Australian Avocados Our green gold superfood STUDENT WORKBOOK

YEARS 7/8











Lesson 1: Australian avocados

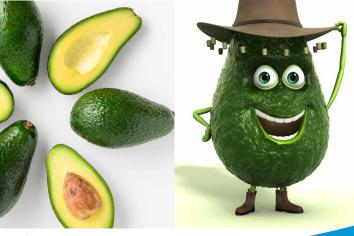
Originating in Central and South America, avocados are a type of fruit that have become increasingly popular in Australia over recent decades. In the last 10 years, Australians have tripled the amount of avocados we eat! Their popularity can be attributed to being very high in nutrients, while being versatile and able to be used and eaten in a variety of ways. There are various types of avocados, although the most commonly eaten varieties in Australia are Hass and Shepherd.

Australian avocado farmers work hard to meet the supply needs of Australian and overseas consumers. In this lesson we will learn how and where avocados grow in Australia, and explore the supply chain that brings avocados from the farm to our plates.



Hass avocado variety





Shepherd avocado variety



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How do avocados grow?

Avocados grow on trees. If grown from seed, some varieties of avocado trees can take up to 10 years to start producing fruit, although trees that have been grafted (a technique that joins two plants into one) will not take as long. Amazingly, some avocado trees can live for 200–400 years!

A crop of avocado trees is called an orchard.

When planting and looking after an avocado orchard, farmers must take many things into consideration.

Soil

Avocados grow best in deep soil that can drain easily. If the soil holds too much water and doesn't allow it to drain away, the trees are likely to get diseases that can cause their roots to rot. Trees like to be planted in soil that has been mounded, which also helps to drain excess water away.

Climate

Avocados do not grow well in places that get regular frosts in winter. They are therefore generally grown in areas that have a warmer climate. They can withstand temperatures up to 40 degrees for short periods of time, however some farms might use overhead sprinklers to protect the fruits from getting damaged during a heat wave. Avocado trees do not enjoy growing in areas with regular strong winds.

Fertilising

Growers need to take regular tests of the soil and leaves to ensure the right amounts and types of nutrients are being given to the trees. They pay particular attention to levels of nitrogen, boron, calcium, zinc and soil pH. Some orchards might employ an agronomist to manage this.



Avocados are grown on trees

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Water

Some orchards may choose to irrigate their trees (water them using man-made methods rather than relying on rainfall). It is important for the trees to receive enough water to ensure they grow well and absorb the nutrients from the soil that they need, however too much watering can cause problems for the roots.

Pollination

If orchards do not have a lot of natural bee activity occurring, growers may choose to introduce bee hives to help with the pollination of avocado flowers.

Harvesting

Farmers know their avocados are ready to be picked by testing the oil content inside them. Avocados are harvested by hand. Pickers work from the ground or use a cherry picker to get higher into the tree. Some farms might choose to employ extra workers during the harvest period to ensure all the fruits are picked at the right time.

Pruning

Trees need to be pruned (branches cut back) in order to keep them at a practical size (so fruit can be picked easily), allow sunlight through the canopy and rejuvenate the branches so they continue to fruit. Trees are usually pruned after the fruit has been harvested (picked).



Insects, such as bees, play an important part in the pollination of avocado flowers



Pruning avocado trees

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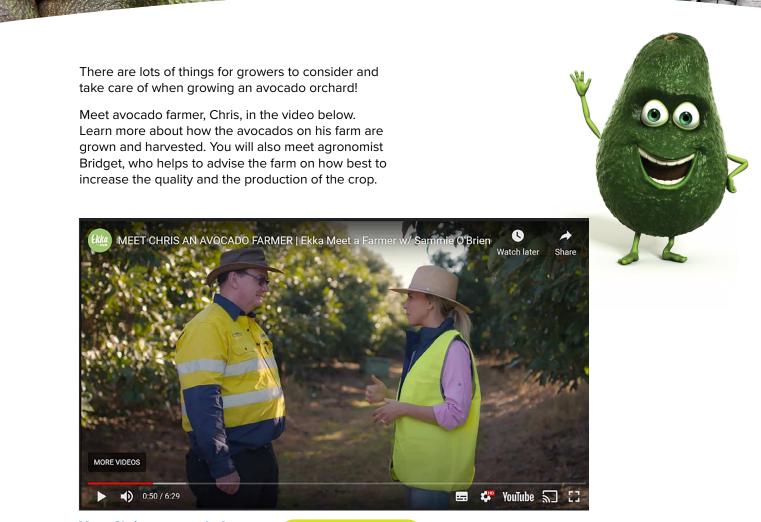


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Meet Chris an avocado farmer

Press to play

Ever wondered about how you could grow avocados in your own backyard? This information from **Gardening Australia (ABC)** might help you!

You can even grow an avocado plant from a leftover seed! Watch this video to learn how: Growing Avocado from Seed – Fact Sheets – Gardening Australia.











Go to link

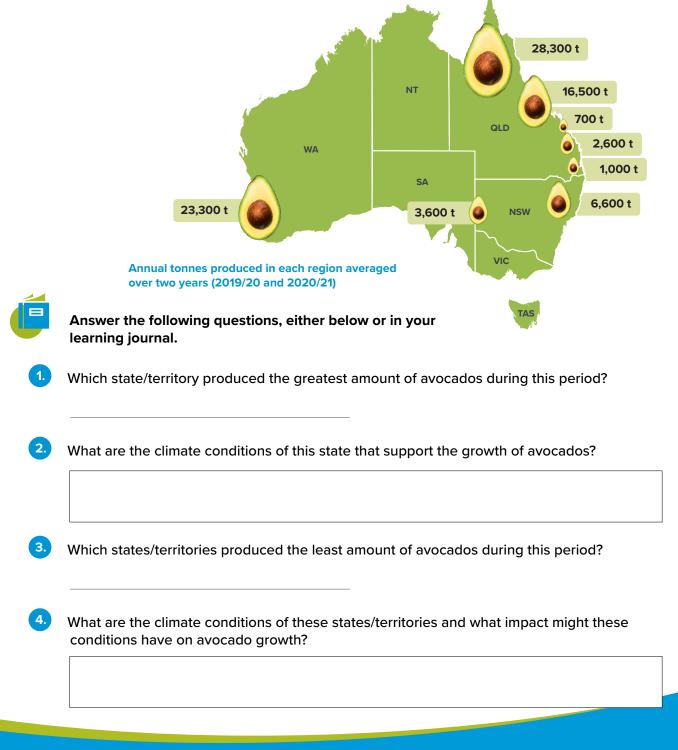
Where do avocados grow?

ACTIVITY 1A

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As we have already explored, avocados can be grown in many parts of Australia, however they prefer areas with regular rainfall and warmer climates that do not experience periods of frost during winter.

Analyse this diagram showing the average amount of avocados produced in various regions of Australia in 2019/20 and 2020/21.

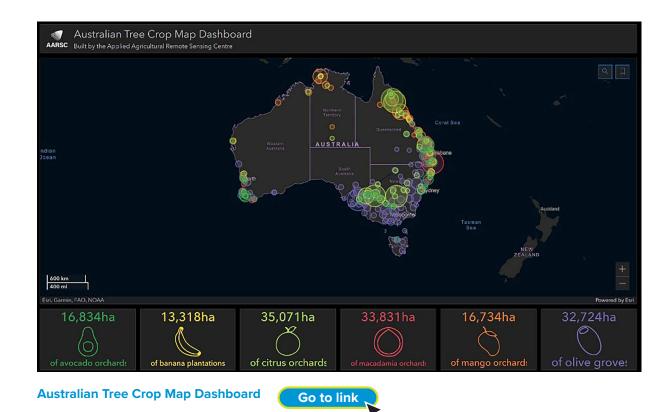


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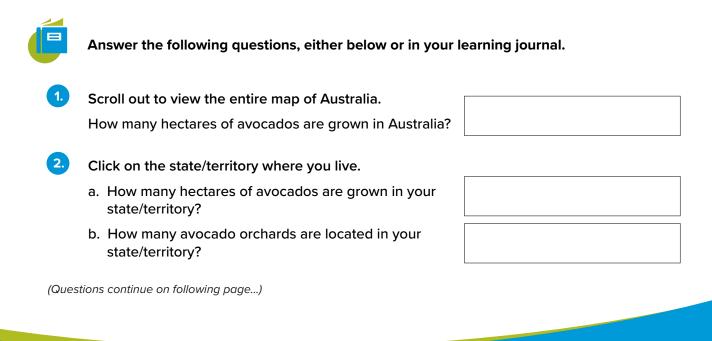
primezone







The **Australian Tree Crop Map Dashboard** is a geographic information tool used to summarise the number and size of various orchards and groves across Australia. Use the dashboard to gain a better understanding of where avocados are grown in Australia. Follow the directions below and answer the accompanying questions in your learning journal.











- Zoom into an area of the map with dark green symbols, representing avocado orchards. Zoom in closely to view one particular orchard of your choice and click on it to bring up details.
 - a. Describe the location of the property (e.g. south-east Western Australia; south of Perth).
 - b. How many hectares of avocado trees grow on this property?
 - c. Observe the satellite image of the property and its surroundings. Describe your observations.











How do avocados get from the tree to the plate?

ACTIVITY 1C

There are many people involved in the **supply chain** that enables avocados to get from the tree to your dinner plate. There are also various conditions that need to be considered at each stage of the supply chain to ensure the avocados are of a high quality and do not get damaged along the way.

Learn about the avocado supply chain by reading *The Little Green Book – The Adventures of Alvin*.





Answer the following questions, either below or in your learning journal.

What factors need to be considered when **picking** the fruit to ensure the avocados remain in good condition?



Aside from being packed, what happens in the **packing shed** to ensure that good quality produce gets sent to the shops?

(Questions continue on following page...)













How are the avocados **transported** from the packing shed to their destination? What conditions are needed for the avocados to ripen?

4.

3.

How should the avocados be displayed when **being sold** in the shops?

5.

Where should the **buyers** keep their avocados to ensure they ripen and then stay fresh before they are eaten?





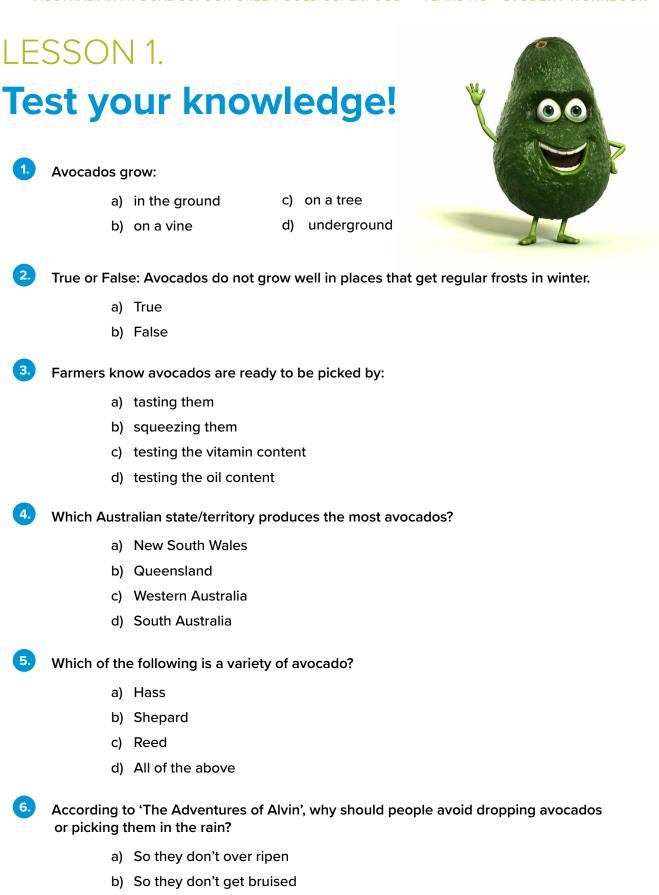












- c) To ensure they pass the dry matter test
- d) To ensure they don't get sunburnt









Lesson 2: Superfood!

In Lesson 1 we examined how and where avocados are grown in Australia, along with the supply chain process that allows avocados to get from the tree to our plate. But why do we want them on our plate? Because... they are a superfood!

What is a superfood?

'Superfood' is a special term that was invented to describe food that gives us a high quantity of **nutrients** and **antioxidants**, which can boost our immune system and help prevent illness and disease.

Examples of foods that are considered by many to be superfoods include berries, green tea, leafy greens (such as kale and spinach), salmon and avocado.









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What is the nutritional value of avocados?

Healthy fats

Avocados are very rich in healthy, good fats.

Usually, people that aim to eat a healthy diet try to avoid fatty foods. Eating lots of food that contains saturated fats (such as butter, desserts, cheese, fatty meats) can increase cholesterol levels and the risk of heart disease.

However, it is important for our bodies to receive good fats, known as monounsaturated and polyunsaturated fats. Avocados are a source of monounsaturated fat. Healthy fats can help you:

- absorb essential nutrients (such as Vitamin E);
- reduce the risk of developing Type 2 diabetes:
- help maintain heart health; and
- promote healthy skin.

Healthy fats can also help to control our appetite by releasing hormones in the intestine that signal fullness. This can help promote weight loss.

Nutrients

Avocados are a great source of vitamins C, E, K and B6, amongst others! Nutrients provide our bodies with energy and help our bodies repair, grow and reproduce.

Fibre

Fibre helps to keep our digestive system healthy and keep us full and satisfied between meals. Like all plant foods, avocados are a great source of fibre.



Avocado chia puddings



Moroccan avocado wedge salad

Antioxidants

Antioxidants are molecules that fight free radicals in your body. Free radicals are compounds that can cause your body harm if there are too many of them in your body- they are linked to illnesses such as cancer, diabetes and heart disease. It is important to eat foods with natural antioxidants, like avocados and other fruits and vegetables, in order to fight these potentially harmful compounds.

Adding avocado to a meal can also help your body better absorb the antioxidants from the other vegetables on your plate!

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Who should eat avocados?

EVERYONE can benefit from the wonderful health benefits that avocados provide! There are also certain groups of people who might find the nutritional value of this fruit particularly important.

Pregnant women

Folate is a nutrient which is important for the growth and development of cells. Women need to consume at least 400 micrograms of folate per day in the month before and three months after a baby is conceived to promote the healthy growth of their baby. Avocados are an excellent source of folate — one avocado can provide 27% of the daily recommended amount.

They can also be beneficial for breastfeeding women, as this is a time when a woman's nutrient demands significantly increase.

Babies and toddlers

The vitamins and minerals in avocados can assist babies and toddlers with growth and development, brain function, muscles and nerves, bones and teeth, vision, skin and hair, healthy gut and immunity. Being soft and creamy in texture and mild in flavour, they are a great fruit to use when introducing babies to solid food for the first time.

Diabetic people

People with diabetes must manage and monitor their blood sugar levels at all times. Being low in carbohydrates, avocados have little effect on blood sugar levels, while still providing the fibre and healthy fats that are of benefit to diabetics.





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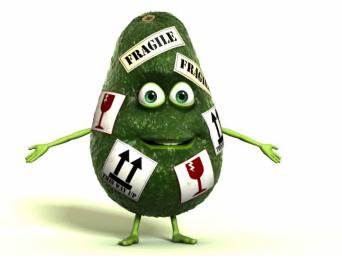






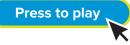
Choosing the perfect avocado

We now know that there are **SO many nutritional benefits** to eating avocados, but how do you know which are the best ones to choose when doing your shopping? Watch '*The Fruit Nerd*', Thanh Truong explain the difference between the Hass and Shepherd varieties and teach us how to pick the perfect avocado.... WITHOUT squeezing them!





How to pick the perfect avocado — ABC Everyday





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How do you prepare avocados before eating them?

There are many different ways to prepare and eat avocados, as we will explore in further lessons!

However, the wonderful thing about avocados is that they can also just be eaten raw, with no cooking and little preparation or additional ingredients needed. This helps them maintain their high nutritional value, as the **nutrients and antioxidants are not reduced** in the cooking process. To get the full healthy benefits of an avocado, it's as simple as removing the skin and the seed and eating the soft green flesh inside! Not sure how to open and cut an avocado? Watch this video **'How to Slice an Avocado With Kids'** to learn how.

Now that we know the basics, let's investigate in Lesson 3 the variety of ways in which avocados are enjoyed in different cultures and countries around the world!



How to Slice an Avocado With Kids





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1.

Answer the following questions, either below or in your learning journal.

Healthy fats vs unhealthy fats

Conduct research into the different types of fats. Create lists of foods that are examples of saturated fats, monounsaturated fats and polyunsaturated fats.

Saturated (unhealthy)	Monounsaturated (healthy)	Polyunsaturated (healthy)

2. From the list above, highlight the foods you regularly enjoy.

3. Which list has the most foods highlighted?

Are you consuming more healthy fats or more unhealthy fats?













Answer the following question, either below or in your learning journal.



Summarise in your own words the nutritional benefits of eating avocados. How (and why) would you encourage someone who has never eaten them to try them for the first time?













LESSON 2. Test your knowledge!



Avocados are a source of a healthy fat called:

- a) Saturated fat
- b) Monounsaturated fat
- c) Polyunsaturated fat





Avocados are also a great source of:

- a) Nutrients
- b) Fibre
- c) Antioxidants
- d) All of the above

3. True or False: One avocado can provide a pregnant woman with over one quarter of the daily recommended amount of folate needed for the healthy growth of her baby.

- a) True
- b) False

4. Avocados have little effect on blood sugar levels and therefore are a good dietary option for:

- a) Diabetic people
- b) Babies and toddler
- c) Pregnant women
- d) Elderly people

Thanh Truong's advice for helping your avocado to ripen faster is:

- a) Putting it in the microwave
- b) Sitting it outside in the sun
- c) Placing it with an apple or a pear
- d) Keeping it refrigerated

The best way to open an avocado is:

- a) Cut down and around the centre of the avocado and twist apart
- b) Smash the avocado with a potato mash before peeling the skin away

5.

6.









Lesson 3: Avocados around the world

Avocados originated in Central and South America, however now they are grown in many different countries and enjoyed the world over!

This map shows the various countries that produce avocados (2016).

>1,000,000 500,000-1,000,000 250,000-500,000 100,000-250,000 50,000-100,000 25.000-50.000 10.000-25.000 5 000-10 000 2.500-5.000 1,000-2,500 100-1,000 <100 No data

World avocado production, measured in tonnes per year (2016)

Source: Wikimedia Commons







FRAGUE





Being such a versatile fruit, avocados are enjoyed all around the world in very different ways. In some regions it is used mostly as an ingredient in sweet dishes, while in others it is predominantly used in savoury meals.

In Australia, avocados are most commonly eaten in salads or 'smashed' on toast. But there are so many more ways that avocados can be enjoyed if we take inspiration from around the world!

In the video below, American food enthusiast Beryl Shereshewsky creates, eats and reviews five avocado dishes from different countries in her quest to explore 'How the world eats avocado'.



Avocado shakshuka









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Recipe		Country of origin	
Guacamole	Go to link	Mexico	
Palta Reina	Go to link	Chile	
Causa Limena	Go to link	Peru	0
Avocado soup	Go to link	Colombia	
Spris	Go to link	Ethiopia	
Creme de abacate	Go to link	Brazil	
Avocado ice cream	Go to link	Philippines	
Jus alpukat	Go to link	Indonesia	
Tapas	Go to link	Spain	
Sushi	Go to link	Japan	

Chilled avocado and yoghurt soup



Sushi





... or find a different international avocado recipe of your own!



Palta Reina



Causa Limena



Guacamole

















ACTIVITY 3

Research, make and review an international avocado recipe!



Research

Choose a recipe from the list on the previous page OR pick a different recipe of your own choice. Research into the recipe's country of origin and the history of the recipe.



Record your findings below or use the template provided in your learning journal to help guide your research.

Name of recipe:	
Country of origin:	
Brief information about country of origin (e.g. location, population, people):	
Type of product (snack, meal, drink, dessert:	
Why did you choose this recipe? Is it similar to any foods/drinks you already consume or very different?	









Make

Have a go at making your chosen recipe!



Record the ingredients and method in the space below, or in your learning journal. Answer the questions regarding preparation and cooking techniques.

Ingredients:	
Method:	

(Activity continues on the following page...)









Describe the preparation technique/s required for the avocados in this recipe		



If possible, include a photograph below of your creation:













Review

What did you like about the recipe? Are there any changes or recommendations you would make for others wanting to try it? Are the nutritional benefits of avocados still present in this recipe?

Create a review of your chosen recipe – this could be presented in written form or as a video, similar to Beryl Shereshewsky's.



3.

Use either the space below or your learning journal for planning. Talk to your teacher about the best way to present your review.



Planning your review....















LESSON 3. Test your knowledge!



Avocados originated from:

- a) Australia
- b) Africa
- c) Asia
- d) Central and South America





Avocados are eaten:

- a) Mostly in the Americas
- b) Mostly in the southern hemisphere
- c) Mostly in the northern hemisphere
- d) All around the world
- 3. True or False: Avocados are solely used in savoury dishes and are unable to be used in sweet dishes.
 - a) True
 - b) False

4. In the video 'How the world eats avocado', from which country does the sweet avocado and condensed milk dessert originate?

- a) America
- b) Philippines
- c) Estonia
- d) Colombia

5. In the video 'How the world eats avocado', what type of Syrian avocado recipe is examined?

- a) Salad
- b) Dessert
- c) Soup
- d) Smoothie











Lesson 4: A healthy alternative

In Lessons 2 and 3 we have explored the health benefits of eating avocados, and the different ways avocados are used as a key ingredient in recipes around the world. In this lesson, we will investigate how people use avocados as a **substitute or alternative ingredient** in meals, snacks and desserts – this means that a regular ingredient is taken out and replaced by avocado. There is a growing trend to use avocado as a replacement ingredient in dishes in order to **increase the nutritional value** of the food being eaten. Using avocado as an alternative product can also change the taste and texture of a recipe.



Meals

Avocado can be used as an **alternative ingredient** in many different breakfast, lunch and dinner meals.

People sometimes use it to replace ingredients such as cheese, cream, meat or butter. This makes it a great alternative for vegetarian and vegan diets, but also creates a 'healthier choice' for all food lovers! As we know, avocados are a source of healthy fats, so they are a great substitute for foods which can have high levels of the types of fats we should be avoiding. The website below, 'Recipe Makeovers: Substituting Ingredients with Avocados', demonstrates how replacing some standard breakfast, lunch and dinner ingredients with avocado can have a big impact on improving the nutritional value of the meal. Use the sliding bar on each photograph to reveal how the calories, saturated fat, good fat and fibre is altered by replacing one or two ingredients with an avocado.





Recipe Makeovers: Substituting Ingredients with Avocados







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ΑCTIVITY 4Α

How can avocados replace other ingredients?

Visit the website <u>Recipe Makeovers: Substituting Ingredients with Avocados</u>. Choose from the Breakfast Swap, the Lunch Swap or the Dinner Swap. Use the sliding bar on each photograph to reveal how the calories, saturated fat, good fat and fibre is altered by replacing one or two ingredients with an avocado.



1.

Answer the following questions, either below or in your learning journal about the differences between each of the meals presented on this website.

Name of recipe:	
Which ingredients have been swapped and replaced with avocado?	
Calories, saturated fat, good fat, fibre of original recipe.	
Calories, saturated fat, good fat, fibre of recipe with avocado substitute.	

Here are some other delicious meal recipes that use avocado as a replacement ingredient:



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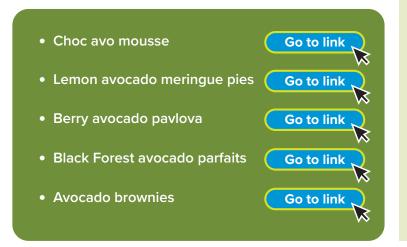




Desserts and baking

As we discovered in Lesson 3, avocados are often used in sweet dishes in many countries around the world. Cream and butter are two ingredients often used in desserts and baked goods that, although delicious, can increase the saturated fat content of the recipe. Using avocado as a replacement to these ingredients can be a **great healthy alternative**!

Check out some of these yummy treats that use avocado as a replacement ingredient:



Tips and suggestions:

- You can substitute avocado for butter in a 1:1 ratio — for example, replace one cup of butter with 1 cup of pureed avocado.
- Some people choose to substitute avocado for half of the butter required in the recipe. To do this, scoop out avocado, mash it in a small bowl and press it into a measuring cup. Combine with the remaining softened butter.
- If substituting 100% of your butter, it is recommended to decrease the oven temperature by approximately 25% to assist with the baking process.
- Replacing all the fat in a recipe with avocado can alter the colour of the food! Many bakers do the 'avocado swap' in chocolate-based dishes, where the main colour and flavour comes from the cocoa.



Berry avocado pavlova

Avocado brownies





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How else can avocados be used?

There are many, many different products that use avocado as a base ingredient due to their health, flavour and cooking properties.

One such product is **Avo Ale**, which uses avocados to add a fresh, unique flavour to beer! Watch the video, 'Aussie Avo Ale Drops From The Tree to The Esky Just in Time for Aussie Summer', below to learn more about this innovative product. **Avocado oil** is readily available in supermarkets and can be used as a great alternative to other oils such as vegetable oil. It can be used to make salad dressings and marinades, while also being used as a cooking agent when sauteing or grilling. Avocado oil is believed to be the safest and healthiest oil for high heat cooking, like frying, due to its extremely high smoke point.

And it's not only food and beverage producers that love avocados — they are also used in many **beauty products**! Being a great source of biotin (part of the B complex vitamins), they can assist with preventing dry skin along with brittle hair and nails, and are therefore used in products such as shampoos, conditioners, moisturisers and lotions.



Aussie Avo Ale Drops From The Tree to The Esky Just in Time for Aussie Summer







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Product research

ACTIVITY 4B

As we can see, the uses of this superfood are many and varied. Conduct your own research into a product that uses avocados to learn more. Choose a product that uses avocados as a key ingredient from the list below OR choose a product of your own choice.

- Avocado oil
- Avocado beer
- Avocado crisps/chips
- Avocado soap
- Avocado mayonnaise
- Avocado skin care/moisturisers
- Avocado dip/spread
- Avocado hair care
- Avocado tea
- Avocado liquid fertiliser



From the list above, conduct research to find a company/brand that makes this type of product. If possible, try to find an Australian company. Use the template on the follwing pages or your learning journal to help guide your research.

Type of avocado product:
Name of brand: (e.g. Murray River Organics avocado oil; Cantu Avocado Hydrating gel)
What is the product's price?
What are the advertised benefits of using this product?
Is this product something you would consider buying/using? Why or why not?

(Activity continues on the following page...)













Include images below of your chosen product:











LESSON 4. Test your knowledge!

 Look at the website 'Recipe Makeovers: Substituting Ingredients with Avocados'. Which ingredient is swapped with avocado in the Breakfast Swap?

- a) Eggs
- b) Cheese
- c) Sausage
- 2. Look at the website 'Recipe Makeovers: Substituting Ingredients with Avocados'. Which ingredients are swapped with avocado in the Lunch Swap?
 - a) Bacon and cheese
 - b) Raspberries and lettuce
 - c) Nuts and baby spinach

 Look at the website 'Recipe Makeovers: Substituting Ingredients with Avocados'.
Which ingredients are swapped with avocado in the Dinner Swap?

- a) Chicken and tomato
- b) Sour cream and provolone
- c) Flatbread and cucumber

4. Which common dessert ingredients can be substituted with avocado to reduce the saturated fat content of the recipe?

- a) Cream and butter
- b) Sugar and cocoa
- c) Sugar and cream
- d) Cocoa and butter



- 5. What adjustment should be made to the baking process if 100% of the butter in a recipe has been replaced by avocado?
 - a) Add 15 minutes to the amount time in the oven
 - b) Decrease oven temperature by 25%
 - c) Increase oven temperature by 10 degrees
 - Allow to stand for 15 minutes longer when removed from the oven

6. Why is avocado sometimes used as a key ingredient in beauty products?

- a) It provides a fruity and vibrant smell
- b) It's a healthier ingredient than many of the other ingredients used in beauty products
- c) It is a source of biotin which can assist in preventing dry skin and brittle hair
- d) The colour green is associated with health and wellbeing









Lesson 5: Make the switch!



Throughout the previous four lessons we have examined:

- how and where avocados grow;
- how avocados get from the tree to the plate;
- how to best choose and prepare avocados;
- the health and nutritional benefits of eating avocados;
- how avocados are eaten around the world; and
- how avocados can be used as substitutes for different products.

It is clear why the popularity of this special fruit has skyrocketed in Australia over recent decades. Watch the advertisement below, which proudly claims Australian avocados as **'Our Green Gold'**.

As a final component of this unit of work, use the information you have learnt in Lessons 1–4 to help you convince others to '**make the avocado switch!**'



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ACTIVITY 5

Cooking and design task: Make the switch!

- Choose a meal, snack or baked good in which avocado can be used as a healthier substitute for another ingredient. You can get ideas and inspiration from the links provided in Lesson 4, or alternatively use a recipe of your own choice.
- 2. Make **two versions** of your chosen recipe. Version 1 will use all the original ingredients in the recipe, while Version 2 will use avocado as a substitute for one of the ingredients.

An example of this would be:

Version 1 — chocolate brownies using butter; and Version 2 — chocolate brownies using avocado puree in replace of butter.



Use either the template on the following pages or your learning journal to record your recipes.















Recipe — Version 1 (original recipe)



Include an image below:













Recipe — Version 2 (avocado substitute recipe)

Name of recipe:	
Ingredients:	



Include an image below:













Report on the similarities and differences between the two versions of your chosen recipe. Comment on the taste, texture, smell, cooking preparation and nutritional value of each version.



3.

Use either the template below or your learning journal to guide your responses.

Compare and contrast:	Version 1 (original recipe)	Version 2 (avocado substitute recipe)
Taste		
Texture		
Smell		
Cooking preparations/ techniques		
Nutritional value		









4. Convince others to **'make the avocado switch'** by using it as an alternative ingredient in their cooking and baking. Think about the reasons you would encourage others to do this. Talk with your teacher about the best way to present your argument.

Examples include:

- A print or video advertisement
- A 'cooking show' style segment
- A food blog
- A supermarket poster



Use either the space below or your learning journal to record all your planning, reporting and ideas for this task.

