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FOCUS

- How does the removal of old trees affect fauna?

OBJECTIVES

- Understand the consequences of diminishing habitats on aquatic ecosystems

BACKGROUND

This activity highlights the importance of retaining hollows in riparian zones to conserve healthy habitats for a variety of species. As it can take up to one hundred years for a hollow to form in a tree, old trees are vital. Hollow-dwelling animals include possums, gliders, owls, parrots and cockatoos. Hollows also provide food and shelter for koalas, antechinus and many species of birds, frogs, lizards, insects and other invertebrates.

NOTES

This activity is based on 'musical chairs' and requires an open space.

CSF II LINKS

- HPE 4.1 Movement
& Physical Activity
SCIENCE 4.1 Biological

LEARNING TASKS

- 1 Discuss the variety of animals that live in or visit river environments.**
 - List those that might use hollows for shelter, homes, food and breeding.
- 2 Choose one student to play the 'Woodcutter'.**
- 3 Ask the rest of the class to spread out in groups of three.**
 - Two members from each group face each other and join hands to represent a hollow tree.
 - The third person stands inside their arms as a hollow-dwelling animal.
- 4 Follow the task card to play the game several times.**
- 5 Discuss hollow-forming trees and the impacts of their loss.**
 - How long does it take for a hollow to develop in a tree?
 - What types of trees are more likely to develop hollows?
 - Where have you seen trees with hollows in our local area?
 - Why are hollows often found along riverbanks?
 - Why are hollow-bearing trees removed?
 - What happens to the animals left without homes?
 - How could their disappearance affect other plants and animals?

MATERIALS

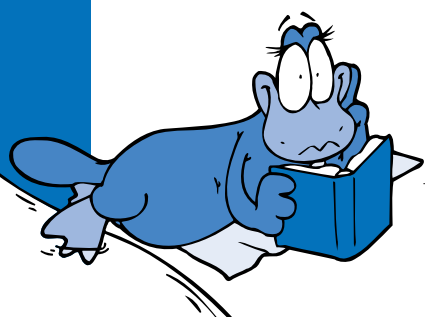
- **'Homeless' Teacher Task Card**
- **Mock chainsaw**
(cardboard cut-out would be ideal)
- **Hard hat**

EXTENSION

Conduct research into the design of nesting boxes for birds and possums. Use donated wood and tools, invite family or community members to school and construct nesting boxes. Read and review 'The Lorax' by Dr Seuss.

ASSESSMENT

Could students relate the game to real situations? Were they able to articulate ideas about habitat loss and wildlife conservation?



Homeless - Teacher Task Card

Preparation

- CHOOSE** one student to play the 'Woodcutter'.
- IDENTIFY** the riparian zone (area) in which the hollows are found (game is played).
- SPREAD OUT** the rest of the class in groups of three.
- HOLLOW TREE** is formed by two members from each group facing each other and join hands.
- ANIMAL** is created by the third member standing inside the circle of hands.
-

Playing the game

- 1 Ask the Woodcutter to cut down one of the trees, making chainsaw noises as they go.
 - 2 When cut down, the two people forming the tree go and sit in a designated 'Woodpile' area. The animal stays in the forest.
- Note:** If you have time constraints, choose to lop two trees at once.
- 3 After the Woodcutter has visited, call out 'find a hollow'.
 - 4 Each animal must scramble to find a new hollow (they cannot remain where they are).
 - 5 With fewer trees than animals, there will always be an animal left without a home. These homeless creatures should sit in a designated 'Homeless' spot and are now out of the game.
 - 6 Again, ask the Woodcutter to visit. Continue in this way until one animal remains.
 - 7 Emphasise the concept of habitat loss by having the one last tree cut down as well.



CHALLENGE

- Play again but this time create shelter / nesting boxes from the woodpile. The two students that once made a hollow tree, now make a young tree with a box attached. They should stand back to back – one student representing the tree whilst the other represents the shelter / nesting box. An animal may then rejoin the game and sit at the feet of the 'box'. The tree with a shelter / nesting box then becomes an alternative choice when asked to 'find a hollow'.
- Introduce a feral predator to illustrate another threat to the survival of native wildlife. Animals that are 'killed' (tagged) by a cat or fox whilst scrambling to find a hollow / box lay down when tagged.



FOCUS

- Where does our waterway come from and flow to?
- What does it pass by on its journey?

OBJECTIVES

- Be aware of the journey of a local waterway
- Exercise

BACKGROUND

Due to the way in which waterways meander through the landscape according to terrain, geology and the degree of human interference, their length can often be twice that of a direct path between two points. This activity links well with the Maths activity, 'Woolly Waterways' where river lengths are studied.

NOTES

This activity may take place over days or weeks. It can be adapted according to the time you have available and the focus you wish the activity to take. It could also be used as a homework task to encourage family involvement.

LEARNING TASKS

1 Choose a local waterway that is accessible, has as defined and safe access and is easy to identify on a map.

- Identify time available for completion of a waterway walk.

SAFETY When planning a field trip it is essential that you develop a safety plan, which identifies potential hazards the risk of the occurring and implements safety control measures.

2 Set group or individual goals for the walk.

- Identify key features of the waterway during the walk.
- Invite the school community to walk with you.
- Complete activities along the walk (bush survival, habitat surveys, water quality testing etc.).

3 Estimate then measure the length of the waterway you wish to travel using string (on maps in the classroom).

- Compare this to the distance covered by direct 'flight'.

4 Use a tape measure to establish how far students cover in 10 steps.

- This can be used to calculate how far the students cover on the walk.
- Compare this with results found by a teacher walking with a trundle wheel.

5 Start a regular exercise regime, beginning with small goals and gradually extending duration or distance if desired.

6 Undertake the walk and issue students with a certificate.

CSF II LINKS

HPE	4.1 Movement & Physical Activity
MATHS	4.4 Space 4.5 Space 4.4 Measurement

MATERIALS

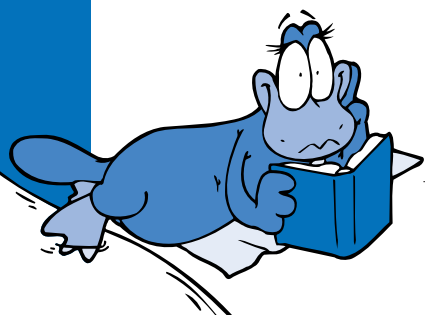
- Local maps
- Trundle wheel
- 'Certificates'
(see Extras section)
- String / cotton
- Ruler

EXTENSION

Write a report on the waterway walk. Investigate the benefits to personal health of regularly undertaking exercise. What are the benefits of walking along a natural waterway?

ASSESSMENT

Did students keep an accurate record of their progress? Could they calculate distance using the chosen scale? Did their fitness or endurance improve during the period?



FOCUS

- What factors affect the health of our waterways?
- What impacts occur and how can they be avoided?

OBJECTIVES

- Use verbal cues to race a set course
- Gain a greater understanding of river health issues

BACKGROUND

The health of waterways is generally an indication of the health of the catchment as a whole. Catchments in North Central Victoria have been altered since European settlement. An integrated catchment approach including restoration of environmental flows, riparian vegetation and instream habitat is vital for improving the health of waterways.

NOTES

As can be seen by the CSF II links above, this is an extremely cross-curricular activity that students will enjoy time and time again. Played in an open area 'Racing Rivers' could be teacher or student directed and involve students of any age.

CSF II LINKS

HPE	4.1 Movement & Physical Activity
SOSE	4.1 Economy & Society 4.2 History 4.2 Geography 4.3 Geography
SCIENCE	4.1 Biological

LEARNING TASKS

- 1 Revise what students know about waterways, discussing known values, facts about aquatic life, vegetation, threats and management issues.**
- 2 Divide students into two even groups and assign catchment names, choosing from the four catchments in the North Central region.**
 - The catchments are Campaspe, Loddon, Avoca and Avon-Richardson.
 - If a student is left over, they can be the storyteller or judge.
- 3 Follow the steps on the task card to prepare for and play the game, using the tale, 'Once Upon A Stream', to provide the verbal cues for student action.**
 - Vary to suit time available

SAFETY Students must keep their hands by their side to avoid their fingers being trampled by others.

- 4 After the game, discuss the story**
 - What did the game tell us about waterways?
 - What factors have affected water quality, plant and animal life and whole communities?
 - How we can learn from past errors?

MATERIALS

- 'Racing Rivers' Teacher Task Cards 1 & 2
- Four chairs / markers

EXTENSION

Use students' suggestions to alter the storyline and play again. Research the history of a local waterway and play the game using specific examples of local happenings.

ASSESSMENT

What did students' discussion indicate about their understandings of waterways and their historical, economic, social and environmental values and threats?



Racing Rivers - Teacher Task Card 1

- Materials**
- Four chairs / markers
 - Teacher Task Card 2 'Once Upon A Stream'

Preparation

DIVIDE students into two even groups.

CHOOSE group names from the catchments in North Central Victoria – Campaspe, Loddon, Avoca and Avon-Richardson.

SELECT students from alternate catchments to form pairs. Pairs sit facing each other with outstretched legs, feet meeting in the middle so that parts of each catchment are now lined in straight rows.

SAFETY Students must keep their hands by their side to avoid trampled fingers.

PLACE markers a few metres from both ends of each row.

ASSIGN each pair with a name from the following list.

rain	sediment	fish	birds	vegetation	plants
snags	rubbish	school	land	community	invertebrates

Playing the game

READ the story 'Once Upon A Stream' on task card 2. When students hear their name it is time to act.

Pairs must:

- jump up from their place
- step as quickly and carefully between the legs of other pairs
- run around the markers on their catchment's side
- proceed down the outside of their catchment
- go around the marker at the end
- step back over everybody's legs
- sit back down in their place.



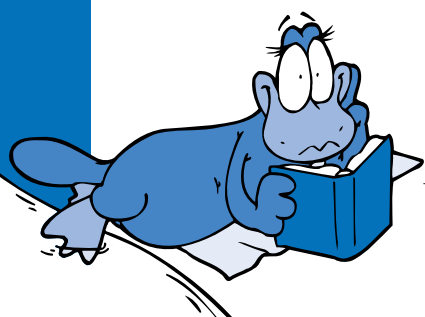
NOTE any form of pair names is a verbal cue for action, whether the name is in singular or plural form (e.g. community / communities) or if the name is extended (e.g. bird / birdlife)

PAUSE where indicated as the pair/s involved take action (in bolded text). Several pairs or one pair may be in action at one time.

When 'WATERWAYS' is read, all pairs rise, run around the end marker, around the marker at the opposite end and back to sit in their place.

Aim of the game

- If one pair is in action, the first person to sit back down in their place wins a point.
- If two or more pairs – a point is earned for the team with all participants sitting first.
- If all pairs – the entire catchment to be sitting first wins a point.
- The catchment with the most points at the end of the story will be deemed the most successful catchment.



Racing Rivers - Teacher Task Card 2

Once upon a stream

READ the following story, emphasising the **bolded** words and pausing where indicated by a ♣ .
MAKE sure students to listen very carefully for their cue.

The year was 1780 and North Central Victoria was vastly different than today. Aboriginal tribes lived in harmony with the **land**. ♣ Nature provided food, shelter and transport. They respected the **WATERWAYS**, ♣ only taking what their **community** needed. ♣

Big old eucalypts lined the rivers providing roosting spots and hollows for birds. They dropped branches and logs into the water where these **snags** made hiding places for **fish** who fed on aquatic **invertebrates** that live in and around rivers. ♣ The soil was stable and healthy.

The **rains** flowed down from the hills, filling the rivers. It picked up leaf litter and soil along the way. This **sediment** did not have a big impact. ♣ **WATERWAYS** were healthy. ♣

The year was 1851 and the beginning of the 'Gold Rush'. The population exploded and trees were cut down. The **land** beside rivers, being the most fertile, was soon cleared to make way for crops and for grazing. ♣

Without trees to protect the soil the **rains** went rushing across the countryside. With little riparian **vegetation** to slow it down or act as a filter, it found its way into creeks. ♣ **Sediment** settled on the riverbed and pollution poisoned the water. Platypus and **waterbirds** found it difficult to survive and **plants** started to die. ♣ **Communities** did not understand the effects of their actions on water quality. ♣ **WATERWAYS** were becoming polluted and turbid. ♣

The year was 1920. Townships sprung up along river systems. ♣ Trees were used for housing and rivers were cleared of **snags**. Without these hollows, the Murray Cod could not breed. With fewer **fish** to eat, water **birds** were left without food. Stock scrambled down riverbanks to drink, eroding the soil. ♣ The river was the focal point of the town for **community** and **school** gatherings but **rubbish** was left scattered by the river. ♣ **WATERWAYS** were becoming lifeless. ♣

The year was 1965. Experts devised new schemes to harness **rain** and river systems by holding water in dams and reservoirs. Huge machinery sent **sediment** tumbling into streams. ♣ It settled on riverbeds, covering aquatic **plants**, animals rocks and logs. ♣ Farmers demanded water to be released in summer to irrigate their farms. The **water** from the dams was cold and many **schools** of **fish** disappeared downstream. ♣ With the construction of barriers and release of exotic **vegetation** and animals, native species found it difficult to compete. ♣

Rising watertables increased the salinity of rivers. **Rainfall** in urban areas washed chemicals, **rubbish** and introduced **plants** into local creeks with stormwater runoff. ♣ New technology saw packaging and waste. ♣ The quality of **WATERWAYS** was degrading rapidly. ♣

The year is 2003 and we are working for a better future. The North Central Catchment Management Authority is working with **communities** to rehabilitate the environment ♣ **Schools** are involved in Waterwatch programs. Groups monitor the quality of local creeks, complete **bird** surveys, collect **rubbish** and participate in aquatic **invertebrate** sampling. ♣

WATERWAYS reflect the health of the surrounding **land** and entire catchment. Native **fish** are being restocked in our rivers, exotic **plants** removed, native **vegetation** replaced and **snags** put back into the **water**. ♣ River Health Plans aim to reduce pollution and **sedimentation**, stock are fenced out of riparian **land** and **water** testing and aquatic **invertebrate** surveys keep a check on freshwater ecosystems. ♣

Our **WATERWAYS** will be preserved as healthy, beautiful places for us all. ♣

