



Food, Drink
& HEALTH

YEAR 9

Know your drinks

Introduction

In this unit, students explore *Australian Guide to Healthy Eating* advice to 'drink plenty of water' and the range of health benefits this provides. They also investigate other sources of fluid including soft drink, diet soft drink, energy drinks and sports drinks and the nutritional value and detriments of each of these. Sustainability issues such as environment and cost are raised in a comparison of tap water and bottled water. Students assess their own intake of water and alternate drinks and evaluate the health, financial and environmental impacts of this consumption.

Key Message

- Nutritional quality and energy from different types and amounts of food and drinks can affect our overall health and wellbeing.
- We are able to make well-informed decisions to change our diets and lifestyles to improve our health and well-being.

This unit will enable students to:

- List, discuss and critically analyse short and long term health outcomes of consuming healthy/unhealthy diets.
- Compare nutritional quality and energy from different types and amounts of food and drinks and evaluate the implications for maintaining energy balance.
- Propose and implement new strategies to engage the school and wider community in healthy lifestyle activities including healthy eating.



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Health



Links to the Western Australian Curriculum

Main learning area: HEALTH AND PHYSICAL EDUCATION*

WA curriculum strands	WA curriculum sub-strands	WA curriculum content descriptions
Personal, social and community health	Being healthy, safe and active	<p>The impact of societal and cultural influences on personal identity and health behaviour, such as: how diversity and gender are represented in the media; differing cultural beliefs and practices surrounding transition to adulthood.</p> <p>Skills and strategies to manage situations where risk is encouraged by others.</p> <p>Analysis of images and messages in the media related to: alcohol and other drugs; body image; fast food; road safety; relationships.</p>
	Communicating and interacting for health and well-being	Effects of emotional responses on relationships, such as: extreme emotions impacting situations or relationships; the consequences of not recognising emotions of others.
	Contributing to healthy and active communities	Health campaigns and/or community-based activities designed to raise awareness, influence attitudes, promote healthy behaviours and increase connection to the community.

*Based on Western Australian Curriculum Health and Physical Education.

Links to the Australian Curriculum

Main learning area: HEALTH AND PHYSICAL EDUCATION*

Australian curriculum strands	Australian curriculum sub-strands	Australian curriculum content descriptions
Personal, social and community health	Being healthy, safe and active	Plan, rehearse and evaluate options (including CPR and first aid) for managing situations where their own or others' health wellbeing and/ or safety may be at risk. (ACPPS091) Propose, practise and evaluate responses where external influences may impact on their ability to make healthy and safe choices. (ACPPS092)
	Communicating and interacting for health and well-being	Evaluate and apply health information from a range of sources to health decisions and situations. (ACPPS095)
	Contributing to healthy and active communities	Plan, implement and critique strategies to enhance the health, safety and wellbeing of their communities. (ACPPS096) Plan and evaluate new and creative interventions that promote their own and others' connection to community, natural and built environments. (ACPPS097)

*Based on Australian Curriculum Health and Physical Education.

Additional links to the Australian Curriculum

Additional learning areas	Australian curriculum strands	Australian curriculum sub strands	Australian curriculum content description code
Design and Technology	Knowledge and Understanding		(ACSHE194) (ACTDEK040) (ACTDEK044)
Science	Science as a human endeavour	Use and influence of science	(ACSHE228)
	Science inquiry skills	Evaluating	(AC SIS206)

General capabilities

The Australian Curriculum describes seven general capabilities which extend across each learning area. Their relevance to learning tasks in this unit is indicated below:

Learning Task	Literacy	Numeracy	ICT capability	Critical and creative thinking	Ethical understanding	Personal and social capability	Intercultural understanding
The real cost of processed drinks							
Energy drinks – do they really give you wings?							
Tap or bottled - that is the question							
Weighing up drink choices							

Unit Overview

Some learning tasks require handling of foods or packaging. Before commencing any of these learning tasks:

- Check students do not have allergies or sensitivities to foods used.
- Ensure included food and drinks are culturally acceptable.
- Refer to food and drinks from other cultures in relevant class discussions.

Most learning tasks require prior preparation; therefore refer to the Resources needed list below before commencing each learning task.

Learning Task	Suggested time allocation	Resources needed
Introducing Key Messages		
1. The real cost of processed drinks	120 minutes	<ul style="list-style-type: none"> • A collection of empty processed drink containers • Internet access • <i>The real cost of processed drinks</i> Activity sheet– 1 per student • An apple • Small cup • Bottle of apple juice • Teaspoons and sugar (optional)
Developing Key Messages		
2. Energy drinks – do they really give you wings?	60 minutes	<ul style="list-style-type: none"> • Internet access • A collection of empty energy drink containers • Continuum labels
3. Tap or bottled - that is the question	45 minutes	<ul style="list-style-type: none"> • Butchers paper • Internet access • Packet of post it notes
Reflecting Key Messages		
4. Weighing up drink choices	60 minutes	<ul style="list-style-type: none"> • <i>Weighing up drink choices</i> Activity sheet - 1 per student

Teacher Information

Learning Task	Useful information and resources to deliver this Learning Task
1. The real cost of processed drinks	<ul style="list-style-type: none"> This learning task enables students to explore drinks including water and other popular beverages which are high in sugar or caffeine. Water is vital to the body and there is no single recommended intake, as this can vary depending on climate, physical activity, body surface area and individual metabolism. Water intake includes the water content of foods as well as fluids. Fruit and vegetables are the best source of water other than beverages. A general guide to fluids requirements is 4–5 cups of fluids a day for children up to 8 years, 6–8 cups for adolescents, 8 cups for women (9 cups in pregnancy and lactation) and 10 cups for men. Drinks high in sugar and/or caffeine can be detrimental to health. A 600ml bottle of soft drink typically contains 16 teaspoons of sugar and about 1000 unnecessary kilojoules. Regular consumption can lead to weight gain and obesity because people generally do not allow for the extra kilojoules in sugary drinks. In Australia, soft drinks have become among the most popular beverages. Their consumption per capita has increased by 30 per cent in 10 years.
2. Energy drinks – do they really give you wings?	<ul style="list-style-type: none"> Energy drinks contain varying amounts of caffeine, taurine, guarana, amino acids, vitamins and sugar. Energy drinks are promoted as beneficial in increasing stamina, and improving physical performance, endurance and concentration. See more at: http://www.druginfo.adf.org.au/fact-sheets/energy-drinks-do-they-really-give-you-wings-web-fact-sheet
3. Tap or bottled – that is the question	<ul style="list-style-type: none"> This learning task examines tap versus bottled water and which is really 'better'. Emphasis is placed on environmental and sustainability issues linked with a high consumption of bottled water. Bottled water is a \$500m industry in Australia but plastic bottles generate an enormous amount of waste ending up in landfill or in our environment. In the 2012 Clean Up Australia Rubbish Report, one in ten items found on Clean Up Australia Day were related to plastic drinking bottles. Avoiding bottled water and refilling your own bottle can help conserve resources, protect the environment and save money. The cost of two litres of water a day from the tap is \$1.50 a year compared to \$2,800 for the same amount from single-serve bottles.
4. Weighing up drink choices	<ul style="list-style-type: none"> Food Standards Australia New Zealand regulates the composition of energy drinks sold in Australia.

Introducing Key Messages

Learning Task One: *The real cost of processed drinks*

1. Explain water is an essential nutrient that makes up 50-75% of our body weight and our bodies can't live for more than a few days without it. See teacher information section for further detail.
2. As a class discuss reasons why they need to consume the equivalent of 6-8 glasses of water each day.
3. Brainstorm popular drinks students consume other than water.
4. Display a collection of processed drinks some students may consume.
5. Explain these drinks all contain high levels of sugar and/or caffeine.
6. Show *Are you drinking yourself fat?* video at <http://www.rethinksugarydrink.org.au/>
7. Discuss and explain some of the detrimental health effects of consuming drinks high in caffeine and/or high in sugar.

Drinks high in caffeine can:	Drinks high in sugar can:
cause agitation	cause our teeth to decay
cause sleep problems	make us fat
cause brittle bones	provide some energy but contain almost no vitamins and minerals
cause bed wetting	make us too full to eat healthy food
cause an increased heart rate.	make our bodies dehydrated
	lead to health problems like type 2 diabetes or heart disease

8. Place the following table on the board:

14 year old girl consumes in one day:	
McDonalds McCafe Nonfat Mocha/Large	1,380kJ
Coca Cola 375mls	675kJ
Sweetened Iced Tea 500mls	900kJ
Total	2,955kJ

9. Stress this is a lot of energy in liquid form. Most girls this age need about 8,300kJ in total a day.
10. People usually don't cut back on food when they drink sweetened drinks so this girl may take in many more kilojoules than she needs.
11. Show an apple and explain it contains about 250kJ and helps us feel full.
12. Pour $\frac{1}{2}$ a cup of apple juice.
13. Explain $\frac{1}{2}$ cup of juice is considered 1 serve in accordance to the *Australian Guide to Healthy Eating*. This cup contains about 460kJ and doesn't fill you up.

Ask:

- *Is this more than most people would drink as a serve?*
14. Many products appear to be 100% juice at first glance but are actually 'juice drinks'- ie a little juice mixed with a lot of high fructose corn syrup (or sugar) and water.
 15. Ask students to complete the *The real cost of processed drinks* Activity sheet individually.
 16. Instruct students to access <http://www.rethinksugarydrink.org.au/apps/default.aspx> to calculate how far they would need to walk to burn off the kilojoules consumed from their processed drink intake recorded on the *The real cost of processed drinks* Activity sheet.
 17. Drinking water instead of sweetened drinks could save a save a lot of energy. As a class discuss ways drinking water could be encouraged at the school.
 18. Popular ideas could be forwarded to the student council for consideration.

Variations of Learning Task One

- Provide students with several examples of commonly consumed processed drinks. Using the nutrition information panel, ask students to measure out using teaspoons, the amount of sugar found in one can/bottle.

Developing Key Messages

Learning Task Two: *Energy drinks – do they really give you wings?*

1. Commence this learning task by asking students:
 - *What do you think of when you hear the phrase ‘energy drink’?*
 - *What are some of the brand names of energy drinks?*
 - *Who do you think these drinks are marketed to?*
 - *What is the difference between energy drinks and sports drinks? (Sports drinks contain sugars, starches and electrolytes. Energy drink have a much higher sugar content and also contain caffeine based stimulants and other amino acids such as taurine that enhance the effect of caffeine.)*
 - *Who in this class drinks energy drinks more than once a week?*
 - *Do you like them? Why?*
 - *What is a healthier way to give your body energy?*

2. Explain energy drinks are heavily marketed to young adults and athletes and are seen by many people as energy enhanced soft drink, not a drug containing product. Many energy drinks contain:
 - Caffeine – a stimulant drug
 - Taurine –a non-essential amino acid some claim boosts the effectiveness of caffeine
 - Guarana –a Brazilian berry with a fruity taste and one of the richest sources of caffeine, and/or
 - Ginseng –an herb which can enhance the potency of a stimulant.

3. Show the Catalyst video Energy Drink (screened August 15 2013)
<http://www.abc.net.au/catalyst/stories/3826162.htm>
4. Following this video, ask students to complete a PMI chart on three interesting facts they learnt from the video and share answers with a partner.

Ask:

- *What are some side effects of consuming energy drinks?*
- *Do manufacturers mention these side effects on product packaging or advertising?*
- *When people consume energy drinks they sometimes claim to feel they have more energy. What is really happening to their bodies? (This feeling of short term stimulation is due to a large dose of caffeine and a high dose of sugar which is a recipe for long-term fatigue.)*

5. Show students several energy drink advertisements
<https://www.youtube.com/watch?v=9LbzIHg6IKI> - Mother energy drink
<http://www.youtube.com/watch?v=XWGXc0qAwXw> - V energy drink
<http://www.youtube.com/watch?v=LbtKAXaf9QA> – Red bull energy drink

Ask:

- *Who do you think the key target audiences for these advertisements are?*

- *Are any of the side effects you saw in the Catalyst video mentioned in the advertisements?*
 - *Do you think a government campaign to reduce energy drink consumption would find it hard to compete with these types of advertisements? Why?*
6. Students form small groups and choose an empty energy drink container from those provided.
7. Using the ingredients list and nutrition information panel on the label, each group places their can or bottle on a continuum (using *High and Not as high* labels) for caffeine and then guarana.
8. Students write their reflections on the following questions:
- *Do you think children should be banned from drinking energy drinks? Why/why not?*
 - *If you were a parent, what would you tell your 15-year-old child if (s)he was drinking energy drinks*
 - *What can we do to encourage children to drink water, milk and juice instead of energy drinks?*
 - *Why are people only now suggesting monitoring these drinks?*

Learning Task Three: *Tap or bottled? – That is the question*

1. Show Tapped Trailer <https://www.youtube.com/watch?v=72MCumz5lq4>(5:40)

Ask:

- *Do you think this was a balanced argument? Why/why not?*
 - *Where would you go to find reliable information about the water in bottled water?*
 - *Can you think of communities in Australia where tap water may not be a healthy option?*
 - *Can you think of communities in other parts of the world where tap water may not be a healthy option?*
 - *How many of you regularly drink bottled water?*
 - *Does this video make you think any differently about this behaviour?*
2. Explain using reusable water bottles and glasses are by far the most eco-friendly ways to drink water. See Teacher Information for further detail.
 3. Elaborate on the key environmental issues relating to bottled water. See table below:

Process	Environmental issues
Production	Most bottled water is packaged in PET (polyethylene terephthalate) plastic bottles which are derived from crude oil. It can take up to 3L of water to produce 1L of water.
Transportation	Transportation of bottled water around the world requires burning of fossil fuels.
Landfill and litter	Although plastic bottles are recyclable, 60% end up in landfill and take decades to break down. When littered they often end up in the sea in small pieces, killing marine life that mistake them for food

4. Divide class into three groups.
5. Give each group a large sheet of butchers' paper with one of the following headings: Health reasons; Environmental reasons and Economic reasons.
6. Pose the statement 'Tap water is a better option than bottled water and other purchased drinks.'
7. Students list as many reasons under their allocated heading as they can think of. Rotate pieces of paper until all groups have considered the three headings.
8. Give each group three post it notes.
9. Ask each group to record on each post it a strategy they can undertake to reduce consumption of bottled water and problems it creates.
10. Ask a representative from each group is to place the post it notes on the board.
11. As a class, discuss some of the strategies brainstormed.
12. Group similar strategies together on the board.

Reflecting on Key Messages

Learning Task Four: *Weighing up drink choices*

1. Students use the *Weighing up drink choices* Activity sheet to reflect on their learning.
2. Students are to assess the nutritional value, environmental impact and value for money of different fluids (eg tap water, bottled water, flavoured water, soft drinks, diet soft drinks, energy drinks, sports drinks, tea and coffee, milk, alcoholic drinks.)

Additional activities

Classroom

- Design a message of no more than 140 characters to encourage young people to drink more water that could be broadcast over Twitter network
- View and critique a range of print advertisements for soft drinks, energy drinks and juices. Using similar codes and conventions, design an advertisement to promote consumption of tap water.

Whole school

- If the school has a vending machine make sure water, reduced or low fat milk and low kilojoule options are stocked at eye level.
- Support student access to chilled tap water and encourage students to bring a refillable water bottle to school each day.

The real cost of processed drinks

Activity sheet



3. How do you feel about the amount of caffeine and sugar you got through drinks last week?
4. Do you think you need to cut back on the amount of caffeine and sugar you get through drinks? Why/why not?
5. Can you think of healthier options that you can drink rather than those that are high in sugar or caffeine?
6. A 300ml carton of Hi Lo milk and a 250ml can of energy drink contain about the same amount of energy. Why is the milk a healthier choice?
7. Estimate how much you (or your family) spend on drinks in a week?
8. How much would this cost you (or your family) over a month/year?
9. What changes could you make to reduce this cost and to achieve a healthier fluid intake?
10. Why do you think drinking water is the healthiest option?

Weighing up drink choices

Activity sheet

1. Drink plenty of water.

- Nothing quenches thirst better than water.
- Water is naturally sugar-free and calorie-free.
- Tap water tastes as good as bottled water, or better – and it's free.
- Tap water is fluoridated in many areas of Australia, reducing risk of dental caries.

2. Choose low-fat milk.

- Fat-free and reduced fat milk have all the protein, calcium, vitamins and other nutrients of whole milk, with fewer calories and less fat. Unlike sugary drinks, milk is good for your bones.
- Almost everyone over age 2 should drink reduced fat milk instead of whole milk.
- If you prefer soy milk, choose low-fat, light or unflavoured.

3. Switch from juice to whole fruit.

- Most kids get too much juice and too little fruit.
- Fruit juice is easy to drink and can lead to consuming too much sugar and kilojoules.
- Whole fruit has fewer kilojoules, and unlike juice, it has fibre and also helps you feel full.
- Don't waste money on fruit-flavoured drinks – they are just a small percentage of juice and mostly all sugar and water.

4. Skip sports drinks and "energy" drinks.

- Most are high in sugar and low in nutrients, and energy drinks are loaded with caffeine.
- Water is all most people need to stay hydrated while exercising.

5. Downsize!

- If you do have a sugar-sweetened drink, cut kilojoules and save money by ordering a 'small' instead of a 'large.'
- Cut portion sizes by using a small glass.
- If you do drink juice, add some water or soda water to cut kilojoules (and make it last longer)

Weighing up drink choices

Activity sheet

Imagine Food Standards Australia NZ has decided to conduct a review of all drinks available on the market and has asked you, an expert, to conduct an audit of the pros and cons of each of the drinks listed below in terms of their nutritional value; their impact on the environment; and their value for money. Research the following drinks and record relevant findings in the table below:

Drink	Nutritional value (energy, sugar, nutrients)	Environmental impact	Value for money
tap water			
bottled water			
flavoured water			
soft drink			
fruit juices			
energy drinks			
sports drinks			
milk drinks			
alcopops			
beer			

Weighing up drink choices

Activity sheet

1. Which drinks represent the best nutritional value?
2. Which drinks represent the worst nutritional value?
3. Which drinks represent the best environmental value?
4. Which drinks represent the worst environmental value?
5. Given that a 600ml container of tap water costs about 0.1 cents, compare this with the cost of a 600ml carton of low fat milk, 375ml can of soft drink, and a 250ml energy drink. What is the cost of drinking one per day over a period of one week, one month, and one year for each of these drinks? Which offers the most nutritional/hydration value for the cost?

