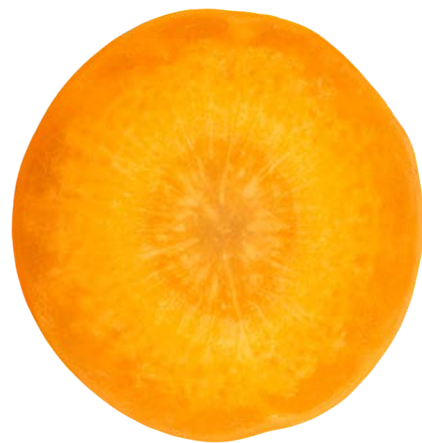
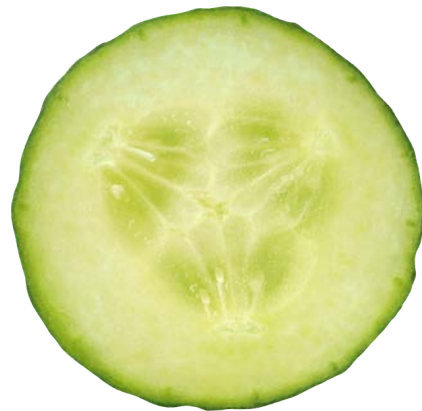
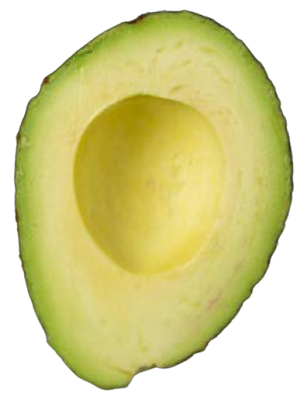
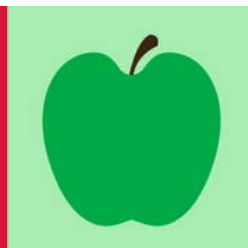
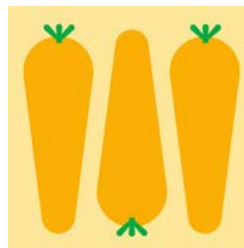


# Putting Veg Under the Microscope



Northern NSW  
Local Health District



# Introduction

**Research shows that only one in 20 children aged 2-15 years in NSW eat the recommended amount of vegetables each day. Encouraging children to eat vegetables can be challenging. Using nutrition learning experiences in early childhood education and care services can support children to eat more vegetables.**

*Putting Veg Under the Microscope* aims to make vegetables fun for children. By using science to explore vegetables, we can create interest in vegies without any pressure to actually taste them. Research tells us having pressure-free exposures to vegetables increases acceptance in children over time.

Our goal is to create curiosity with vegetables. We want to reinvent the humble veg as cool, interesting and fun!

## The importance of food language

When talking about vegetables (and food in general), try to use neutral language. This means avoiding words such as yuk or yum, like or dislike, good or bad, healthy or unhealthy. Instead, talk about characteristics such as the colour, flavour or crunch. For example, instead of saying “do you like beetroot?”, you could say, “this beetroot is bright purple. Has anyone tried it before?”. This supports children to explore vegetables at their own pace in a safe and pressure-free environment.

If parents or children use the phrase “I don’t like it”, a useful response may be “that’s OK, your taste buds may still be learning to like that vegetable”. Like learning to read and write, it takes time for children to learn to eat and enjoy a variety of different foods.

Fussy eating behaviours are a normal part of child development. Avoid labelling a child as a ‘fussy eater’. This can make children believe that they are fussy and continue to display these behaviours. Using neutral language and supporting children helps them learn to like a range of foods.

## How to use this resource

This resource provides a range of learning experiences that use science themes to explore vegetables. These learning experiences encourage children to be inquisitive about, and engaged in the exploration of vegetables. A list of materials is provided for each learning experience. Modify activities to make them more suitable if necessary. Each activity can be repeated so children can practise and build on their knowledge and skills as they develop.

## **How Putting Veg Under the Microscope relates to the National Quality Standards and Early Years Learning Framework**

This resource provides a range of learning experiences and activities that promote healthier eating. Encouraging children to explore and eat vegetables relates to the National Quality Standards and the Early Years Learning Framework in the following areas:

### **NATIONAL QUALITY STANDARDS**

#### **Quality Area 1: Educational program and practice**

Opportunities to provide children with experiences that actively promote or initiate the investigation of ideas and thinking about healthy eating.

#### **Quality Area 2: Children's Health and Safety Standard**

2.1 Health - Each child's health and physical activity is supported and promoted.

NQS 2.1.3: Healthy eating and physical activity are promoted and appropriate for each child.

### **EARLY YEARS LEARNING FRAMEWORK**

#### **Outcome 3: Children have a strong sense of wellbeing**

- Children become strong in their social, emotional and mental wellbeing.
- Children become strong in their physical learning and wellbeing.
- Children are aware of and develop strategies to support their own mental and physical health and personal safety.

#### **Outcome 4: Children are confident and involved learners**

- Children develop a growth mindset and learning dispositions such as curiosity, cooperation, confidence, creativity, commitment, enthusiasm, persistence, imagination and reflexivity.
- Children develop a range of learning and thinking skills and processes such as problem solving, inquiry, experimentation, hypothesising, researching and investigating.
- Children transfer and adapt what they have learned from one context to another.
- Children resource their own learning through connecting with people, place, technologies and natural and processed materials.

#### **Outcome 5: Children are effective communicators**

- Children interact verbally and non-verbally with others for a range of purposes.
- Children engage with a range of texts and gain meaning from these texts.
- Children express ideas and make meaning using a range of media.
- Children begin to understand how symbols and pattern systems work.
- Children use digital technologies and media to access information, investigate ideas and represent their thinking.
- Children use information and communication technologies to access information, investigate ideas and represent their thinking.

Under the National Quality Standards and the Early Years Learning Framework, there are opportunities for educators to:

- engage children in experiences, conversations and routines that promote relaxed and enjoyable mealtimes.
- model, reinforce and implement healthy eating and nutrition practices with children during mealtimes.
- support children to show an awareness of a healthy lifestyle and good nutrition.

# Experiment 1

## Do the “rot” thing



### What is it about?

Composting is a great way to teach children about food waste. It also allows them to touch and interact with vegetables they are familiar and unfamiliar with. Composting also supports your service's garden. It can provide an opportunity to work with your local council and other organisations working on sustainability.

### What you need:

- Compost bin or worm farm
- Food scraps from lunchboxes / the kitchen
- Bins to sort waste into **non-recyclable**, **food waste**, **recyclable**

### What to do:

- Talk to children about the different types of waste they may have in their lunchbox. This includes **non-recyclable**, **recyclable**, and **food waste**. Sort lunchbox waste into different bins if it is not something your service already does.
- Each day talk about the types of vegetable scraps that are in the food waste bin. Allow children to “feed” it to the compost bin (or worms). Explain that feeding these scraps to the compost bin helps all the tiny bugs break it down and turn it in to soil.
- Use your compost to support your service’s garden. Explain to children that the compost keeps your gardens healthy. Remind them that the compost that they are using started as vegetable scraps from their lunchboxes.

### Question prompts:

- Do you think it is important to put food scraps in the green bin?
- Do you think that worms and bugs like eating your vegetable / food scraps?
- Do you think that the vegetable garden grows better when we add compost to it?

### EXTENSION IDEA:

You can extend this activity by allowing children to use magnifying glasses to compare partly broken down and fully broken-down compost. Consider planting seedlings in normal soil and also in soil that has compost mixed into it. Is there any difference in the way the plants grow?

# Experiment 2

## Raw vs Cooked



### What is it about?

This experience is about children exploring the difference between raw and cooked vegetables using their five senses. For some children this may be a new experience.

OPTIONAL – include taste testing. Be sure the size of the vegetable pieces are appropriate to the child's age. Pieces too large or too small can be a choking hazard for some children. Try grating or cutting the vegetables into thin matchstick strips or small pieces.

### What you need:

- A variety of raw vegetables like carrots, broccoli, pumpkin, zucchini, potato and cauliflower
- The same vegetables, but cooked
- Plates / platter
- Serviettes, tongs (if including taste testing – optional)

### What to do:

- Place the vegetables, both raw and cooked, on a plate or platter.
- Explore the difference between raw and cooked versions of each vegetable using the question prompts below.
- OPTIONAL – invite children to taste the difference between the raw and cooked vegetables. Note – do not eat raw potato. It is ok that some children may not wish to taste the vegetables. They can just explore the changes through sight, touch or smell.

### Question prompts:

Ask children questions about each vegetable both raw and cooked related to their five senses:

- Touch – how do raw and cooked vegetables feel? Are they different? Are they soft or hard? Will they mash?
- Sight – what colour are they? Does the colour change when cooked?
- Smell – does it smell different when raw compared with cooked? (Broccoli and pumpkin are good examples of this as they have little or no smell raw compared to when cooked)
- Sound – tap the raw vegetables to see if they make a sound. Can you do this with cooked vegetables?
- Taste – invite the children to taste the difference between the vegetables. Ask them to share their experience by finding words to describe texture.

# Experiment 3

## Celery-brate Water



### What is it about?

This experience shows children the importance of water for plants (and people). It provides an opportunity to explore how water moves through plants. It also gives children an opportunity to look at, touch and become familiar with celery, without the added pressure to taste it.

### What you need:

- Celery bunch (with the leaves still attached)
- Jars or drinking glasses
- Water
- Food colouring
- Scissors or a knife (optional)

### What to do:

- Fill the jars or glasses about halfway with water and place them in sunlight.
- Drop different colours of food colouring into each of the glasses. 5-10 drops per glass should work well.
- Cut stalks of celery off at the base and place them in the cups of coloured water.
- Let the celery sit. Check in 24-48 hours to see how the leaf and stem colours change! Try slicing through the stem to show children how the coloured water travels from the stalk to the leaves.

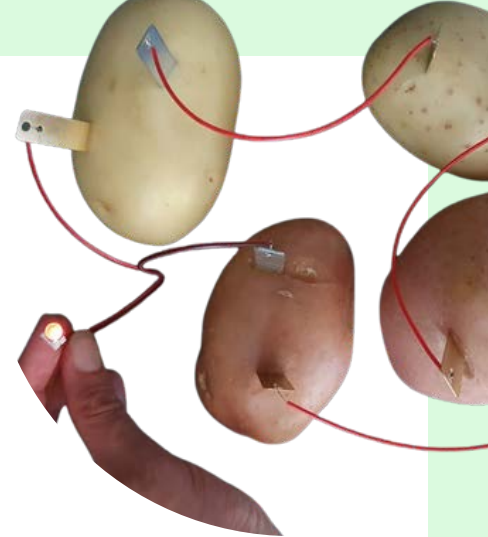
### Question prompts:

- Why do you think plants need water? Why do you think people need water?
- Does anyone know what this vegetable is? Have you tried it?
- What do you think will happen when we put the celery in the coloured water?

TIP - with the celery base / core, try Experiment 5 or use it as a stamp for art!

# Experiment 4

## Veg Power!



### What is it about?

This experience demonstrates making a potato battery. It aims to create curiosity and excitement about vegetables, not an understanding of electricity.

### What you need:

Buy or create your own veggie powered battery kit (you can buy them online). This will include:

- Copper electrodes (or you may use copper nails)
- Zinc electrodes (or you may use zinc plated nails)
- Alligator clip leads
- Light-emitting diode
- 4 fresh potatoes (you can try other vegetables if you like)

### What to do:

- Insert your copper and zinc electrodes into potatoes. Ensure they are at least 2-3cm apart.
- Connect leads between each electrode. Each negative (zinc electrode) connects to a positive (copper electrode).
- Connect the lead from the final copper electrode (positive) to the longer lead on your light diode. Connect the lead from the final zinc electrode (negative) to the shorter lead on the diode.
- If you are using potatoes, the light should turn on - make sure you look closely! Other vegetables may have different effects.

### Question prompts:

- How do we usually turn lights on?
- Do you think a potato can make a light turn on?
- What about other vegetables?

We recommend that an educator conducts this experiment with children just watching and guessing what may happen. Some of the equipment required is sharp. Don't eat potato or any other vegetable trialled after using it as a battery.

# Experiment 5

## Don't throw it! Grow it!



### What is it about?

This experience allows children to explore how different vegetable scraps can regrow sprouts. It provides a chance for children to learn and interact with a number of different vegetables. You can use this experiment, along with experiment 1 to teach children that food scraps aren't always garbage.

### What you need:

- A range of vegetable scraps you want to sprout. For example: spring onion, red onion, carrot, celery, cos lettuce, bok choy, avocado, beetroot tops.
- Clear glasses, jars or a shallow container to sprout your vegetables in
- Water

### What to do:

- Spring onions, red onion, celery, cos lettuce or bok choy: Chop the base of the vegetable off and place it in a container or jar. Half fill with water so base of vegetable is covered. If you are using jars, you may wish to use toothpicks to suspend the vegetable at the top of the jar.
- Carrot or beetroot tops: cut off the top of a beetroot or carrot and place it in a shallow container, plate or dish. Pour in a shallow pool of water that just covers the bottom of the vegetable tops. (Note this will grow carrot/beetroot tops and not the root).
- Sprouting an avocado seed: poke 3-4 toothpicks into the avocado seed around the middle section and use these to suspend the seed in a jar of water. Ensure the broad or larger end of the avocado seed is in 2-3 cm of water. Roots will begin to grow from the bottom of the seed and sprouts from the top over 1-2 months. You can plant the sprouted avocado seed in your garden once a sapling is established.

You can also try growing sprouts from potatoes, sweet potatoes and garlic!

### Question prompts:

- What do you think will happen to each vegetable?
- Do they grow above or below the ground?
- Do you have a vegetable garden at home?

TIP - explore the different parts of plants using these vegetables as examples. This can link to experiment 6.



# Experiment 6

## Under the Magnifying Glass



### What is it about?

Magnifying glasses and microscopes are a great way to tap in to children's curiosity. They offer endless possibilities to learn about where food comes from and how it grows. This experience has children take a closer look at vegetables by exploring the skin, stalks, leaves, seeds and flesh of vegetables. They will be intrigued by what they discover!

### What you need:

- A range of vegetable leaves, stalks, seeds, roots, whole and cut up vegetables. Consider choosing vegetables that have different colours and textures.
- Magnifying glasses and child friendly tweezers to examine each vegetable

### What to do:

- Explain to children what a magnifying glass is. Let them use it to look closer at a picture and ask them whether it makes the picture bigger or smaller.
- Have groups of 5-6 children per table.
- Set a selection of vegetables on a tray on each table. Ask children to examine each of the various parts. Include whole, cut, leaves, seeds, stalks, roots and peel. Cross sections of celery and carrots are good because of their patterns.
- View the veins in a cross section of celery, or the circular patterns in a carrot. See if there are patterns in any of the other vegetable pieces.
- Ask the children to look to see if there are any seeds. They may be able to count them!

### Question prompts:

- Ask children to share what they see. Are they surprised? Could they see things through the magnifying glass that they couldn't see without it?
- Discuss shapes, colours, textures, patterns and sizes of the different pieces of vegetables.
- Did all parts of the vegetable look the same or were they different? For example, was the skin the same as the inside. Was the root the same as the leaf?

### EXTENSION IDEAS:

- if you have access to a microscope you can try looking at parts of vegetables under it.
- create some binoculars using cardboard cylinders (from roll of kitchen foil/baking paper), and let children explore the garden.

# Experiment 7

## A Vegetable Mystery Bag



### What is it about?

Vegetables can be used to teach children about scientific concepts such as weight, texture, size and colour. Using a variety of vegetables to learn about these concepts helps children become familiar and comfortable with them.

### What you need:

- A 'mystery bag' - we use a decorated pillow case
- 4-5 vegetables with different characteristics, e.g. broccoli, cucumber, beans, snow peas, corn cob, capsicum, lettuce and tomato

### What to do:

- Explain to the group that today we are going to use the 'mystery bag'.
- Place the vegetables into the mystery bag.
- Select one child to come up and put their hand into the mystery bag.
- Get them to feel inside the bag and select one item (keeping their hand in the bag and not looking!).
- Ask them questions about how the item feels such as:
  - > Is it round or long?    > Is it smooth or rough?    > Is it soft or hard?    > Is it cold?
- Ask the child to guess what they think it might be.
- Ask the child to take the item out of the bag and have a look and show the other children.
- Choose another child and continue with the activity.
- Once all the vegetables have been selected from the bag look at them in more detail. Use them to discuss:
  - > Weight (heavy or light)    > Texture (bumpy, rough or smooth)    > Colours
  - > Size (big, small or long)    > Shape (round or straight)

You may also use them to sort, for example, order vegetables from biggest to smallest.

### Question prompts:

- Have you ever eaten this vegetable before? What did it taste like? Would you like to try it sometime?
- How does each vegetable grow (on a bush, tree, underground)?
- Do you eat it raw or cooked?

# Experiment 8

## Investigating



### What is it about?

This experience is about investigating one or more vegetables, making hypotheses and testing them as a group. It aims to evoke an interest in the vegetable as a whole, and not place pressure on a child to eat it.

### What you need:

- A laptop, computer, tablet or books you can use to research the vegetable
- The vegetable\ s you are researching
- A knife
- A bucket filled with water
- Sequencing cards you have created that show the vegetable from seed to when we eat it

### What to do:

- Ask the group to choose one or more vegetables you are going to research. You may prompt suggestions if you have prepared an experience ahead of time.
- Use your laptop / tablet / computer or books to research everything you can about a vegetable with the group. Such as:
  - What season does it grow in?
  - Does it grow on a tree, on a vine, out of the ground or under the ground?
  - In what part of the world does it grow best?
  - How long does it take to grow?
- Show children what the vegetable looks like in real life. Ask the children to investigate the vegetable. Some examples may include:
  - Is it smooth or bumpy?
  - Does it have seeds?
  - Will it sink or float when we put it in the bucket?
  - What will it look like when we cut it?
- Allow children to use sequencing cards to examine how the vegetable grows and transforms before it gets to their plate to be eaten.

### EXTENSION IDEA

Include a tasting opportunity as part of your hypotheses. Try taste testing properties of the vegetable such as does it crunch or is it soft, does taste change if it is cooked different ways, does it change colour when it is cooked, etc.