

## Teacher Notes – Overview of Program

The *Department of Fire & Emergency Services (DFES) Natural Hazards* program targets upper primary school students in years 5, 6 and 7 and can be delivered as a whole unit of work, or can be delivered by teachers across several years.

The program is directed at teachers and provides a suite of lesson plans which have a major emphasis on natural hazards within a Western Australian context, with many of the resources coming from DFES and the Bureau of Meteorology (BoM) websites.

Within the lesson plans, information is given for teachers to read and incorporate into their lessons, with students activities placed half way down the page underneath a *Learning Objective*. Within the activities, teachers will also find suggestions for at-home activities. It is strongly recommended that these preparation activities are completed by the students with their families to assist in the development of both individual and household resilience to natural hazards. (Ronan, 2008)<sup>1</sup> Recent community consultation conducted by DFES in the Kimberley, Pilbara and Midwest Gascoyne in the context of cyclone and flood, indicates that people want to be more resilient and they want local content over generic messaging, when it comes to natural hazards community education. This program reflects this need by following an inquiry approach to learning where students are directing their learning and applying it to their own location.

Current research in Australia suggests that community education programs should include:

- Measures that households can take to prepare for natural hazards
- Roles and functions of emergency services, how to contact and join them
- Types of emergency warnings, what they mean and how to act on them
- Where to obtain information before, during and after a disaster
- What is likely to happen during a natural disaster
- Relocation and/or evacuation, knowing what that means and what to expect
- Measures in place to assist at risk people within communities
- The dangers of swimming and driving in floodwaters
- Increased risk of storm surge after a cyclone

### Common Resilience Goals: The National Strategy for Disaster Resilience

The *National Strategy for Disaster Resilience* overarching statement is to build disaster resilient communities. Disaster resilient communities function well under stress, have successful adaptation, self-reliance, social capital and recover more quickly than less resilient communities.

DFES programs are developed using existing terminologies and frameworks, such as the *National Strategy for Disaster Resilience* and the Australasian Fire and Emergency Services Authority Council's (AFAC) *Principles for School Aged Education Programs*<sup>2</sup>. DFES School Aged Programs aim at reducing disaster risk using prevention, mitigation and preparedness activities with a goal of building resilience at the individual (student), household (family) and community level. Looking at examples of previous events, particularly those that have impacted the students own community or a nearby community, and, sharing stories with other students impacted by natural disaster can all help build disaster resilience in children.

## Working Collaboratively: Guest Speakers

DFES School Aged Education programs aim to provide activities that encourage schools to build relationships with their local fire and emergency services volunteers and their local government. Make contact with your local *State Emergency Service* (SES) and your local government at the commencement of this program. They may be able to assist in the delivery by providing a visit to your school. When preparing for this unit of work, prepare your timeline and give them plenty of notice. Prepare your speaker by ensuring they are familiar with the topic and the key messages. You might want to know specific details to your local area. Ideas for the visit are included in the lesson plans. Please note that the SES are volunteers and some units may have limited capacity to visit schools or may require plenty of notice. They aim to prepare communities to lessen the impact of a natural hazard/disaster, encourage people and communities to prepare (e.g. provide sandbags). Building networks with your local government and emergency services can build on students' knowledge and support their connectivity with their community throughout their lives.

## Structure of the Program: Student-centred Learning

In 2013, the *DFES Natural Hazards* program provides lesson plans on Flood and Tropical Cyclone, with other hazards being added over the next three years. The program also incorporates the *Bushfire Patrol* program as part of its suite of lessons, which focus on bushfire risk and impact in the southwest of Western Australia. Future lessons are planned for earthquake, tsunami and severe storm.

The lessons currently include an introductory lesson to natural hazards in Western Australia and four cyclone lessons and four flood lessons. In communities subject to both cyclone and flooding teachers may wish to use all lessons. If your learning focus is flood only, consider Lesson 1, followed by the four flood lessons.

# Natural Hazards Program

**NATURAL HAZARDS**

At Home activities form a valuable component of these lesson plans. Developing a Family/Household Emergency Plan involves the whole household. Even young children can be involved in preparing for natural disasters. (Ronan, 2008)<sup>1</sup>

The lessons are structured as follows:

<b>Lesson 1: Introduction to Natural Hazards</b>	
1.2 Glossary of Terms 1.3 Natural Hazard Chart	
<b>Lesson 2C: Cyclone Aware</b> 2C.2 Tropical Cyclone Mind Map 2C.3 Tropical Cyclone Fact Sheet 2C.4 What Do You Know? 2C.5 Tropical Cyclone Damage 2C.6 Research a W.A. Tropical Cyclone 2C.7 Tropical Cyclone Fay	<b>Lesson 2F: Flood Facts</b> 2F.2 Types of Flood 2F.3 Flood Facts – What Could Happen? 2F.4 Flood – Staying Safer in Flood 2F.5 Town Engineer For a Day!
<b>Lesson 3C: Take Care &amp; Prepare</b> 3C.2 DFES Community Alerts 3C.3 Emergency & Relocation Kits 3C.4 Cyclone Home Check List	<b>Lesson 3F: Flood Aware</b> 3F.2 Risky Behaviours 3F.3 From Rain to Warning 3F.4 What Would a 3 Metre Water Level Mean?
<b>Lesson 4C: Watch &amp; Act</b> 4C.2 Cyclone Warning Systems 4C.3 Cyclone Alerts & Warnings 4C.4 Forecasting the Weather 4C.5 Home Survey	<b>Lesson 4F: Take Care &amp; Act</b> 4F.2 How Can YOU Prepare for Flood? 4F.3 Planning for an SES Visit
<b>Lesson 5C: Cyclone Survival</b> 5C.2 Family Cyclone Plan Poster	<b>Lesson 5F: What's the Plan?</b> 5F.2 Your School's Emergency Plan 5F.3 Emergency Contact Numbers 5F.4 Parent Evaluation Form 5F.5 A Family/Household Plan

Teacher Notes (including answers) are included at the end of each lesson

## Addressing Students' Misconceptions

DFES School Aged Programs encourage teachers to learn more about natural hazards by providing comprehensive lesson plans. The web links provided encourage teachers to visit the DFES ([www.dfes.wa.gov.au](http://www.dfes.wa.gov.au)) and BoM websites ([www.bom.gov.au](http://www.bom.gov.au)) websites to enable teachers to build on their own knowledge allowing them to address and challenge students' misconceptions. The Australasian Fire and Emergency Services Authority Council's (AFAC) *Principles for School Aged Education Programs*<sup>2</sup> outline how teachers must understand what those misconceptions are, so that students have plenty of opportunities to articulate their own knowledge and understanding in various ways, which can then be corrected where necessary to avoid misinterpretation.

## Curriculum Links

The *DFES Natural Hazards* program has been linked with the *Australian Curriculum: Science*, primarily to the Year 6 curriculum. There are plans to provide links and new activities to the program after the *Australian Curriculum: Geography* is published. New activities and information will focus on cause and effects, distribution of hazards; preparation, prevention, response and recovery to natural hazards, as well as building resilience.

	Science Understanding	Science as a Human Endeavour			
	Earth & Space Sciences	Nature & Development of Science		Use & Influence of Science	
<b>LESSONS</b>	Investigating extreme weather conditions	Using scientific evidence to predict the effect of natural hazards.	Australian scientists conducting natural disaster research.	Disaster alerts and communication.	How understanding natural disasters helps in planning for their early detection and minimising their impact; science informs choices how people manage natural disasters.
1: Introduction Natural Hazards					
2C: Cyclone Aware					
3C: Take Care & Prepare					
4C: Watch & Act					
5C: Cyclone Survival					
2F: Flood Facts					
3F: Flood Aware					
4F: Take Care & Act					
5F: What's the Plan?					

# Natural Hazards Program

NATURAL  
HAZARDS

## General Capabilities:

- Literacy
- Numeracy
- Personal and Social Capability
- Critical and Creative Thinking
- Information and Communication Technology Capability
- Sustainability

## Current/Ongoing Research

DFES School Aged Programs are not only aligned to school curriculum but are also informed by current and ongoing research into our understanding of the nature and behaviour of natural hazards and disaster resilience for both children and families. Current and ongoing research in this area will continue to shape DFES School Aged Programs. (Ronan et al, 2008)<sup>1</sup> (AFAC Guiding Principles)<sup>2</sup>.

## Evaluation

DFES is always seeking to improve its school programs and welcomes feedback from teachers who are accessing these lessons and delivering them in the classroom. Users of the *DFES Natural Hazards Program* are asked to provide their school name and contact details when accessing the lesson plans online. This information will be used to build a data base of program users. DFES will also record the number of users who access the lesson plans. Together, this information will provide DFES with details as to which schools are accessing the program and which schools are not. This information will be used to continue to assist DFES in developing a comprehensive marketing plan.

An online survey is inbuilt into the *DFES Natural Hazards Program* to allow DFES to carry out developmental and impact evaluation. Homework activities embedded in the program require students to engage with their families in activities to help prepare them and their households for natural disaster. Developmental evaluation will act to seek teacher opinion on the structure of the program, information provided and practical use of the lessons, whereas impact evaluation will seek details of the level of engagement with families in homework activities and collation of responses from home. Evaluation will also capture where schools have invited SES volunteers to the school to assist in the delivery of the program.

## Professional Development

Professional Development for teachers, SES volunteers and DFES operational staff will be developed within the DFES Education & Heritage Branch 5 year plan.

## Useful Websites

Teachers need to become familiar with the Department of Fire & Emergency Services Websites, specifically to the Alerts & Warnings pages and Safety Information pages. Here they will find information on preparation and prevention as well as how communities are alerted about hazards in Western Australia.

The Tropical Cyclone and Flood lessons regularly refer to the Bureau of Meteorology website. An understanding of weather is critical for teachers when students are learning about atmospheric hazards such as tropical cyclone, flood, bushfire and severe storm. The Bureau of Meteorology also has a significant role in warning coastal communities of tsunami threat.

Department of Fire and Emergency Services ([www.dfes.wa.gov.au](http://www.dfes.wa.gov.au) )

- [Safety Information](#)
- [FloodSmart](#)
- [CylconeSmart](#)

Bureau of Meteorology ([www.bom.gov.au](http://www.bom.gov.au))

- Flood Information Services
- Cyclone Outlooks

Other useful links:

<http://schools.aemi.edu.au/>

<sup>1</sup>Ronan, K. R., Crellin, K., Johnston, D. M., Finnis, K., Paton, D., & Becker, J. (2008). Promoting child and family resilience to disasters: Effects, interventions, and prevention effectiveness. *Children, Youth, and Environments*, 18(1), 332-353.

<sup>2</sup>AFAC Developing consistent safety messages for National Curriculum Adoption. <http://knowledgeweb.afac.com.au/events/presentations/ncaf> (last accessed 190413)