



Best practice guidelines for increasing  
children's vegetable intake

## **Primary schools**

Establish an environment that encourages children to learn about,  
try and eat vegetables every day

# Contents

<b>Introduction</b>	<b>4</b>
<b>The seven guidelines – overview</b>	<b>6</b>
Foundation	8
Action	12
Review	15
<b>What you can do:</b>	
<b>A checklist of simple ideas that work in OSHC</b>	<b>16</b>
<b>Engaging with families</b>	<b>18</b>
<b>Program examples and resources</b>	<b>19</b>
<b>References</b>	<b>21</b>



# Introduction

We all know that eating more vegetables is good for us and for the children in our care. Making it happen is not always easy.

Most Australian children are not eating enough vegetables. Only 6% of children aged 2–17 years of age eat the recommended amount [1].

This guide supports all primary school staff including the leadership team, teachers and canteen management, staff and volunteers as they seek to increase children's vegetable intake.

It sets out seven best practice guidelines that can be used in existing programs or to develop new initiatives. These can be applied across the range of activities in your school, from policy and curriculum through to excursions, events and interactions with families.

There are a number of useful guides and resources to support families, carers and educators in encouraging children to eat more vegetables. Some of these are listed at the back of this guide.

This guide is an important addition to these resources, founded on a robust review of the literature.

The seven best practice guidelines have been developed through analysis of previous programs and initiatives [2]. All the activities suggested in this guide are drawn from programs that have worked in the past.

## Schools can help children eat more vegetables

Primary schools are ideally placed to increase children's vegetable intake, as well as children's understanding and knowledge of vegetables.

- Nearly all children in Australia attend primary school [3].
- Children eat around 40% of their energy intake at school, with 14% of children buying their lunch from school canteens [4].

Schools can influence children's vegetable intake across their range of policies, programs, activities and educational modules.

In achieving any goal, you need to know the environment in which you are operating and the enablers and barriers to success. Among these are psychological, cultural, social, regulatory and policy factors.

Children eat around 40% of their energy intake at school, with 14% of children buying their lunch from school canteens [4].

## National Healthy School Canteen Guidelines

School canteens operate within the [2010 National Healthy School Canteens Guidelines](#), as well as under policies and guidelines from state and territory governments. The best practice guidelines for increasing children's vegetable intake can be used alongside these.

## Australian Curriculum

School classrooms are a busy space. The Australian Curriculum is the major but not the only influence on what appears in the curriculum.

The best practice guidelines do not aim to be yet another burden on teaching and support staff. Rather, there are opportunities to fit vegetable-related activities into existing lessons and activities, such as modules on health, physical education and society.

## Barriers

Schools may experience a range of common barriers that impact on children's vegetable intake [5], such as:

- children's taste preferences
- a perceived lack of parental support, interest or knowledge
- the availability of vegetables and the time required to prepare them.

## Opportunities

There are positive ways in which schools can promote vegetables [5] despite these barriers, such as through:

- education sessions for families and children on the benefits of vegetables, with practical support such as recipes
- integration of vegetable-related topics into the school curriculum, including through the development of a school garden
- modelling of vegetable intake by teachers and other staff
- include vegetables in lunches and snack options in canteens
- identifying a "champion" or "champions" in the school environment to lead and coordinate vegetable-focused activities.



# The seven guidelines

The seven guidelines are focused on increasing children's vegetable intake and are grouped into three segments:

- Foundation: identify the concepts and structure that will enable change
- Action: set goals and plan for success
- Review: monitor and provide feedback

It is recognised that schools already have nutrition policies and practices in place that support good nutrition. Schools are encouraged to review what they are currently doing and decide where they can have the greatest (and perhaps quickest and easiest) impact.



## Foundation

- 1 Make vegetables the hero**  
Have simple vegetable specific messages with a clear focus.
- 2 Coordinate sustained effort across multiple players**  
Coordinate long-term action among key players involved in providing and promoting vegetables to children.
- 3 Grow knowledge and skills to support change**  
Identify and act on gaps in knowledge and skills to support children's vegetable intake.
- 4 Minimise barriers to increase success**  
Understand and identify ways to address barriers to children's vegetable intake.

## Action

- 5 Plan for and commit to success**  
Set clear and measurable vegetable-specific goals and commit to a plan of action.
- 6 Create an environment that supports children to eat vegetables**  
Make vegetables the easy choice by providing an environment that promotes vegetable familiarisation and intake.

## Review

- 7 Monitor and provide feedback on progress**  
Monitor progress and achievement against goals and provide feedback at regular intervals.

Further details on each guideline follow. Additional resources and proven ideas for action are included later in this guide.

# Foundation

## 1 Make vegetables the hero

Initiatives that focus more specifically on vegetables, with clear and consistent messages on increasing children's vegetable intake are more effective.

### What you can do

- Teachers can include vegetables in a range of activities.

Crunch&Sip® has some creative ideas for classroom [activities](#) based on different learning areas.

- Teachers can include vegetables in relevant learning experiences, resources and interactions.

Refresh.ED has an extensive collection of food and nutrition [curriculum materials](#) based on children's year level.

Phenomenom! has a free digital toolkit for teachers of curriculum-aligned [lesson plans](#).

Taste & Learn™ includes classroom educational [materials](#) that focus on sensory education.

- The canteen can offer a variety of appealing vegetable options.

Example vegetable preparation ideas and recipes for canteens can be found at:

- [Healthy Eating Advisory Service](#)
- [Crunch&Sip®](#)
- [Eat Smart Play Smart.](#)



The canteen can offer a variety of appealing vegetable options.

## 2 Coordinate sustained effort across multiple players

A coordinated and sustained effort from the school leadership team, teachers, canteen management, staff, volunteers and parents, families or carers is most effective in increasing children's vegetable intake. Regular and ongoing efforts to expose children to vegetables will have the best results.

What children learn in the classroom needs to align with what they see in the canteen – and in the home. Healthy behaviours are everyone's responsibility.

Open communication both within your school and with families is crucial for consistent messaging on the value of eating more vegetables.

### What you can do

- Leadership team can make sure all staff members are on the same page - communication is the key.

Healthy Eating Advisory Service has [strategies](#) to support a whole-school approach.

- Canteen staff and teachers can match what children learn in the classroom with what they see in the canteen.

The Healthy Eating Advisory Service has fun healthy eating theme and cultural celebration day [ideas for canteens](#).

- All staff can communicate with families to encourage a consistent message on vegetable intake at home.

Crunch&Sip® has [tips for parents](#) on how to include more vegetables in lunchboxes and meals.

Eat a Rainbow has [pamphlets](#) that can be taken home.

Healthy Eating Advisory Service has [newsletter insert topics](#) and ideas.

- VegKIT's [7 Days of Veggie Snacks](#) is a resource that can help canteen staff visualise what one serve of vegetables looks like and can also function as lunchbox inspiration for families.

Regular and ongoing effort means at least once per week for a minimum of six weeks.



### 3 Grow knowledge and skills to support change

Being aware of your and your staff's current knowledge and skills – and the gaps – can help identify areas for improvement. A scan of children's knowledge and skills is also important.

#### What the leadership team can do

- Find out knowledge levels and practices among staff, students and families.
- Tailor training and education to address gaps in knowledge and skills.

#### What all staff can do

- Participate in training and education on vegetable-based nutrition:

The Healthy Eating Advisory Service has free [online training](#) available for canteen staff, management and teachers of Victorian schools.

- Provide communications for families.

Refresh.ED has a range of home [activities](#), including a cooking with kids booklet, which can be provided to families to complete at home.

#### One serve of vegetables

75g = 1 cup raw vegetables or 1/2 cup cooked vegetables or legumes



### 4 Minimise barriers to increase success

Identifying and minimising barriers to children's intake of vegetables is a key component in increasing their vegetable intake.

Barriers are often complex and may overlap:

- Environmental, regulatory and health factors: policy restrictions relating to food storage, preparation and safety such as choking risks with some hard, crunchy vegetables and allergy risk; competing priorities within curriculum requirements.
- Budget considerations: using seasonal produce or alternatives such as canned or frozen vegetables to reduce cost; wastage of fresh produce; additional staff time required to prepare vegetable snacks.
- Knowledge and skills: lack of relevant cooking skills; limited knowledge of vegetable-based meal and serving ideas.
- Social influences: lack of positive role models enjoying vegetables; peer, sibling or parental dislike of vegetables; availability of other foods; distractions that create barriers to eating vegetables.
- Child development: developmental stages that create resistance to vegetables such as neophobia (the fear of something new), growth in independence or temperamental change.

You can address barriers in a variety of ways.

#### What you can do

- Teachers can review curriculum activities to incorporate vegetable education. [Phenomenon!](#), [Refresh.ED](#) and [Taste & Learn™](#) have a wide range of creative and interesting classroom lessons for teachers.
- School and canteen management can audit canteen menu to identify the prominence of vegetables.  
Canteen and leadership team can assess the menu using [FoodChecker](#), which assesses menus against the Victorian School Canteens and Other School Food Services Policy.
- Teachers can work with students to brainstorm possible barriers and come up with solutions that the school or canteen can implement.

# Action

## 5 Plan for and commit to success

### 1. Identify a clear and specific goal

Be specific.

Decide which behaviour you want to target first. Eating behaviours can be divided into three simple types:

#### Increasing serves

Increasing the portion or amount of vegetables eaten at each meal.

#### Increasing frequency

Increasing the number of times vegetables are eaten each day.

#### Increasing variety

Increasing the number of different types of vegetables eaten each day.

Rather than immediate behaviour change you may wish to target knowledge or skills in relation to vegetables, such as around food culture, nutrition and health, food preparation, or environmental impact.

#### What leadership, teachers and canteen managers can do

- Choose one goal in the first instance by reflecting with your team:
  - What is the easiest change we can achieve within the context of our school or classroom or canteen?
  - What change or activity would most appeal to our students?

#### Examples of target behaviours to raise vegetable intake: increasing serves, frequency and variety

Approaches	Increasing serves	Increasing frequency	Increasing variety
Target behaviour examples	Provide ½ serve (38g) of vegetables per lunch in the canteen.	Introduce a vegetable snack break to the classroom.	Include two different types of vegetables per lunch in the canteen.
	Include ½ serve (38g) of vegetables per snack in the canteen.	Ensure two classroom activities per week include vegetables.	Involve students in creating and maintaining a ‘cooking garden’ containing a variety of vegetables.

### 2. Choose a practical, simple approach

Keep it simple.

Once you have identified your goal, consider how best to achieve it. In the school setting, where students supply or decide on their own meals, this may be by indirect means rather direct means.

#### What the leadership team can do

- Identify one or two simple actions to achieve your goal by addressing the following questions:
  - What is the most practical option?
  - What is affordable and what do I have the resources to achieve?
  - What approach will most likely engage our students?
  - What will deliver the best outcomes for the students?
- Work with students, staff, the governing council or the canteen to identify actions to achieve your goal. Use the checklist on page 16 for some ideas.

### 3. Plan for and commit to change

Make a plan.

There are lots of ways to make a plan. A tried and true way to start is by bringing your team or colleagues together and brainstorming the following:

Why are we doing this and why is it important?  
What is the overall goal and what steps needs to be undertaken?  
When do we put these steps in place?  
Where should the initiative and steps take place?  
Who is responsible and who is the target audience?  
How do we measure our progress and how can we improve?

Commit to the change and make it part of your overall work plan.

#### What the leadership team can do

- Write down your aim, your action and your plan so that you and those involved can implement it.
- Place the project on the agenda of meetings or in classroom work plans, as appropriate.
- Communicate about the project through newsletters, assemblies, charts and recognition of achievements.

## 6 Create an environment that supports children to eat vegetables

Make vegetables readily available and always at hand. Make them part of everyday life.

Children eat foods that are familiar and liked. Whether that food is healthy or not may be of little interest to them, so make vegetables an ongoing and easy choice.

### What you can do

- Canteens can provide more vegetables on the canteen menu.

These resources provide recipes and ideas for inspiration:

- Healthy Eating Advisory Service [food and drink ideas](#) for schools
- Eat a Rainbow [recipes](#).

- Teachers can deliver paddock-to-plate education to teach where food comes from.
- The school can establish vegetable gardens to explore and see how things grow.

The Fresh Tastes program provides [practical tips](#) on how to set up a school kitchen garden.

- Make opportunities for cooking and tasting vegetables.

The Taste & Learn™ program emphasises vegetable tastings in structured [activities](#).



Teachers can deliver paddock-to-plate education to learn where food comes from.

## Review

## 7 Monitor and provide feedback on progress

Monitoring and providing feedback are essential components of any initiative. They are undertaken at regular times during the initiative as well as at the end. Final evaluation is a must.

Monitoring has a number of benefits. It keeps you on track. It allows you to improve what you are doing as you go – as well as helping you design better initiatives in the future. And it helps you communicate with staff and families along the way. Giving feedback keeps everyone motivated and keeps you accountable.

An important part of your evaluation will be to measure any change in the amount of vegetables eaten by children during the initiative. To do this, you will need to use a well-developed measurement tool to ensure accuracy and reliability.

### What management can do

- Track the process and initiatives you undertake.
- Evaluate the change in students' knowledge, understanding and attitudes.
- Evaluate the change in students' vegetable intake.
- Share your progress to the school community and ask them for feedback.



Teachers can include vegetables in a range of activities.



# What you can do:

## A checklist of simple ideas that work in schools



All the activities suggested are drawn from effective programs.

### **Leadership:** Build a joint approach

- ☐ Ensure your school's nutrition policy gives prominence to vegetables
- ☐ Meet with the school board, teachers, OSHC educators and canteen employees to ensure messaging on vegetables is consistent
- ☐ Communicate with families through brochures, posters, newsletters and emails on the value of eating vegetables
- ☐ Identify a "champion" or "champions" to lead and coordinate vegetable activities

### **Teachers:** Have vegetables everywhere

- ☐ Create clear goals for education sessions
- ☐ Conduct practical classes on making vegetables part of lunch and snacks
- ☐ Educate children on the benefits of growing and eating vegetables, such as the environmental and health impacts
- ☐ Introduce vegetable education into other modules, such as storytelling, active play, numeracy, science and society. Use vegetable characters or mascots to encourage children to engage in these activities.
- ☐ Ask children to recall normal snacks or meal habits and discuss ways to add vegetables
- ☐ Have the children create posters or placemats that encourage vegetable intake or tell vegetable stories
- ☐ Provide non-food rewards, such as stickers, rather than rewarding with unhealthy foods
- ☐ Have "vegetable breaks" that emphasise the intake of vegetables
- ☐ Supply cutting kits with safe knives, chopping boards and peelers to allow students to prepare their own vegetables
- ☐ Provide take-home activities such as vegetable-rich recipes for children to create with their families
- ☐ Provide tailored feedback to families about children's eating behaviours such as stickers that state: "I tried [insert vegetable] today"

### **All staff:** Encourage students to step-up

- ☐ Ask students to sign a pledge to eat more vegetables
- ☐ Get students to take up vegetable challenges, such as trying a new vegetable every week or cooking breakfast with a vegetable included
- ☐ Ask students to create their own vegetable goals – these should be clear, measurable and specific, e.g. bring vegetables to school for a snack every day
- ☐ Assist students to track their progress towards their vegetable-related goals
- ☐ Help students to identify potential barriers to eating vegetables and brainstorm solutions
- ☐ Provide children with food diaries – perhaps as simple as a sticker chart – to log their daily vegetable intake
- ☐ Be a role model for eating vegetables

### **Canteen:** Put vegetables on the menu

- ☐ Provide a variety of vegetables in the canteen every day, including different types, colours, smells and textures
- ☐ Encourage vegetables to be readily available as snack foods
- ☐ Place vegetables at the start of the canteen line
- ☐ Ask canteen staff to monitor vegetable serves on offer and purchased



# Engaging with families

Engaging with families has the best results for increasing children's vegetable intake. It ensures consistent messages. It can also improve vegetable intake at home. Australian children currently eat 54-65% of their vegetables at dinner time, so increasing intake at this meal can have results.

Below are a few ideas on how to engage with families. VegKIT also offers a range of resources, such as posters, newsletter templates, recipes and take-home activities, to help you engage with families. See the website and registry at [www.vegkit.com.au](http://www.vegkit.com.au).

## Ways to engage with families



Include information and tips in newsletters.



Share children's interest in vegetable activities through service apps and social media.



Exhibit displays and posters of vegetables.



Provide information about children's intake and exposure to vegetables in communication books.



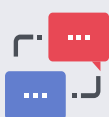
Provide families with the same posters, placemats and marketing materials used in the service.



Share videos on how to have discussions with children about vegetables or how to create healthy lunchboxes.



Organise education sessions for families.



Talk with families at pick-up time about how to add more vegetables to dinner.



Create a challenge for families e.g. parents try two new vegetables this week.



Provide take-home activities families can do with their children.

# Program examples & resources

There are many freely accessible programs and resources that can help you increase children's vegetable intake.

See some of the excellent resources listed below, some are national, whilst others are designed to meet state-based guidelines.

## VegKIT

The VegKIT project aims to increase the vegetable intake of Australian children. Designed to provide a collection of practical tools, resources and interventions, the five-year project centres around six key activities to support children, educators and health care professionals, and engage with industry.

Delivered via a collaboration between CSIRO, Flinders University and Nutrition Australia, and financially supported by Hort Innovation, VegKIT is the first Australian program to provide an integrated nation-wide approach to improving children's vegetable intake.

The VegKIT website offers many more resources for you to use free of charge. For more information: [www.vegkit.com.au](http://www.vegkit.com.au).

## Healthy Eating Advisory Service

The Healthy Eating Advisory Service is a free service that supports Victorian outside school hours care services to provide and promote healthy foods and drinks.

HEAS provides a free telephone and email Infoline, recipes, fact sheets, and online training.

Wherever you are, you can visit the HEAS website to access practical resources and templates, such as:

- menu planning resources
- recipes and healthy food and drink ideas
- case studies
- online training
- and more.

For more information: [heas.health.vic.gov.au](http://heas.health.vic.gov.au)

HEAS is delivered by Nutrition Australia Vic Division, with support from the Victorian Government.

## Eat Smart Play Smart

Eat Smart Play Smart is an online learning resource that focuses on nutrition and physical activity guidelines.

Developed by NSW Health and the Heart Foundation, it provides resources such as:

- online training for OSHC staff
- example policies
- cooking and food activities.

For more information go to [esps.androgogic.com.au](https://esps.androgogic.com.au).

## Phenomenom!

Hort Innovation's Phenomenom! is a free digital toolkit for teachers designed to slip more serves of vegetables into the classroom. Visit the website to access resources including:

- a guidebook with vegetable-focused lesson plans
- a library of online videos and audio clips
- searchable curriculum activities.

For more information see [phenomenom.com.au](https://phenomenom.com.au).

## Eat a Rainbow

SA Health's Eat a Rainbow educational program encourages children to eat a range of different coloured fruit and vegetables. It includes curriculum activities as well as ideas for families.

The website includes resources such as:

- teachers' guides
- a program toolkit, including certificates, fact sheets and tasting charts
- posters, flashcards and games
- colour-coded recipes.

Search Eat a Rainbow resources on [www.sahealth.sa.gov.au](https://www.sahealth.sa.gov.au).

## Crunch&Sip®

Crunch&Sip® is a primary school nutrition program to increase children's vegetable, fruit and water intake through snack breaks in the classroom.

Students bring vegetables, fruit and a clear water bottle to school each day for the Crunch&Sip® break.

The program was developed in Western Australia, is coordinated by the Cancer Council WA and is funded by Healthway. It is implemented in New South Wales by the Healthy Kids Association.

The Crunch&Sip® website provides resources such as:

- lunchbox ideas
- case studies
- information for teachers and families
- classroom resources, such as posters, newsletter inserts, fact sheets and curriculum resources.

Visit the website to join the program and become a certified school:

[www.crunchandsip.com.au](https://www.crunchandsip.com.au).

## Refresh.ED!

Refresh.ED! helps teachers to introduce food and nutrition into the classroom. Developed by Edith Cowan University, it includes professional learning and curriculum materials from kindergarten to year 10, linked to the Early Years Learning Framework and the Australian Curriculum.

Register for free to access a range of resources such as:

- curriculum materials
- teacher information sheets and videos
- professional practice videos and teaching ideas.

For more information go to [www.refreshedschools.health.wa.gov.au](https://www.refreshedschools.health.wa.gov.au).

## Fresh Tastes

Fresh Tastes is a free ACT Government service that teaches students how to make healthy food and drink choices and how to grow and make fresh food. Fresh Tastes also helps schools to create healthier canteen menus and offer healthier choices at school events. The website contains educational videos and links to other credible sources covering lunchboxes, canteens, gardening, cooking, policy and fundraising events.

For more information go to [health.act.gov.au/about-our-health-system/healthy-living/fresh-tastes](https://health.act.gov.au/about-our-health-system/healthy-living/fresh-tastes).

## References

1. Australian Bureau of Statistics. 4364.0.55.001 - National Health Survey: First Results, 2017-18. 2018 [cited 2019 19 Sept]; Available from: <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.001~2017-18~Main%20Features~Children's%20risk%20factors~120>.
2. Hendrie, G.A., et al., Best practice guidelines for increasing children's vegetable consumption: A comprehensive report of the development of best practice guidelines to inform interventions aiming to increase children's consumption of vegetables. 2018, CSIRO, Flinders University, Nutrition Australia (VIC).
3. Australian Bureau of Statistics. 4221.0 - Schools, Australia, 2018 2019 [cited 2019 19 Sept]; Available from: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/F893EB82D5D6C6F4CA258505001CB187?opendocument>.
4. Bell, A.C. and B.A. Swinburn, What are the key food groups to target for preventing obesity and improving nutrition in schools? Eur J Clin Nutr, 2004. 58: p. 258-263.
5. Sharp, G., et al., Potential in-class strategies to increase children's vegetable consumption. Public Health Nutr, 2017. 20(8): p. 1491-1499.



