

Lesson Plan 2: Grades 3 - 4

Understanding the hidden dangers- what lies beneath?

Context

Many of SunWater's dams and weirs are popular recreational destinations for local residents and tourists. SunWater currently owns and manages nineteen dams in Queensland and a much larger number of weirs.

It is important for the community, including school children, to be aware of potential hazards when visiting these dams and waterways.

While SunWater encourages the community to enjoy the surroundings of their local dam or waterway, there are a number of potential hazards and risks to be aware of.

Blue-Green algae: Blue-green algae are simple aquatic bacteria that occur naturally in habitats such as rivers and lakes, favouring still water habitats such as dams that can facilitate their growth. Different species of blue-green algae vary considerably in shape, colour and size.

Bodies of water containing high amounts of blue-green algae pose a health risk to humans when used as domestic water supplies or for water-based recreation. As blue-green algae increases so does the risk of adverse health impacts, hence it is important to monitor blue-green algae levels. While it is not possible to predict when levels of blue-green algae will change, it is normal for levels to increase during the warmer months of the year. Signs located near dams and waterways will indicate blue-green algae levels and [SunWater's website](#) is also regularly updated regarding these changes.

Submerged hazards: Boating, fishing, water skiing and other water-based sports are popular recreational activities at many of SunWater's dams. As the water levels behind any dam will change over time, it is always important to check for potential risks or hazards on entering the water, regardless of how many times you may visit the same area. Whether a lake or weir is full, half-full or relatively empty, submerged hazards such as rocks and tree stumps are always present.

Currents: The release of water from a weir can be particularly hazardous as it is impossible to predict when water will be released and which part of the weir it will come from. The water currents can be very unpredictable and the water does not have to be deep for fast currents to sweep you over.

Water channels: While water channels can look relatively harmless from the bank, water levels in channels can change very quickly. Heavy gates let water in and out of the channels causing the water levels to rise and fall. The sides of water channels are often very steep and algae present in the water can make the sides of the water channels slippery. Just like dams and weirs, there are also pipes under water in channels that cannot be seen from the surface.

Swimming & boating: When visiting a dam or weir, it is very important to know your own swimming abilities, swim safely and keep away from stumped areas that may contain lake debris. The uneven and unstable surface around lake edges and the varying depths of the

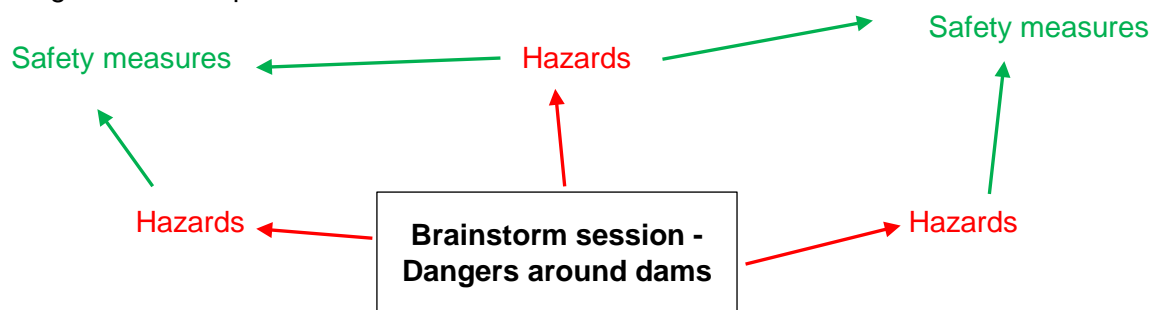
lake itself can be dangerous. Submerged objects, fast flowing currents and pipes can also be hazardous. If operating a boat, keep clear of swimmers and only tow skiers where signposted on the lake (never venture too close to dam and weir walls).

Learning Outcomes

- Achieve a thorough awareness and understanding of the potential risks and hazards associated with visiting dams and weirs
- Recognising the potential dangers associated with visiting dams and weirs and being able to offer suggestions for how to mitigate the risk
- Respond to and pose questions about familiar and unfamiliar events
- Represent and communicate observations and ideas in a variety of ways

Class discussion & activity

- Ask the students if they have ever visited a dam. What did they do while they were there? Discuss some of the recreational activities that could take place at dams.
- Print out copies of the three Sun Water [A3 classroom posters](#)- 'This is a Dam', 'This is a Water Channel', 'This is a Weir', and stick them on the wall. Ask the students to look at the posters and engage them in a brainstorm session regarding some of the potential hazards and risks that could be associated with visiting one of these locations. Ask the students to also consider some of the potential dangers that may also lie underneath the water.
- Write their 'dangers and hazards' ideas on the whiteboard in red marker pen.
- As a class, watch the downloadable SunWater video: "[Play Safe... Stay Away!](#)" It is suggested that each of the three sections on dams, weirs and water channels are watched separately. At the end of each section, ask the students the questions listed on the Activity Sheet to assess their awareness and understanding.
- The last section of the videos summarises the key safety messages. Once the students have watched the entire video, ask them to recall the hazards associated with dams, weirs and water channels and add any further suggestions in red pen to the existing brainstorm on the whiteboard. Ask the students to suggest ways they could keep themselves safe when visiting one of these locations as covered in the video. Add to the brainstorm on the whiteboard, by writing these safety ideas in green marker pen.



- The students can then complete the remainder of the activity sheet: **Understanding the hidden dangers- what lies beneath?**

Links

Sun Water website	http://www.sunwater.com.au/
Play Safe... Stay away! video	http://www.sunwater.com.au/sustainability/water-safety/blue-safety-video
Splash Facts	http://www.sunwater.com.au/sustainability/water-safety/blue-safety-video/teach-me!
Safety Tips when visiting a dam-brochure	http://www.sunwater.com.au/_data/assets/pdf_file/0007/16864/Safety_tips_when_visiting_a_dam.pdf
A3 full colour classroom posters	http://www.sunwater.com.au/_data/assets/pdf_file/0012/2622/Water_Safety_A3_Poster.pdf
SunWater safety campaign	http://www.sunwater.com.au/sustainability/water-safety
SunWater dams brochure	http://www.sunwater.com.au/_data/assets/pdf_file/0005/17465/Sun_Water_Dams.pdf
SunWater infrastructure map	http://www.sunwater.com.au/_data/assets/pdf_file/0018/1728/Sun_Water_Infrastructure_Map_2016.pdf
Free 'Blue Pack'	http://www.sunwater.com.au/sustainability/water-safety/blue-safety-video/for-teachers

Reflection & extension

There can be risks, hazards and dangers in many other outdoor activities and pursuits. Being able to understand the risks and recognise the warning signs mean that we can protect ourselves from harm.

Ask the students to think about the potential dangers or risks associated with the following activities, and the measures that can be taken to stay safe and prevent harm. Complete the table.

Activity	Risk/ danger	Safety measures
Going to the beach	<ul style="list-style-type: none"> - Strong currents - Blue bottles - Sunburn 	<ul style="list-style-type: none"> - Swim between the flags - Do not swim if blue bottles are washed up - Wear a hat & apply sunscreen regularly
Riding your bike		
Crossing the road		
Skate park		
<i>Think of your own</i>		



Activity sheet: Understanding the hidden dangers- what lies beneath?

1. Play the video 'Play Safe...Stay Away!' to the students. The video is divided into three sections: Water Channels, Weirs and Dams. At the end of each section stop the video and assess students' understanding by asking the following questions to the group:



Water Channels

- a) What is the name of the cartoon water drop?
- b) Is the water in the water channel clean?
- c) What do the gates across the water channel do?
- d) Does the depth of water in a water channel change?
- e) What are the sides of the water channel like?



Weirs

- a) What happens at a weir when it rains?
- b) Are you allowed to swim in the weir?
- c) What else is under the water that could trap you?
- d) What does Blue ask you to remember? Can you finish the rest of the sentence?

Play safe..._____ _____ ?



Dams

- a) What does a dam do?
- b) What is the first thing you should do when you arrive at a dam?
- c) What did the danger signs show? What were you not allowed to do within 200 metres of the dam wall?
- d) Do you know what 'not permitted' means?
- e) Should you go near water without a grown up?

Watch the end of the video that summarises the key safety messages.



2. After watching the 'Play Safe...Stay Away!' video, there are some key words that you should recognise. Read these words aloud and make sure you understand their meaning. Then see if you can find them hidden in the word search. They may be forwards, backwards or diagonally. The first one has been done for you.

STAY AWAY

WATER CHANNEL

DANGER SIGNS

DIRTY WATER

RELEASED

SLIPPERY

WEIR

FAST CURRENT

PIPES

TRAP

BLUE

DAM WALL

PICNIC

PLAY SAFE

DAM

D	T	H	E	D	R	E	D	A	R	I	E	W
I	R	S	T	A	Y	A	W	A	Y	E	H	A
R	I	N	S	M	D	D	E	E	M	N	D	T
T	A	G	L	W	N	G	E	R	U	S	Y	E
Y	O	I	I	A	D	E	S	A	E	L	E	R
W	U	S	P	L	C	A	E	N	N	O	B	C
A	T	R	P	L	S	F	E	E	R	E	A	H
T	D	E	E	T	A	H	E	P	W	A	R	A
E	N	G	R	S	I	N	G	S	A	I	G	N
R	N	N	Y	S	A	N	D	S	T	R	A	N
Y	F	A	S	T	C	U	R	R	E	N	T	E
S	L	D	A	F	C	I	N	C	I	P	E	L
P	I	P	E	S	S	T	A	Y	A	W	A	Y

1. Can you complete this important safety message using the remaining letters in the wordsearch? Start from the top left and read across each row from left to right.

2. Imagine the summer school holidays are just around the corner. Write an article to feature in your school newsletter that reminds students and parents that are visiting a local dam to stay safe and consider the warning signs.

Your article should include:

- The name of your local dam and where it is
- What recreational facilities are available at the dam e.g. boat ramp, picnic facilities, BBQs etc. You can find this information on the [SunWater website](#)
- Some of the risks and hidden dangers that they should be aware of
- The importance of reading the warning signs
- What other steps they can take to ensure they enjoy the surroundings whilst staying safe



To help you, why not research some of the dam safety media articles available on the SunWater website that may assist you with writing your article:

- [SunWater reminds campers of safety requirements at Wuruma Dam](#)
- [Stay safe around dams this holiday season](#)
- [Blue-green algae levels in waterways over summer months](#)
- [Fishermen warned to put safety first](#)
- [Importance of water safety in the summer season](#)
- [Parents urged to talk about dam safety](#)