

Overview

Victoria State Emergency Service (SES) has developed an educational investigative game (www.vicses.com.au/floodsafe-game) which encourages the identification and learning about hazardous objects which can be found in floodwater and cause harm.

This lesson plan can be conducted before or after the game has been played and assists in consolidating students' learning and understanding.

It is suggested that any observations, student work or comments recorded during this lesson be displayed in your classroom, under the heading '**Hidden dangers in floodwater**', for others to see and learn from.

Outline	Materials	Time	Conclusion
To reinforce the dangers of swimming, walking and playing in floodwater and for students to share this information with other classes within the school.	<ul style="list-style-type: none"> Pencils/textas A3 piece of paper for each pair/group Support material #1: Flood examples Support material #2: Types of floods Support material #3: FloodSafe awareness poster Worksheet #1: Hidden dangers and consequences recording sheet Support material #4: Fact sheet on injuries and diseases Support material #5: Being prepared for floods Support material #6: Emergency kit 	Approx 60 minutes	<p>Students will participate in discussions about the different types of flooding and safety in floodwater.</p> <p>Students will work together to create a presentation to consolidate their understanding of the hidden dangers in floodwater.</p>

Introduction:

15 minutes

- Using images from **Support material #1**, ask students if they know what has happened in each of the pictures and discuss flooding. What is flooding? How does flooding happen? Where does it happen? Students' responses can be recorded on cards or a large sheet of paper and displayed.
- Conduct a short discussion about the different types of flooding (see **Support material #2** for more information). Ask students to think about what type of flooding could occur near them.
- Using **Support material #3**, draw students attention to the left hand side list of hazardous objects that could be in floodwater, discuss what else might be in the floodwater? Record students' suggestions on **Worksheet #1**.

- 4 Look at the list on the right hand side of the poster. Discuss what this list consists of. Discuss the possible consequences of swimming, walking or playing in floodwater and add comments to **Worksheet #1**. Make sure students are aware of how serious injuries and diseases can be (see **Support material #4** for further information).
- 5 Ask students how all these **hidden dangers** might get into floodwater. Where do they come from? (E.g. peoples yards, rubbish bins, parks, drains, gardens, etc.)
- 6 Look at the main message at the bottom of the poster; '**Never swim, walk or play in floodwater. You don't know what you are getting into**'. Ask students what they think the second sentence in the message means, discuss.
- 7 Ask students what they think they should do if a flood happens? Incorporate ideas from **Support material #5** and stress the need to always listen to any adults they are with. Look at each item listed in **Support material #6** and discuss why it's there.

Activity

30 minutes

- 8 Divide students up into pairs or groups of three, explain that they are to create a poster warning people about the dangers of floodwater, which they will present to students in younger classes.

Provide each group with a piece of A3 paper, discuss what information might be included in the poster (e.g. the slogan 'Never swim, walk or play in floodwater. You don't know what you are getting into'), what pictures they might draw, key messages and how best to present their information.

Students are to prepare a short presentation including what they have been learning, why, what they have created and the main messages which they will present to the younger classes.

Remind them that they are to inform the younger students, but not to scare them.

Conclusion

15 minutes

- 9 When students have completed their posters they are to practise their presentation. Each student should then stand up at the front of the class and deliver it. If appropriate, the class can provide feedback to each other on the content/theme of their posters and presentation.
At a convenient time, students should go to the younger classes and deliver their presentation.
- 10 In conclusion, ask everyone to share one thing they have learnt about floodwater and why they should not swim, walk or play in it.



Flood examples



Source: <http://www.abc.net.au/news/stories/2011/01/16/3113796.htm?site=westernvic>



Source: <http://www.abc.net.au/news/2011-01-16/historic-floodwaters-swamp-victorian-towns/1907276>

Riverine flooding

Flood examples



Source: <http://www.barraba.com.au/manilla-river-rises-in-barraba-73.cfm>



Source: http://commons.wikimedia.org/wiki/File:Werribee_River_in_flood_over_cottrell_street_in_Werribee.jpg

Riverine flooding

Flood examples



Source: http://www.3aw.com.au/listener_images_of_victorian_floods?selectedImage=35



Source: http://www.3aw.com.au/listener_images_of_victorian_floods?selectedImage=35

Flash flooding

Flood examples



Source: http://commons.wikimedia.org/wiki/File:Driving_through_flash_flood.jpg



Source: <http://www.abc.net.au/news/image/1907294-3x2-340x227.jpg>

Flash flooding

Flood examples



Source: http://web.mst.edu/~rogersda/teton_dam/

Dam failure



Source: <http://www.acus.org/content/hurricane-sandy-storm-surge>

Storm surge

Types of floods



Source: <http://www.barraba.com.au/manilla-river-rises-in-barraba-73.cfm>

Riverine flooding

In riverine flooding, relatively high water levels overtop the natural or artificial banks of a stream or river. The nature of riverine flooding can vary significantly in terms of cause, timing and depth between different locations. Coastal rivers with short, steep headwaters often have floods that rise and recede quickly. Inland floods with low gradients have floods that move slowly down the river, sometimes lasting for several months.

Types of floods



Source: http://commons.wikimedia.org/wiki/File:Driving_through_flash_flood.jpg

Flash flooding

Flash flooding occurs when soil absorption, runoff or drainage cannot adequately disperse intense rainfall, and is usually caused by slow moving thunderstorms. Flash floods are generally defined as developing in six hours or less from rainfall to the onset of flooding.

Types of floods



Source: http://web.mst.edu/~rogersda/teton_dam/

Dam failure

Although dam failures are rare, their effects can be significant. In Victoria dam safety is monitored, and warning arrangements are in place to warn downstream residents of potential dam failure threats. Should dam failure occur, significant downstream flooding can involve potentially swift flowing water and high amounts of debris.

Types of floods



Source: <http://www.acus.org/content/hurricane-sandy-storm-surge>

Storm surge

Storm surge occurs when sea levels are elevated above the usual tidal limit due to the action of intense low pressure systems over the open ocean. The low pressure causes sea level to rise as there is less air pressing down on the sea. Combined with gale force onshore winds, this can lead to flooding of low-lying coastal land.

FloodSafe awareness poster



Playing in floodwater exposes your kids to more than just the risk of drowning.

Playing in floodwater may look like fun but under the surface it contains contaminants, toxins and harbours infectious diseases.



What's in floodwater

- Toxic chemicals
- Animal faeces
- Decaying animals
- Garbage and waste
- Fallen powerlines
- Broken glass
- Twisted metal
- Tree branches

Floodwater health risks

- E.coli infection
- Rotavirus (diarrhea)
- Typhoid
- Leptospirosis
- Hepatitis A
- Infected wounds
- Dermatitis



Never swim, play or walk in floodwater.
You don't know what you're getting into.



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Hidden dangers

[illegible]



Hidden dangers

[illegible]

Injuries and diseases

Injury

Disease

Infectious Diseases Cause: Ingestion or exposure to floodwater	<ul style="list-style-type: none"> E. Coli – Can cause diarrhoea, while others cause urinary tract infections, respiratory illness and pneumonia. Hepatitis – Can cause malaise, muscle and joint aches, fever, nausea or vomiting, diarrhoea, and headache. Typhoid – Fever, headache, general discomfort, diarrhoea.
Diarrheal Diseases Cause: Ingestion or exposure to floodwater	<ul style="list-style-type: none"> Eating or drinking anything contaminated by floodwater can cause diarrheal disease. Wash hands. Do not play in floodwater.
Wound Infections Cause: Sharp objects hidden in contaminated floodwater	<ul style="list-style-type: none"> Open wounds and rashes exposed to floodwater can become infected. Cover open wounds with a waterproof bandage. Keep open wounds as clean as possible by washing.
Chemical Hazards Cause: Contamination of floodwater by chemicals	<ul style="list-style-type: none"> Be aware of potential chemical hazards during floods. Floodwater may have moved hazardous chemical containers of solvents or other industrial chemicals from their normal storage places.
Drowning Cause: Entrapment in water or vehicles. Unable to swim	<ul style="list-style-type: none"> Floodwater poses drowning risks for everyone, regardless of their ability to swim. Swiftly moving shallow water can be deadly, and even shallow standing water can be dangerous for small children. Vehicles do not provide adequate protection from floodwater. They can be swept away or may stall in moving water.
Animal and Insect Bites Cause: Floodwater contains live snakes and insects	<ul style="list-style-type: none"> Floodwater can displace animals, insects, and reptiles. To protect yourself and your family, be alert and avoid contact.
Electrical Hazards Cause: Water becomes electrified.	<ul style="list-style-type: none"> Avoid downed power lines. Electrocution from unprotected wires or wet electrical equipment.
Wounds Cause: Sharp objects hidden in floodwater	<ul style="list-style-type: none"> Floodwater may contain sharp objects, such as glass or metal fragments, that can cause injury and lead to infection.

Being prepared for floods



Types of flood warnings

Minor flood warning: Roads submerged/closed, water level reaches the top of a riverbank. Minor floods may cause little or no damage.

Moderate flood warning: In addition to the above water starts to approach houses and buildings, water running over the top of a riverbank. Evacuation plans may be enacted. Moderate flooding has the potential to cause damage to property.

Major flood warning: In addition to the above, water is now entering farmland, housing and buildings, properties and towns become isolated, evacuations plans enacted. Major flooding can cause extensive damage to property and life.

Prepare

If you live in a flood prone area, you should have a pre-prepared flood plan outlining what to do during the above flood scenarios (minor, moderate and major). You should also have packed and ready an emergency toolkit. The kits should contain items such as a radio with spare batteries, personal items such as photos, documents (insurance certificate) and ID, some food and water, pets and pet food, gloves and torch, and glasses and medical items.

Stay informed

- Turn on the radio/TV
- Tell your neighbours
- Phone your relatives

Act quickly

- Move valuables to higher ground
- Check your emergency kit has everything required for evacuation
- Turn off gas/electricity
- Block toilets
- Lock doors

Evacuate

- Take pre-packed emergency kit containing food, clothes, pets, pet food and medications
- Do not drive through floodwater
- Let others know if you are going and where
- Take a mobile phone and charger

Emergency kit

Radio with spare batteries	
Torch with spare batteries	
First aid kit and other medicines	
Gloves and boots	
Mobile phone and charger	
Documents	
Food and water	
Pets and pet food	