



Explore

## Flood Aware

*Students explore flood risks, and how scientists measure, predict and warn us about flood risk.*

Flood waters of any kind are potentially dangerous. They are unpredictable and destructive and they can happen in regions that didn't experience any rainfall. Flooding can last from several hours to several weeks and isolate homes and towns. Once land is already very wet from rain, more forecast rain could mean increased runoff and therefore flooding. Fast flowing water with currents and turbulence can cause injuries, drowning (of both people and animals), cause roads to wash away, as well as damage to buildings, bridges, power and water supplies. Flood waters can also contain sewage and pollutants, which can ruin crops, contaminate drinking water and spread disease.

Flood risks include flash flooding in urban areas; washed away roads and risks to vehicles being swept away; being stranded or isolated; people injured or drowning from playing in floods or storm drains; loss of stock (farm animals) and the risk of injury from submerged items in the water, or from snakes and spiders. Water travelling at just 6 kilometres per hour (medium walking pace) at 15 centimetres deep can knock you over. Drowning in flood waters is a serious risk.

Science is used to measure and predict flood activity and risk. The Bureau of Meteorology (BoM) provides effective flood forecasting and warning services in Australia. In Western Australia, the Department of Fire and Emergency Services (DFES) activates and coordinates the emergency response to flood and produces emergency alerts to the Western Australian public. The alerts are displayed on the DFES website at [www.dfes.wa.gov.au](http://www.dfes.wa.gov.au) by clicking on the *Alerts & Warnings* button. Public warnings are also delivered on local ABC radio, as well as *Emergency Alert*. Emergency Alert is the national telephone warning system used by emergency services to send voice messages to landlines and text messages to mobile phones within a defined area, about likely or actual emergencies. In the case of an emergency, you may receive a voice message on your landline or a text message on your mobile phone. DFES also has an emergency information line 1300 657 209.

**Objective:** *At the end of the lesson the children will understand their own personal risk to flood and how best they can keep safe; they will understand how scientists monitor flood waters and which agencies issue flood advices and warnings and respond to flood emergencies.*

### Flood Aware – recognise flood risks

- Students search the internet to find images of floodwater and as a class discuss: what it looks like, how deep it is, can you see what's in it, how fast is it moving, can it knock you over?
- Risky Behaviours (*Flood Aware F3.2*): Students use the cartoon images to identify and describe various flood risks. Students discuss as a group what they think could have been done to avoid or eliminate the risk. Students draw a cartoon to demonstrate how one of the risks could be avoided.

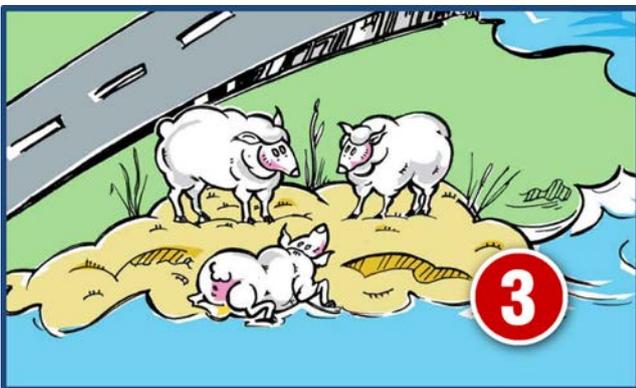
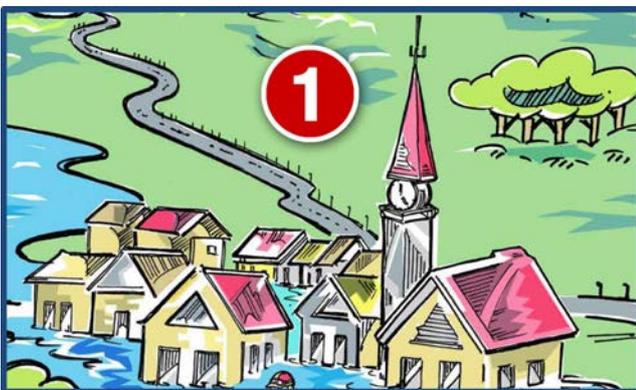
### Flood Aware - How do scientists measure cause/effect/risk?

- Students discover how scientists measure cause/effect/risk and determine community flood risk. (*Flood Aware F3.3, Teacher Notes*)
- In groups, students discuss the role of meteorologists, hydrologists, SES volunteers and a DFES Media in the event of a flood emergency. Discuss the type of equipment they might need.
- What does a 3 or 4 or 5 metre water level mean to your school? (*Flood Aware 3.4*)



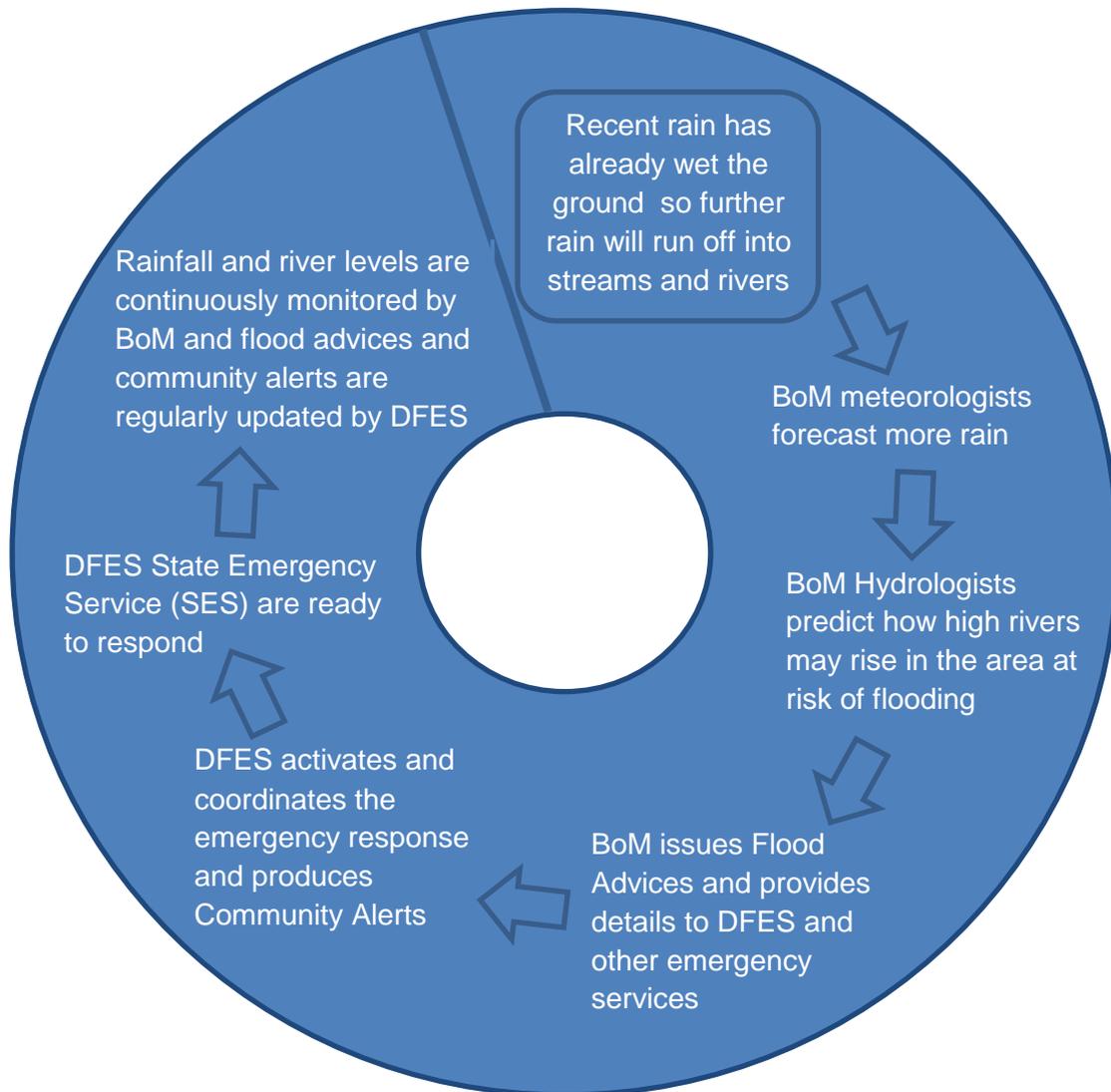
## Risky Behaviours – Turn Around Don't Drown

Look at the images and IDENTIFY the flood risks. Discuss if and how the risk could be avoided. Choose one of the images and DRAW your own cartoon, demonstrating how the risk could be avoided or eliminated.





## From Rain to Warning - How do scientists determine Flood Risk?



1. What is the name for scientists who predict rainfall? \_\_\_\_\_
2. What is the name for scientists who predict river heights? \_\_\_\_\_
3. Who issues Flood Advises? \_\_\_\_\_
4. Who responds to a flood emergency? \_\_\_\_\_
5. Who alerts the community in a flood emergency? \_\_\_\_\_





### What could a 3 metre water level mean to your classroom? –

Imagine your classroom is built alongside a river bank. If there was the flood, the river could overflow. How would that impact on your classroom? As a class you will need to make a river height gauge out of card. It will start at 2.75m and finish at 5.0m with 25 cm intervals. Place it outside the classroom on the ground.

1. At a river height of 3 metres, water has already reached 25cm above the top of the river bank. If the water river height was 3 metres, what impact would that have on your classroom?

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2. Use the table below to record what impact the river height would have on your classroom:

River Height (metres)	Impact on classroom	How can you minimise the damage?
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		





3. How do you think you could minimise the amount of damage?

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4. Is there anything you couldn't save?

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5. You might like to do a similar activity using your school grounds. At 3 metres, would any of your school be under water. On a blank sheet of paper, draw a mud map of your school and shade any areas that could be flooded with water.

6. Write a Flood Alert for other students in your school. Think about the important messages that would need to be included to ensure peoples' safety.

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## Answers: Risky Behaviours – Turn Around Don't Drown 3F.2

	<b>Flood Risk</b>	<b>How to Avoid the Flood Risk</b>
<b>1</b>	<b>Flash flood in town</b>	<ul style="list-style-type: none"> <li>• Minimise damage and increase your safety by turning off electricity, gas and water</li> <li>• Use sandbags in toilet and over drains to prevent sewage backflow</li> <li>• Protect buildings with sandbags</li> <li>• Raise furniture and other items</li> <li>• Have emergency evacuation procedures</li> </ul>
<b>2</b>	<b>Washed away road</b>	<ul style="list-style-type: none"> <li>• Avoid all non-essential trips</li> <li>• Listen to radio to find out which roads are closed and alternative routes</li> </ul>
<b>3</b>	<b>Loss of stock</b>	<ul style="list-style-type: none"> <li>• Check historical flood records for your area</li> <li>• Identify higher ground on property</li> <li>• Dig storm ditches to aid drainage</li> <li>• Store animal feed above flood levels</li> <li>• Be prepared to move/swim stock to higher ground</li> </ul>
<b>4</b>	<b>Car swept away by raging river</b>	<ul style="list-style-type: none"> <li>• Check the depth and speed flow of the river</li> <li>• If you wouldn't walk across it, don't drive across it!</li> <li>• Pay attention to road closures</li> <li>• Stay in the car as you could easily be knocked over in the water</li> <li>• Ring 000 for emergency assistance</li> </ul>
<b>5</b>	<b>Stranded on roof top</b>	<ul style="list-style-type: none"> <li>• Have an emergency kit, including non-perishable food and water to last 4 days</li> <li>• Listen to the radio for updates and advices</li> <li>• Advise Emergency Services for assistance (SES 132 500)</li> </ul>
<b>6</b>	<b>Playing in flood water or storm drains</b>	<ul style="list-style-type: none"> <li>• Keep out of flood waters if you can!</li> <li>• If you see other children doing this, tell an adult.</li> <li>• There is a risk of being knocked over and becoming trapped underwater</li> <li>• There is a risk of injury from snakes, rats, crocodiles, spiders and sewage.</li> </ul>

## From Rain to Warning – CF.2

1. What is the name for scientists who predict rainfall?	Meteorologists
2. What is the name for scientists who predict river heights?	Hydrologists
3. Who issues Flood Advices?	The Bureau of Meteorology (BoM)
4. Who responds to a flood emergency?	DFES coordinates the response but it is YOUR RESPONSIBILITY to respond, too!
5. Who alerts the community in a flood emergency?	DFES





## What could a 3 metre water level mean to your classroom? – 3F.3

In small groups, students carry out a risk assessment of their classroom (or another area within the school) to determine what a 3 metre or 4 metre or 5 metre water level could mean to them during a flood emergency. As a class, you will need 2.25 metres of card to make a classroom gauge.

Imagine your classroom is built alongside a river bank. Make a gauge out of card, to indicate the depth of water in metres. The gauge should start at 2.75 metres and continue to 5 metres. Place the gauge outside your classroom with the base of the gauge touching the ground.

A zero reading would be the lowest water level that is reached in dry conditions. For example, at the top of the bank, where the base of your classroom meets the ground in this instance would be 2.75 metres.

