



Environmental Education Resource

# Urban Stormwater



North Central  
Catchment  
Management Authority

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Editing and review completed by Toni Domaschitz and Bronwen Burr, North Central Catchment Management Authority.

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North Central  
Catchment  
Management Authority

VICTORIAN NUTRIENT MANAGEMENT

PROGRAM





# Welcome

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# Welcome

Dear Educator,

Welcome to the Urban Stormwater Environmental Education Resource. This package provides resources for a themed week in your class on 'Urban Stormwater'.

The North Central Catchment Management Authority (NCCMA) has developed this package which:

- Is written and presented in a teacher friendly format

- Focuses on local issues and data

- Is aimed at Year 5 and 6 students

- Links to the CSF II and

- Provides a variety of fun filled activities for your class

Urban stormwater is water that flows from urban streets and hard surfaces, untreated, into natural waterways. It is a major environmental issue in the North Central Region. This program is a highly successful way of involving, educating and motivating students to care for their environment.

NCCMA is our region's peak body for coordinating management of natural resources. We are involved in education programs about Urban Stormwater, along with your Local Council, the EPA, Urban Water Authorities and Rotary Clubs of Victoria.

North Central Waterwatch delivers waterways education programs for the NCCMA. 'Value add' to this teaching resource by arranging a 'Waterwatch Coordinator' to visit your school and involve students in the Urban Stormwater Field Trip (details and timelines p.7).

For further information about this Environmental Education Resource, including the Urban Stormwater, Waterways and Salinity packages, contact North Central Waterwatch, at NCCMA on 5448 7124.

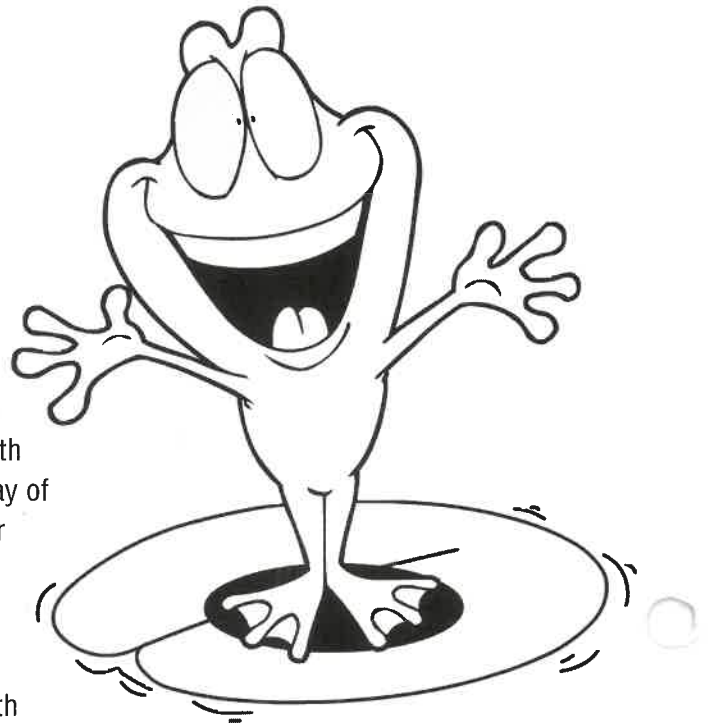
Regards,



**Drew English**

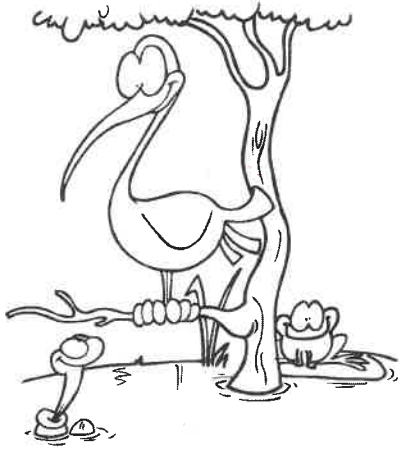
Chairman

North Central Catchment Management Authority



# Synopsis

The Urban Stormwater Program, 'From Your Street To Your Creek', resource package provides you with an opportunity to learn more about stormwater issues in the North Central Region.



## **This Environmental Education Resource:**

### **Focuses on the following key concepts**

- Rainfall enters the stormwater system and is discharged, untreated, into waterways
- Stormwater flows off roofs, roads, paths and hard (outside) surfaces
- Pollution can consist of litter, organic items and chemicals
- Pollution affects water quality, harms aquatic plants and animals
- We all contribute to the problem
- We all share a responsibility

### **Dispels the following common urban stormwater myths:**

- Stormwater is treated before entering waterways
- Litter is the major stormwater pollutant
- Most pollution in waterways is deliberately and directly dumped by 'people'

### **Utilises the following process:**

- Introducing urban stormwater
- Consolidating issues
- Integrating information
- Understanding key processes
- Generating solutions
- Taking action

### **Involves the use of:**

- Technology
- Local information
- Mapping, graphing, observing and recording
- Experiments, quizzes, art, sports and drama
- Discussion between students, the school community and experts

### **Includes the following components**

- Links to the CSF II
- Background information
- Learning tasks across all curriculum areas
- Lesson plans
- Blackline masters
- Student worksheets
- Extra resources
- Industry contacts
- Field excursions
- Assessment templates

### **Incorporates these learning tools**

- Co-operative learning
- Bloom's taxonomy
- Hands-on activities
- Open-ended investigations
- Student directed tasks
- Information and communication technologies
- School community involvement
- Middle years initiatives
- Literacy and numeracy initiatives
- Peer tutoring / Jigsaw
- Student self evaluation



# Urban Stormwater - Background

## What is urban stormwater?

Urban stormwater is water that runs off hard surfaces in towns. It includes the pollution that the runoff carries with it.

Unlike sewage, which is treated through the sewerage system, stormwater generally flows untreated, through a series of pipes and drains, into our waterways.

## Stormwater views, past and present

In the past, stormwater has been regarded as a nuisance to be whisked away underground and out of sight as quickly as possible. This has contributed to a lack of awareness about stormwater pollution.

Stormwater is now regarded as a valuable resource. There is potential for the reuse of stormwater. Urban stormwater can be used for toilet flushing, car washing, irrigation of parks and gardens, fire extinguishing and to fill wetlands.

Councils within the North Central region are now developing and implementing Stormwater Management Plans to determine the best ways to improve water quality.

## Who is responsible for stormwater pollution?

Stormwater pollution can come from every home, business and public space so every resident is responsible for preventing stormwater pollution.

## What pollutes urban stormwater?

There are three main types of urban stormwater pollution

- **Litter** such as cigarette butts, cans, paper, glass, foil, polystyrene and plastics
- **Chemical pollution** including detergents, oil, grease, petrol, pesticides and fertilisers
- **Organic pollution** such as leaves, garden clippings, soil and animal droppings

## What are the effects of urban stormwater pollution?

Given that urban stormwater pollution can come in a variety of forms, the impacts of stormwater are extensive. Some impacts are listed below:

- Nutrients encourage the rapid growth of weeds and can cause algal blooms
- Litter gets caught in stream vegetation, clogs up waterways and looks unsightly
- Plastic and foam takes years to break down and can be eaten by fish and platypi
- Organic debris uses up oxygen in water which makes aquatic flora and fauna suffocate
- Sediment makes the water muddy and builds up in waterways
- Petroleum products form oily films on the water
- Animal droppings contain bacteria that can make fish and humans sick
- Garden clippings and seeds can reshoot in streams and creeks

## What factors affect stormwater pollution?

- The intensity and timing of the last rainfall
- Building density and land use
- Level of vegetation cover
- The cleanliness of the streets

## What is being done to stop stormwater pollution?

The Government is committed to tackling stormwater pollution. Many Councils are undertaking education campaigns to reduce stormwater pollution. Education empowers individuals to work to achieve the goals of reducing stormwater pollution.

## What can we do to help reduce stormwater pollution?

- Sweep out gutters and driveways
- Put leaves in the compost
- Grow native plants that require less watering
- Wash the car on a grassy area with a bucket
- Pick up after your dog
- Put cigarette butts and other litter in the bin
- Choose shopping items with reduced packaging if practical
- Make sure schoolyard bins are lidded and emptied regularly





# Program Overview

- I** = Introductory lesson
- M** = Midweek
- C** = Conclusion
- A** = Action

This resource provides a wide variety of activities for your class. Feel free to choose any combination from the list below. The coding beside each activity indicates where the activity will best fit into a week program.

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\* activity is used in subsequent lessons.



# Guide To Each Lesson Plan

## Activity Title

### FOCUS QUESTIONS

- The focus of the activity

### OBJECTIVES

- A brief outline of what students will be able to do after the activity.

### BACKGROUND INFORMATION

You are not expected to be an expert. You will find notes to help your here. If you require further background information, read the Welcome section 'Urban Stormwater' p.4.

### NOTES

Important details about the activity including organisational tips, pre-requisites, suggested variations, links to other activities.

### CSF II LINKS

Learning Outcomes that are addressed but not necessarily met. This resource aims to achieve conceptual understanding. Codes included here relate to CSF II Level 4. eg. SCIENCE Chemical 4.1 = CSF II Level 4 under Chemical Science point number 1.



## LEARNING TASKS

**A variety of learning tasks are suggested here, sometimes as a range to choose from, sometimes as a possible sequence to follow.**

**Discussion points and question examples are often provided.**

### MATERIALS

- A list of everyday materials and / or teaching resources you will require.

### EXTENSION IDEAS

Challenges for gifted learners, suggested home tasks or extension for the whole class.

### ASSESSMENT IDEAS

Questions to keep in mind when evaluating student understandings. A variety of assessment methods are suggested with templates provided.



# Fieldtrip Timeline

Your guide to organisation of and participation in the Urban Stormwater presentation/fieldtrip.

- Contact:**
- The Regional Waterwatch Co-ordinator, at the North Central Catchment Management Authority, on **5448 7124** to express your interest.

**Provide:**



- The following details:
  - Name and location of school
  - The extent to which you may be implementing Urban Stormwater Program activities from this resource package either prior to, or following their visit
  - Number of students / Year level / Number of classes
  - Preferred day, date and time
  - Space available ie. Multi-purpose room, library, classrooms, etc
  - Availability of a T.V, video player and whiteboard
  - Your name and contact details

**Negotiate:**

- Transport for the field trip. Do you need a bus and will one or more tours be required? Is a walking tour more appropriate to your location?

**Book:**

- A bus if required. (Including pick up, travel and drop off)  
Ask the coordinator to confirm the duration of the trip.
- Payment for the bus is your responsibility although some funding assistance may be available.

**Implement:**

- Urban Stormwater Program activities, choosing from the selection in this resource package.

**Confirm:**

- The date, day, time and any other relevant details of the school visit.

**Send:**

- A note home with students to inform parents of their child's participation (sample provided). You might like to encourage parent participation in the field trip.

**Prepare:**

- Students for the presentation and field trip. They should be wearing suitable clothing eg. walking shoes, hats, raincoats, etc. Sunscreen and water bottles may also be required. Pencils and clipboards are a must.

**Meet:**

- The presenter upon arrival at your school, inducting them to the site and providing all necessary resources to enable setup prior to the presentation.

**Enjoy!**

- The presentation and field trip. Please note that teachers responsible for student supervision and the school is responsible for the provision of sufficient staff members to ensure adequate supervision.

**Review**

- The field trip and provide feedback. We would love to receive comments about the field trip and the Resource. Mail these to '**Waterwatch Coordinator**', **North Central Catchment Management Authority, PO Box 18 Huntly 3551.**



# Sample Note To Parents

Dear Parents,

Our school is participating in the Urban Stormwater Environmental Education Program developed by the North Central Catchment Management Authority. As part of the Program your child will be involved in a wide variety of engaging activities to increase their awareness of stormwater pollution, it's sources, impacts and strategies to take positive action in reducing it.

During this time, we will be fortunate to have a Presenter visit our school and run an Urban Stormwater Education Session. This session is divided into a class based and a field based component.

Students will take part in a presentation held at school which highlights the issues of stormwater pollution. It will enforce the message that, as community members, we are all responsible for reducing pollution that flows untreated 'From Your Street To Your Creek' and impacts on water quality, aquatic plants and animals and water users.

The second part of the session involves a field trip where students will travel by bus / foot and tour the local area. During this time they will observe stormwater inlets and outlets, identify possible sources of pollution, seek visible examples of pollution and evaluate the health of local waterways.

Please assist us in preparing your child for this valuable learning experience by ensuring they wear suitable clothing for the field trip including comfortable walking shoes, casual school uniform and hat. Sunscreen and a water bottle are also advisable.

Your assistance in this matter is greatly appreciated,

Your sincerely



## Other details that may be included

- Consent form and medical emergency treatment form
- Details of payment if applicable
- An invitation to parents to join the field trip / request for parent helpers



# Evaluation

North Central Catchment Management Authority would greatly appreciate a short moment of your time to complete the evaluation below at the end of your 'Urban Stormwater' week. Feedback from teachers will be highly valuable and used while reviewing the success of this program.

Please photocopy this page and forward your evaluation to:

**Urban Stormwater Project Officer**  
**North Central Catchment Management Authority**  
**PO Box 18, HUNTLY, VIC, 3551**  
**Facsimile: 5448 7148**  
**E-mail: info@nccma.vic.gov.au**

Name (optional): \_\_\_\_\_ Date:     /     /

School: \_\_\_\_\_

Address: \_\_\_\_\_

Please cross the box you feel most accurately describes your opinion of the following aspects:

### The Resource

The format of the resource package as a whole

The format of teacher notes for each activity

The format of student worksheets/taskcards

The variety of activities provided

The number of activities provided

The quality of suggested learning tasks

The learning outcomes achieved by students

Ease of implementation

The type and amount of materials required

The support provided by background info.

### The Field Trip

The details provided about the presentation

Ease of arranging the presenter and field trip

Your participation in the presentation & field trip

**Very Happy**

**Satisfied**

**Disappointed**





























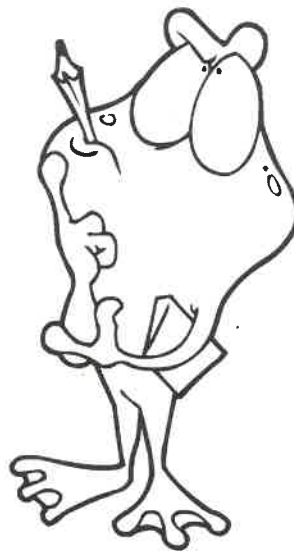












Please feel free to add further comments:

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