

The Floods Explorer – Teacher's Notes

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Getting Wet Challenge statement

Without any rain we have the devastating effects of drought. We want it to rain but too much of a good thing and problems can arise. However, too much rain in too short a time can cause severe flooding. Is there anything that can be done to manage flooding and its sometimes devastating effects?

Your mission is to explore the Animated Flood Investigator. Take a look around and discover the good - the bad - and the just plain wet. Isolate some of the causes of floods. Uncover who is responsible and finally discover the actions that can be taken to reduce the impact of flooding.

Introduction - The Animated Flood Investigator CD

The *Animated Flood Investigator* program is a student friendly computer based interactive that can be found online at www.melbournewater.com.au/education and on CD ROM. It aims to support teachers in developing programs, not only associated specifically with the topic of floods, but any unit associated with any aspect of water.

These teacher notes are designed to provide classroom teachers with a selection of approaches to encourage students to work collaboratively with their peers in getting the most out of the *Animated Flood Explorer*.

Focus Questions

- What is a flood?
- What natural and human factors cause flooding?
- Where and how often do floods occur in Australia?
- What impact does flooding have on people and the environment?
- How is flooding managed?

Understandings

Students will be able to:

- demonstrate their knowledge and understanding of flooding
- demonstrate in sequential steps an understanding of the flood cycle
- demonstrate their knowledge and understanding of the factors that cause flooding
- collaboratively develop a presentation that highlights the impact of flooding and outlines how flooding may be managed.

Session 1. **Diving In** Negotiating the topic of 'Flooding' with students.

Getting Started - What Do We Already Know?

As a class or in smaller cooperative groups, ask students to create a concept map or brainstorm, "What do we already know about flooding?". Students should have an opportunity to share their responses to the whole class. The teacher may act as a scribe to summarise responses.

Finding Out - What would we like to 'find out' about flooding?

After considering what the students already know about flooding, the teacher should encourage students to discuss and note what they would like to find out about the topic. This is best done in small groups to ensure all students have an opportunity to make suggestions.

Each group should then present their questions to the class and the teacher can compile a list of 'Things We Would Like to Know About Flooding'. This list should be revisited during the course of the unit and questions can be checked off as the students discover the answers.

Session 2. Presenting the Focus Questions

As a class, students revisit the list of 'Things We Would Like to Know About Flooding'. The teacher can then present to students the *Focus Questions*:

- What is a flood?
- What natural and human factors cause flooding?
- Where and how often do floods occur in Australia?
- What impact does flooding have on people and the environment?
- How is flooding managed?

Students, in small *home groups* of ideally five, are instructed to classify their class list questions under headings made up of the *Focus Questions*. (see resource sheet at the end of this document)

Classification of Student Responses

Focus Questions	What is a flood?	What natural and human factors cause flooding?	Where and how often do floods occur in Australia?	What impact does flooding have on people and the environment?	How is flooding managed?
Student Questions	Is a fish tank that leaks all over the floor a type of flood?	Are floods only caused by lots of rain?	Has Carlton ever been flooded?	What happens if carpet in a house gets wet from a flood?	What would happen if our school was flooded?
		Do people cause floods?		Can floods effect pets?	Who can we call for help if our house was flooded?

Table 1

Students should then share their results with the class – a large poster of the above table in the classroom would be an ideal way of displaying all questions during the unit.

Session 3. **Diving In** Introducing the Animated Flood Investigator

The *Jigsaw Technique*

Once students have had an opportunity to classify their questions, the teacher should then introduce the **Animated Flood Investigator**.

Students are then given the following *challenge statement* (or brief):

Without any rain we have the devastating effects of drought. We want it to rain but too much of a good thing and problems can arise. However, too much rain in too short a time can cause severe flooding. Is there anything that can be done to manage flooding and its sometimes devastating effects?

Your mission is to explore the Animated Flood Investigator.

Your Home Group must be able to demonstrate the following:

What is a flood?

What natural and human factors cause flooding?

Where and how often do floods occur in Australia?

What impacts does flooding have on people and the environment?

How is flooding managed?

Good Luck!

The Home Group

Each *home group* is encouraged to develop a 'project' that demonstrates the group's understandings of the answers to the questions above. The *home group* will be encouraged to complete the task(s) in a form that they choose and is interesting to others. Ideas are provided in table 2 (below) and are grouped to highlight *Multiple Intelligences*.

Once the home group has selected the type of presentation(s) they will work towards, each member selects one of the focus questions to become an '*expert*' on that question. It will be that student's responsibility to discover as much information as possible using the *Animated Flood Investigator*.

Meet The Experts – Using The Animated Flood Investigator

Students now form new *expert groups*, made up of one student from each *home group* researching the same question. Each *expert group*, navigates through the *Animated Flood Investigator* and works together to help answer their *expert* question.

When the expert groups have compiled notes on their question, they return to their home group to share their findings.

Sessions 4 -6. Returning Home – Putting It All Together

When each expert has presented their findings, the home group can now begin to compile their task. It is at this point that other resources may be utilised such as newspaper articles and learning technologies. Melbourne Water has a student resource entitled *Water Water Everywhere*, that covers in detail aspects of each of the 5 focus questions.

It is available online in PDF format from www.melbournewater.com.au/education.

Students may require several sessions to complete their chosen tasks. Once completed students should be given the opportunity to present their work to their peers, the school community and even the wider community.

Drying Out – Drawing Conclusions

Once presentations have concluded, revisit the original Focus Question grid completed in session 2. Check off all questions that can now be answered. If any questions still remain unanswered, as a class negotiate how this information can be obtained.

Going Further

The Ideas for Activities outlined in table 2, may be used by students to take the topic further. Teachers may want to use some of the activities as whole class lessons or set as homework tasks during the unit.

Resources

Melbourne Water: Melbourne Water have a comprehensive range of resources and services (excursions and guides). Many of these are available online at www.melbournewater.com.au/education or by contacting the education staff on:

Melbourne Water - Communications Group

PO Box 4342

Melbourne 3001

Telephone - within Victoria: 131 722

Telephone - within Australia: (03) 9235 7100

Facsimile: +61 3 9742 9284



Email: [on line](#) web form






Website: www.melbournewater.com.au/education

Bureau of Meteorology

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Table 2: Ideas for Home Group Presentations – each home group may choose several of the ideas listed below or come up with their own.

poBll	Remembering	Understanding	Applying	Analysing	Evaluating	Creating
B <i>Verbal/Linguistic</i> 	Make a word search or crossword with at least 20 flood words.	Make a flood fact poster. List at least 10 ways people can be affected by floods.	Develop and present a television style documentary on flooding.	Develop a newspaper that highlights the 5 Focus Questions.	Write a letter to the local newspaper expressing your opinions on the effects of floods and what can be done to help.	Create a series of weather reports that describe the effects of light, heavy and torrential rain.
<i>Logic and Maths</i> 	List in order of severity, the problems encountered during heavy rain in the AFI.	Develop a concept map that demonstrates the sequence of events that can cause flooding.	Make a pie graph showing the percentage of water by households and industry.	What uses are there for the water that has been treated at Blackrock? Estimate the amount of water in Kardinia park swimming pool and show on a chart.	Estimate how much water you would use for a five minute shower? Test your estimate and write about your discoveries.	Create a birds eye view map of your local town and pin point areas most likely at risk from flooding.

<p>Visual/Spatial</p> 	<p>Make a poster showing the water cycle and how it can lead to flooding.</p>	<p>Make a flow chart showing the path water may take to cause flooding in your local area.</p>	<p>Draw a cartoon that shows how you can teach your family about flooding.</p>	<p>Make a board game based around the flood focus questions.</p>	<p>Create a video documentary on the various aspects of flooding and how it can affect people.</p>	<p>Create a computer generated model that highlights various aspects of flooding.</p>
<p>Body/Kinesthetic</p> 		<p>Create a mini catchment area in the school sand pit. Students present their catchment to the class and pour water into it, demonstrating how their catchment works and the effects of heavy rain.</p>	<p>Create a 'flood dance' and perform it in front of the grade.</p>	<p>Make a 3D model showing the water cycle and how it relates to flooding.</p>	<p>Write a commercial for Melbourne Water about being 'Flood Wise'.</p>	<p>Using an empty aquarium or similar object, create a 3 dimensional model to demonstrate the effects of flooding.</p>
<p>Musical/Rhythmic</p> 			<p>Write a song about Flooding.</p>	<p>Write a jingle to encourage our community to become more 'Flood Wise'.</p>	<p>Write a Rap - entitled, 'What Can Go Wrong When It Rains'</p>	<p>Create a song about flooding entitled 'Who's Responsible For Me Getting Wt?'. Include what councils, business and individuals should do.</p>
<p>Interpersonal</p> 		<p>Interview parents about their memories of flooding in the past. Present this to the class.</p>			<p>Investigate if your school/area has ever encountered flooding.</p>	<p>Create a dramatic play to highlight to the school community our responsibilities when it comes to flooding.</p>
<p>Intrapersonal</p> 		<p>Write a list of the things you currently do to prevent flooding at school/home and a list of things you could be doing to prevent flooding.</p>		<p>Write about how you feel towards water conservation.</p>		
<p>Naturalist</p> 		<p>List the positive and negative effects of flooding on the natural environment.</p>	<p>Research and discuss how other parts of Australia have been effected by flooding.</p>	<p>What would happen if it rained for a month? What would happen if it didn't rain for a month?</p>	<p>Report how other countries have been effected by flooding.</p>	<p>Invent something that could help prevent flooding at school or at home.</p>

The Flood Explorer: Classification of Student Responses

Group name:.....

Instructions: in your *home groups* classify the list of class questions under headings made up of the *Focus Questions*.

<i>Focus Questions</i>				
What is a flood?	What natural and human factors cause flooding?	Where and how often do floods occur in Australia?	What impact does flooding have on people and the environment?	How is flooding managed?