also identify cause and effect – what would happen if there was a flood or bugs ate everything? Use Resource 2 – Cause - and - Effect Chart. Problems such as this may even occur during the life cycle of plants the students observe. This should be documented and included in the final book or stop animation.

What you will need:

• Seeds – discuss this with students to see what they would like to grow and what would be best to grow for the project (sunflowers and basil are good examples of plants that will be easy to grow and harvest to see the continuing life cycle).
• Soil
• Pots or a garden bed
• Watering cans, hose or bucket for watering
• Camera.

What to do:

• Explain to the students that they are going to create a book or a stop animation about the complete life cycle of plants. Decide with students if they would like to create a book or a stop animation or both. This may depend on school resources.
• Discuss with students their experiences of growing vegetables or flowers at home. Ask students to share their experiences.
• Ask students to share why it is important to plant flowers and vegetables.
• Develop a plan with students about how the project will work, what needs to be done and who is responsible for each part.
• Each part of the project will need to be photographed.
• Ask students to take photos of everything you need to grow the plants. This will form the first part of the book.
• Ask students to go through the process of preparing the soil, planting and watering the seeds. Take photos of each step.
• Create a roster with the students to decide on who will water the plants and take photos each day of the growth of the plants. If creating a stop animation, it is best for students to take photos from the same place each day.
• As the plants grow, print out some of the photos for display. This will also encourage discussion of the process of the growth of plants.
• Keep photographing the plants each day until they either die or are harvested. If plants die from pests or another reason, photograph this and include it in the book.
• Once the plants have reached the end of their life cycle, harvest the seeds and replant them to create an ongoing life cycle.
• Once the new plants have grown into mature plants, print out the photos or view them on an interactive whiteboard to select photos for the book.
• Ask students to help you put the photos in the correct order for the book and write words to go with the pictures. This could be done as a word document, print out photos and words to glue onto pages, or students could write the words on paper next to the printed photos. Teachers will need to cater to the needs of their class.
• Once the photos and words have been finalised, laminate the pages and bind into a book.
• Allow students to take the book home to share with family and with other classes in the school.
Activity 11

Keep a mini beast, butterfly or chicken to observe and photographically document the life cycle. This could then be made into a book or stop animation. Visit the local pet store to source the animal or research the Internet to find stores supplying mini beasts.

What you will need:

- An animal for the class to keep (this will need to be decided with students and fit in with the context and resource facilities of the school.)
- All necessary equipment to keep the animal safely in the school, including food (follow The Animal Care and Protection Act 2001 and The Australian Code of Practice for the Care and Use of Animals for Scientific Purposes, 2004, 7th Edition in accordance with Education Queensland Guidelines.)

What to do:

- Explain to students they are going to care for their chosen animal and record its growth to create a book or a stop animation. Teachers can discuss with the class what will be best according to the needs of the class and resources available.
- Discuss with students the needs of the animal they have decided to keep. Students may also be involved in the process of acquiring the animal, depending on the context and the school requirements.
- Create a roster for feeding the animal and cleaning its enclosure as necessary. This will depend on the animal chosen.
- Take photos of the animal each day to record its life cycle (if obtained as an egg or chrysalis) or its daily growth if it is already growing such as a stick insect. If creating a stop animation, it is best for the photo to be taken from the same position each day.
- If the class is keeping a mini beast and has acquired the mini beast already hatched and growing, the class could research the mini beast's life cycle and draw this as a part of their book.
- Use the animal as a discussion point for how to properly care for animals – what their needs are, why we need to look after all animals (our pets and those in the wild) and how we can look after animals.
- The information from these discussions could be used for the students to each write a report about the animal the class has chosen to keep, or other animals students would like to research.
• When the animal has reached the end of its life cycle or has fully grown, use the photos taken each day to create a stop animation or a book.
• If creating a book, students will need to write the text for the book to match each of the photos.
• Students could also be involved in writing a monthly update about their class animal to put in the school newsletter.
## Investigation Planner

**Name:** ....................................................................................................................................................  **Date:**

<table>
<thead>
<tr>
<th>Title of our Investigation</th>
<th><strong>Hypothesis</strong> What do we think will happen?</th>
</tr>
</thead>
</table>

To make the test fair what are you going to:

<table>
<thead>
<tr>
<th>Change?</th>
<th>Measure?</th>
<th>Keep the Same?</th>
</tr>
</thead>
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**Diagram and Equipment**
Resource 1 – Investigation Planner – page 2

Procedure – What are we going to do?

Results – What happened?

Was your hypothesis correct?

Teacher Comments: ....................................................................................................................................................................................................................................
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**Resource 2 – Cause-and effect Chart**

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<th>CAUSE</th>
<th>EFFECT</th>
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<tr>
<td>What was the event? Remember to identify the habitat.</td>
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