STUDENT ACTIVITY

Understanding our Resources

The aim of this activity is to encourage students to think about the everyday items they use; where they came from and if they are finite or infinite. It will also encourage thinking about when certain items came into use in society, and whether they are needs or wants.

Materials

- Pens
- Paper
- Examples or pictures of everyday items such as:
  a book, pencil, house, apple, tin, shampoo bottle, t-shirt, milk, CD, water, light globe, tissue, car, chicken, soap, make-up, shoes, TV, BBQ.

Learning methodology

1. Ask students to look around the classroom and assist them in identifying the origin of any item they see, e.g. pencils from wood and minerals, taps from metal, apples from plants, plaster from minerals, plastics from petroleum.
2. What other resources have they used today? Electricity, water, food? Where do these items come from?
3. Form the class into a circle and give students an everyday item or picture and ask them to try and identify one of the original resources it is made from. For example if given a book it's original resource would be plants, if given a fork, its original resource would be a metal and so on.
4. Discuss the concept of finite and infinite resources.
5. Now ask the class to separate into finite and infinite resources. Does anyone disagree with any item in either group? What do the class believe about water?
6. Now ask the class to separate into needs and wants. Concentrate on needs being the basic items for survival such as shelter, food and water. Which are there more of? What are we able to live without.

Questions

1. Are there any items you have identified during the activity that do not originate from natural resources?
2. Which do we use more of finite or infinite resources?
3. In pairs ask students to write down 10 items they would take to a deserted island in order to survive. Does the class agree on many items? Are these items mostly needs or wants?
4. Ask students to ask their parents and grandparents to remember what were the most important items in their home when they were growing up and report back to the class.

Extension activities

- Extend the classroom activity to include recyclables and landfill.
  Follow on with the Classroom Environmental Management Strategy on page 137.

Land Use Mapping

The aim of this activity is to encourage students to reflect upon their region, and the location of different land use types, such as farms, forests and towns. Student will then map these land uses and suggest ways they impact upon water quality.

Materials

- Copies of your regions catchment map, pages 88–94
- Copies Gippsland's River Systems overall catchment map, page 85
- Coloured pencils
- Land use maps of East and West Gippsland downloaded from the Department of Primary Industry website in the Victorian Resources Online Section www.dpi.vic.gov.au/dpi/vro/wgregn.nsf/pages/wg_landuse Ideally use a projector to put the downloaded map up on a screen or wall so it can be clearly seen.

Learning methodology

1. Discuss the concept of land use and brain storm a list on the board such as farms, towns, national parks, etc.
2. Create a key for each land use with different coloured pencils.
3. Using the downloaded maps as a reference broadly outline where different land use activities are located in your catchment
4. Complete the same activity on the Gippsland's River Systems catchment map for a broader picture. Look at the different land uses across the region and compare various catchments. What land uses border your area?
5. Brainstorm the distribution of a chosen land use within your catchment and how the use may impact on the water quality of the rivers and ultimately the Gippsland Lakes.

Extension activities

- Introduce water quality concepts with the A Day in the Gippsland Lakes Catchment Student Worksheet
- Take a Waterwatch catchment tour to look at changes in water quality down the length of your catchment

STUDENT ACTIVITY

Classroom Environmental Management Strategy

The aim of this activity is to encourage students to think about the everyday activities undertaken in the classroom and the waste that is produced. The outcome is to discuss strategies to reduce resource use in the classroom and its environmental impacts.

Materials

- Blackboard
- Pens, paper
- Poster paper
- Buckets for rubbish

Learning methodology

1. **Data Collection or Environmental Audit.** Students are asked to list the ways that school activities impact on the environment. And collect class data. Factors to consider:
   - Utility usage - electricity, gas and water
     How long are lights and heaters used?
   - How students get to school?
     i.e. car, bus walk
   - Cleaning, how often, are chemicals used?
   - Garbage volumes and type, i.e. plastics, food, paper (use specific bins for a week to gage the volume of rubbish)
   - Packaging of lunches, gladwrap, plastic, excess packaging
2. **Identifying stakeholders.** Stakeholders are people who will have an influence over the decision made in the strategy. For example:
   - Parents who determine transport, lunches
   - Waste collection services / cleaners
   - The principal
3. **Identify issues and constraints.** What areas can students have influence and what can't they change, i.e. some parents may not let students walk to school or the principal may not allow a compost bin for safety reasons.
4. **Set goals.** Goals should be clear and measurable based on data collected above. For example:
   - 10% reduction in students travelling by car to school
   - Rubbish free lunches
   - Goal to turn off heater and lights at lunchtime, on bright afternoons

   Put these on to poster paper and review regularly.
5. **Review the plan.** After 2–4 weeks, collect the same data again and check against set goal.

Questions

1. Have you achieved your goals? Has there been a change of behaviour in the classroom?
2 What was the most difficult part of the strategy?
3. Are you able to now set new goals?

Extension activities

- Extend the EMS across the whole school
- Contact the Education Officer at the Gippsland Regional Waste Management Group for more information on Ph: (03) 5153 1707

Solar Water Distiller

Examining Australia's water issues and how renewable energy sources can be used in practical applications. This is a way to turn dirty or salty water into pure, clean water, using just the thermal energy (heat) from the sun.

Materials

- A sheet of rectangular glass, or clear perspex plastic, or even glad-wrap
- One cardboard box, slightly narrower than glass
- Black poly plastic, enough to line the interior of box
- Glue
- Roll of clear packing tape
- Clean or new oven tray or plastic tray, a bit wider than the glass or plastic sheet
- Scissors, sharp knife or Stanley knife
- Pencil

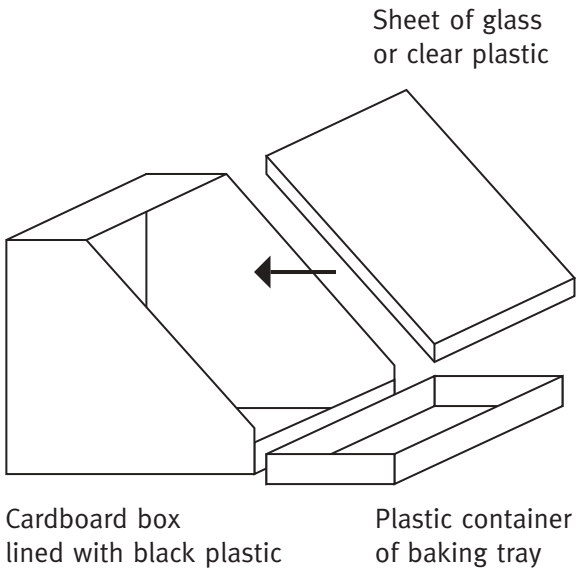
Precautions:

- Be careful with the glass panel, it is fragile and may have sharp edges
- Stanley knives are very sharp, use with caution. Scissors may be preferable
- The water in the bottom of the cardboard box may get quite hot; don't forget hot water can cause serious skin burns, so handle with care!
- Do not drink the distilled water if the original water is from a polluted or contaminated source

Learning methodology

Making the distiller:

1. Close the flaps at the top of the box and stick down with tape along the join.
2. Mark equal-sized triangles on opposite sides of the box, similar to the diagram.
3. Cut the triangles out, and then cut across the box between the acute angles of the triangle holes. The cut box should look the one in the diagram.
4. Make a one-centimetre cut down the edges of one of the smaller faces of the box, and then cut out the strip between them. See diagram. This becomes the lower-front face of the box.
5. Glue the black plastic onto interior of the box, making sure to cover all interior surfaces.
6. Ensure the interior of the box is leak-proof. Seal with extra glue or packing tape.
7. Your distiller is ready to go!



Solar Water Distiller

Using the distiller:

1. Position the box in direct sunshine, facing the sun.
2. Fill the bottom of the box with about 20 mm of water.
   Note - for speedier results, use hot or boiling water.
3. Place the tray in front of the box, touching the cardboard.
4. Place the glass or plastic sheet over the opening in the box, with the bottom resting in the tray.
   If the glass is heavy, the tray may need to be braced from sliding, with some rocks etc in front.
5. If there are gaps between the sheet and the edges of the box, apply tape to seal them up.
   Do not seal along the bottom, this gap is necessary to allow water to collect in tray.
6. If hot water has been used, condensation will rapidly begin to form on the glass,
   running down into the tray.
7. When sufficient water has been collected, pour contents of tray into a glass and taste.

Further activities

1. Check the pH of the starting water with the pH of the distilled water. The pH of pure water is 7.0.
2. Check the electrical conductivity of the starting and finishing water to determine salt content.
3. Is the resulting water visibly cleaner? Was there a residue left in the box?
4. What are the results of using different types of water at the start,
   e.g. rain water, tap water, sea water, pond water, dirty water?
5. In what situations or environments would solar distillers be useful?
6. How could the solar distiller be improved? Research other types of distillers and distillation methods.

Extension activities

- Participate in the RACV Energy Breakthrough – an event run each year focusing on science, energy efficiency, technology and the environment. The program provides opportunities for students, teachers, parents and local industry to work together to design and construct a vehicle, a machine or innovation in technology that will represent an energy breakthrough.
  www.racvenergybreakthrough.net

Word Find

Circle each letter of the words from the word list below. Don't forget to cross words off as you find them! Remember, words may be found horizontally, vertically, diagonally or even backwards!

To answer the question below, start in the top left corner of the grid.
Working left to right, and top to bottom, list all uncircled letters in the space below.

As you find each word, define its meaning on a separate sheet.

W	C	M	I	L	K	F	A	C	T	O	R	Y	F	O	O
D	H	A	S	E	C	N	O	I	T	A	G	I	R	R	I
U	V	O	T	F	I	S	H	E	R	I	E	S	R	I	T
Y	I	A	L	C	F	A	R	M	L	E	T	S	N	D	R
S	T	U	S	E	H	D	O	O	W	T	F	O	S	E	S
E	I	T	A	I	F	T	H	G	U	O	R	D	K	I	P
V	C	N	H	S	S	A	C	R	O	P	S	N	L	S	I
I	U	O	T	L	G	N	R	A	B	L	A	V	E	A	P
T	L	I	W	A	O	R	E	M	S	T	I	O	T	W	E
A	T	T	O	R	L	U	R	C	P	C	E	S	R	M	L
R	U	A	R	E	W	F	O	R	U	L	D	N	E	I	I
E	R	T	G	N	A	O	E	L	W	A	A	A	E	L	N
P	E	N	D	I	S	P	T	N	D	T	H	N	I	L	E
O	E	A	L	M	U	U	H	S	I	F	R	A	G	R	F
O	U	L	O	O	R	T	D	O	O	W	D	R	A	H	Y
C	U	P	C	E	R	E	K	C	O	T	S	E	V	I	L

CATCH
COOPERATIVE
COUPE
CROPS
DAIRY
DROUGHT
FARMLETS
FISHERIES
GARFISH
HARDWOOD
IRRIGATION
LIVESTOCK
MILK FACTORY
MINERALS
OLD GROWTH
PIPELINE
PLANTATION
SAWLOGS
SAWMILL
SILVICULTURE
SOFTWOOD
TANKER
TREE
VITICULTURE
WHOLE FARM PLAN

Question: Why is it important to protect out production?

Answer: Food security and sustainable resources for now and the future