Activity 2.1 – Catchment Walk

Introduction
This activity introduces the concept of a catchment in a very practical way. Students gather first hand information about their local waterway and then prepare a catchment map.

Estimated lesson time: 120 minutes

Outcomes
HSIE Stage 2
This activity meets the following syllabus outcomes: Patterns of Place and Location
ENS 2.5

Science and Technology K-6
This activity meets the following syllabus outcomes:
Stage 2
BE S2.1, LT S2.3, INV S2.7
Stage 3
BE S3.1, LT S3.3, INV S3.7

Background Resources
Before going out into the field, it is worthwhile contacting your local council and the Department of Infrastructure, Planning and Natural Resources for background information and topographic maps.

Topographic maps and aerial photographs can be obtained from:
Land and Property Information Centre (Sydney Map Shop)
23–33 Bridge St, Sydney 2000
Email: infocentre@dipnr.nsw.gov.au
Website: www.dipnr.nsw.gov.au
Maps – phone (02) 9228 6310
Aerial photographs – phone (02) 9228 6465

Specific sub-catchment maps are available from:
Land Information Centre
NSW Dept of Infrastructure, Planning and Natural Resources,
PO Box 143, BATHURST, NSW 2795
Phone: (02) 6332 8200
Fax: (02) 6331 8095

Local Council
Your local council will be a valuable source of support materials. Perhaps a council environmental officer could be invited to the school to talk with your class or to accompany you on the catchment walk. It is best if the teacher contacts the council directly, rather than individual class members.

Land use information and catchment details can be obtained from your local council who would have prepared Stormwater Management Plans for the catchment. They will also have State of the Environment Reports for your area, which will contain valuable environmental information.

The Department of Local Government web site will provide more information and access to the local government directory.

• Phone: 9793 0793 Fax: 9793 0799
• Email: dlg@dlg.nsw.gov.au
• Website: www.dlg.nsw.gov.au

Keywords
• catchment  • transect  • land use
• gradient  • vegetation  • erosion
• residential  • industrial  • commercial
• topographic  • sewer  • sewerage
• gross pollution  • constructed  • wetland
• trap  • wetland
• native  • exotic  • river
• (plants)  • (plants)
• creek  • intermittent  • spring

Process
Prior to taking the class out into the field, examine the topographic maps and aerial photos to identify key landmarks with the class (such as, location of the school, location of the waterway relative to the school). Also locate the catchment boundaries and the path of the waterway from the headwaters to the sea.

For fieldwork, divide the class into small teams that can work together. Plan for a whole afternoon or morning walking in the local area, to complete the catchment mapping.
If you live in a large catchment, a catchment bus tour is another alternative.

On return to the school, have students develop a large-scale catchment map, based on their observations in the field.

You will need:
• clipboards and paper, pencils
• map of creek or river section showing prominent landmarks.

What to do

Step 1: Identify catchment
Identify where the catchment or sub-catchment boundaries are in relation to the landscape. This is best done with the assistance of topographic maps and if possible aerial photographs. The catchment may be defined by surrounding hills or in the case of larger catchments, the catchment boundaries may be hundreds of kilometres away.

Step 2: Walking together
Valuable first hand information can be gathered from a catchment walk. Walk a ‘transect’ through the catchment along a line between two chosen points. For example start at the river bank and walk up through different land-use zones to a high point in the catchment area, or walk a transect that starts at the school and takes the class through a variety of land uses.

Gather information by direct observation. Make special note of any potential point source pollution including drains, sewage overflow points, building sites, industrial and residential areas.

Step 3: Sketch map
Gather the following information for a sketch map of the catchment:
• catchment boundaries
• flow and path of water course
• general gradients (drainage patterns of surrounding lands)
• native vegetation
• parks and playing fields
• cleared land
• erosion
• land-use zones (residential, industrial, commercial)
• location of school
• major roads

• potential pollution sources, including stormwater drains entering the waterway and sewage overflow points.

Decide on a system of symbols that denote land use and record the land use in the vicinity of the creek or river.

Step 4: Sit quietly
Take students through this exercise.

Sit quietly next to the river for a few minutes. Look around you – what do you feel as you sit there? Close your eyes for a few moments. What sounds do you hear?

Explore the creek or river section, making a note of your thoughts, feelings and impressions. Be creative! Describe the catchment in your own words.

1. What can you see, smell and hear?
2. What is the condition of the banks?
3. What is the vegetation cover like? What proportion are native or exotic plants?
4. Are there any drains? Where do they discharge into the river?
5. Are there any visible signs of pollution?
6. Are there any pollution control devices (e.g. constructed wetlands, gross pollution traps)?

Step 5: Make a catchment map
Back in the classroom, create a large-scale catchment map. Mark in catchment boundaries. (A topographic map and aerial photographs will help.) Use coloured pencils or crayons to illustrate major land uses and other information collected during the catchment walk. Each group can report to the entire class about what they found. Some may wish to share passages from their journal.

Step 6: Class discussion questions
1. How would you describe the overall state of stormwater runoff in your catchment?
2. How do you feel about the current state of your catchment?
3. Based upon your catchment walk, what are some problems facing your catchment today?
4. Did you discover any potential sources of pollution?
5. Has the flow or course of the creek/river been altered by human intervention? (e.g. cement drainage channels, dams).