UNIT 9: LITTER

VOCABULARY

Adopt-a-beach
Biodegradable
Community
Garbage
Litter bag
Litter warden
Recyclable
Trash
Bacteria
Civic pride
Disease
Litter
Litter lout
Marine debris
Rubbish bin
Vermin

BACKGROUND

LITTER is refuse or rubbish that is discarded in public places. Plastic, paper, glass and metal packaging make up a large proportion of litter. Litter results from the improper disposal of household and commercial rubbish, construction and demolition sites, loading and delivery areas, boats and ships, uncovered trucks and trailers, and from careless motorists and pedestrians. In cities litter is usually collected and transported to waste disposal facilities. However in rural areas litter is seldom collected, leaving an unattractive sight.

Litter affects not only the quality of our surroundings but it can seriously harm wildlife. Litter in our waterways, called marine debris, can choke and strangle sea life. Animals can easily mistake pieces of littered plastic for food. This litter in the water comes not only from careless beachgoers, boaties and fishermen, but also from people tipping rubbish down stormwater drains. These drains are meant to carry water but often carry waste like used oil, plastic containers and food scraps to the sea.

Programmes like "Adopt-a-Beach" and "Beautiful Schools" were created to clean up unsightly litter with the help of concerned individuals. These programmes aim to effectively change people's attitudes towards litter from careless to responsible.

LITTER

Materials students may bring from home

examples of litter
paper sacks
drawing paper
coloured pens
plain t-shirts (preferably old)
litter bags (for school clean up)
2 kg bag of sorted rubbish
clean plastic waste

LITTER IS WASTE OUT OF PLACE
Careful Disposal Makes a Difference

KEY CONCEPT

Litter is mismanaged rubbish.

Litter problems can be caused by poor waste habits.

LEARNING OBJECTIVES

Students will understand what litter is and how it can be avoided.

MATERIALS

- Examples of litter
- Grocery sacks, lunch bags
- Plastic gloves
- Worksheet 25, "How Long Will It Last"

BACKGROUND INFORMATION

Litter is refuse or rubbish that is thrown away in inappropriate places. Plastic, paper, glass and metal packaging make up a large portion of litter.

LEARNING STEPS

1. What is litter? Who causes litter? How and where do waste materials escape to become litter? Where might you find litter? How can litter be prevented?

2. Have the students save their lunch bags or bring in a grocery bag from home.

3. Students walk around the school yard and the neighbourhood, picking up human-made litter. Record items and where they were found. On return to the classroom, have the students empty their litter collection onto pieces of newspaper. Students discuss where each piece was found. Are more rubbish bins necessary for these areas?

4. What might have caused litter in that place? Who may have left it there? Why? How?

   How can we prevent litter? At home? At school? Along the road?

5. Make a list of responses on the blackboard. Have the students sort and count the litter according to types of material and discuss whether it can be reused or recycled. How many items really need to be disposed of?

EXTRA ACTIVITIES

1. Litter Survey

Materials: Paper bags for each student, clue list

Hand out the attached scavenger hunt lists and bags to students and take them outside. Give them 15-20 minutes for the hunt. Return to the classroom. Read the items on the list one at a time and have the students hold up what they have found. Extend the list if other categories are found.

Have the students make a litter collage from the items they found. This could be displayed in a central location in the school.

2. Keep our School Tidy

Start a system of litter collection at school (how about setting a roster system to involve the whole class or other classes). Each collector (or team) is responsible for a set area – lunch spots, car parks, school entrance and boundaries, sports grounds, street frontage, etc. Each group keeps a tally of litter collected – graph results, provide incentives for groups with the most decreased (to the point of having no litter at all) weeks collection. Encourage groups to run their own campaign to reduce litter, or ensure efficient collection by better placement of bins, in their particular area. Promote a "Tidy School" campaign. Bring bags of litter collected to a school assembly. Challenge to keep the school litter free!

3. Litter Mobile

Have the class/students make mobiles or sculptures from the litter they collect. Hang the mobiles in the school library.

4. "Stop Litter"

Make "Stop Litter" posters, brochures and flyers for display. Have a poster contest.

5. Complete a Picture

Draw a picture of part of the school showing litter (or glue samples onto your picture) and then ask the class to complete the picture without the litter. Show the before and after effect.

6. Artistic Efforts

Are your rubbish and litter bins attractive, eye-catching, full of fun, (and consequently rubbish)? Why not have a design and painting competition for the best and brightest rubbish bin? Perhaps you could persuade a local firm to donate waste bins, paint or prizes?

7. Creative writing

Use the litter topic to develop stories, poems, short plays, etc. with such themes as "So no one picked up the rubbish…" "I was a newspaper…" "Blowing in the breeze" "The untidiest kid in school" "Litter, litter everywhere"

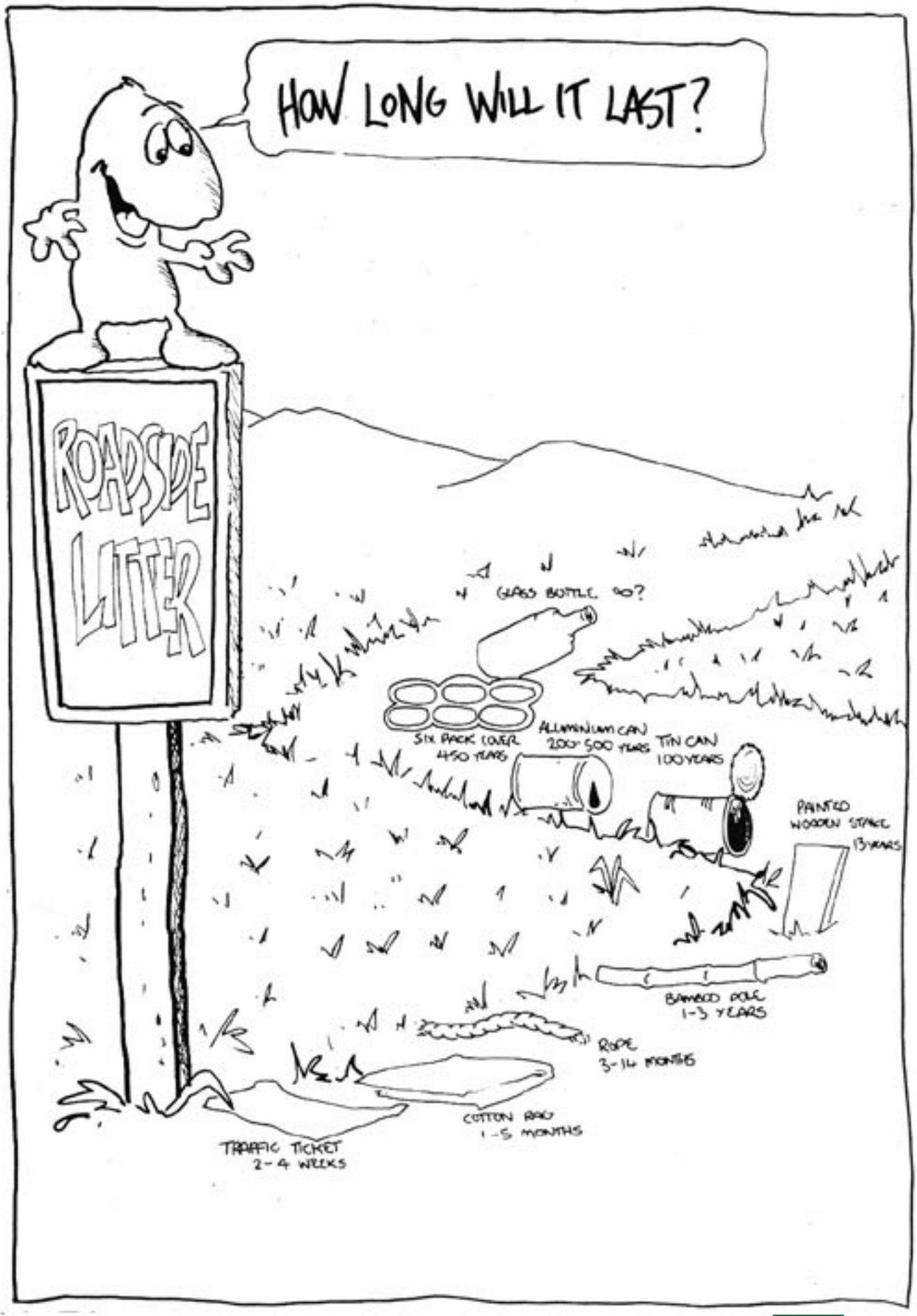
8. Collect the Very Small

Often we emphasise the large items and the mountains of rubbish! Why not encourage the collection and display of the very small? Each class member is to collect five (ten?) small items that people discard or throw away – bottle top, matchstick, can ring, sweet wrapper or ice block stick. What is the class total? Develop the idea that just as the actions of individuals can change a total community, so too can the littering of many small items add up to that mountain of unsightly rubbish!

Scavenger Hunt List

Chip packets
Juice boxes
Glad wrap
Plastic bottles
Aluminium cans
Paper
Clothing
Pens/pencils
Sweet wrappers

WORKSHEET 25



LITTER AWARENESS WEEK

KEY CONCEPT

Information and education programmes help to create litter awareness amongst the public.

LEARNING OBJECTIVES

Students will learn how to involve other classes, teachers and parents in an effort to prevent litter at school.

MATERIALS

- Drawing paper
- Coloured pens
- Plain t-shirts (preferably old)
- Litter bags (for school clean up)

BACKGROUND INFORMATION

Litter is an unsightly problem in our communities, schools being no exception. Litter can be prevented by making people aware of the problems it creates and the simple ways to avoid creating it in the first place.

LEARNING STEPS

1. Organise a litter awareness week for the school. Assign students to make posters, leaflets, write poems or newspaper articles, or arrange a special book display in the library or even design a t-shirt.

2. The whole class/school can create a mural/collage promoting litter awareness. Ideally this should be made of rubbish or recyclable items and should be placed in the lunch bay.

3. Schedule a school litter clean up day at the beginning of your "litter awareness" week. Have a school assembly at the end of the week to announce the results of the clean up. Give prizes for the tidiest lunch areas or classrooms.

EXTRA ACTIVITIES

1. Make a Video

Plan and make a video about litter around the school. Where? When? Why? What sorts? Who? What can be done? Show the video to other classes, PTA, Board of Trustees, etc. and let class members take their video home to show parents and friends.

2. Health and Safety

Bacteria, cuts, infection, tetanus, rats, fungi, vermin. There is ample scope for discussion of health aspects of litter and the need for a clean green environment. Other waste and air pollution could be included at this point but the essential message in this waste management context is the danger to community health of improper and inadequate rubbish disposal.

3. Make a Time Capsule

Remember the old days when we had litter all around the school? In this glass container is a reminder of what it was like – chip packet, sweet wrapper, lunch paper, bubble gum wrapper, chocolate wrapper and more.

4. Litter Monster

Start with a frame made out of chicken wire or other wire netting; then cover, extend and decorate with rubbish of all kinds to make the largest, most interesting monster the school has ever seen. Give it a suitable name and make sure it carries a clear waste reduction/ recycling message.

5. Photography

Does your class or school have a camera? Or can one be borrowed from others in the family? Why not promote a photographic display or competition with a single theme – "Rubbish" or "Litter" or "Our messy community"? Why not use this for a display?

MARINE DEBRIS

VOCABULARY

Beach
Entangle
Food scraps
Glass
Marine debris
Non-biodegradable
Packaging
Plastics
Pollution
Recycle
Rubbish
Wildlife

BACKGROUND

MARINE DEBRIS is a worldwide problem. Nits of plastic, metal and glass are carelessly dropped onto our beaches and into our oceans each day. Plastic marine debris poses the worst problem because it takes hundreds of years to break down. Plastic debris causes problems for wildlife and humans alike. Sea turtles die from ingesting free floating plastic bags, mistaking them for jellyfish. Birds can easily become entangled in plastic bags, fishing line, six-pack strapping or can mistakes plastic pellets, toys and bottles for food. Each year thousands of whales, seals, shore and seabirds, sea turtles, dolphins and fish die as a result of marine debris.

Marine debris comes only from a number of sources including recreational boating, fishing and beach goers, commercial fishing, shipping and transport, sewage treatment plants and plastics manufacturing processes. Land litter can become marine debris. For example litter on streets, footpaths and gullies often ends up in stormwater drains, which eventually empty into the sea.

Plastic and metal marine debris can create hazards to human health by entangling skin and scuba divers, disabling boats and ships, and threaten public health if it contains materials such as medical wastes.

Only through education and effort on the part of people will we reduce marine debris.

WASTE NOT ON THE WATER

KEY CONCEPT

Marine debris is litter in the marine environment.

Many animals and sea birds are killed because of marine litter.

LEARNING OBJECTIVES

Students will learn what marine debris is and the damage it can cause to people and animals.

MATERIALS

- 2kg of pre-sorted rubbish (no sharp objects like metal or glass)
- Worksheet 26 "Marine Debris: Sources and Types

BACKGROUND INFORMATION

Marine debris poses a significant threat to marine wildlife. In particular, plastics cause the greatest number of accidents. There are a number of common types of marine debris, which come from commercial, recreational and industrial sources.

Hundreds of thousands of rubbish pieces are collected on New Zealand beaches each year by beach clean up volunteers.

LEARNING STEPS

1. Ask the students "What is marine debris?" or "What sort of waste do you think ends up in our oceans?" "Where do you think it comes from?"

2. Discuss common activities that occur in the water (e.g. boating, swimming, recreational and commercial fishing, shipping, off shore drilling, etc.) Do people create rubbish while doing these activities?

3. Photocopy the worksheet "Marine Debris: Sources and Types". Ask the students to figure out what marine debris is created by each source.

4. Ask students to bring a few cleaned pieces of rubbish from home.

Day 1: Clear an area of the floor in a front corner of the room. "Imagine that you are at the beach on a very nice day. Waves are pounding on the front of the room. The beach is very clean and tidy. Today the students will pretend to be litterbugs. Each student will carry pieces of rubbish and throw them on to the pretend beach area.

Ask: Is it right to throw rubbish on a real beach? How would you feel if you went to the beach and you kept seeing rubbish like this? Have any of you run into rubbish on the beach? What did you think of it?

Some animals and people make their homes on or near the beach. How would you feel if people came to your home and dumped their rubbish?

Ask: How would you feel if you got tangled in a piece of rubbish that someone else threw on the beach? What if you were so tangled that you couldn't walk? Or couldn't eat? If you are having a picnic on the beach what should you do with your soda bottles, plastic containers, and other rubbish? If you are walking along the beach and see some litter what should you do? (Note: Ask a parent or older friend to take the rubbish to a bin. Younger students should not be encouraged to handle things on the beach as they may have sharp edges or contain toxic materials.)

Day 2: Ask students to imagine once more that they are at the beach. It's time to go on a beach clean up. Each student will pick up a couple of items and take them back to his or her desk.

Ask: Do you think it is fair that people have to go out on beaches and pick up other people's litter? What would be a better way to keep beaches clean? Some marine debris hurts animals and damages boats, and it may stay in the environment for hundreds of years (like plastics). Ring the Department of Conservation for more information.

EXTRA ACTIVITIES

1. Visit a Local Waterway

Take a trip to a local waterway. Are there pieces of rubbish in it? Does it smell? What colour is the water? How can we take care of our waterways? Are there any fish or birds in the water?

2. Explore the Shore!

Get your toes wet! Explore the seashore, enjoy the scenery. Why not plan a trip to the seashore during the week? Plan a scavenger hunt (treasure trail) at the local beach. Have prizes for those who can find all the items suggested.

3. Take a Trip

Plan a trip on a local tour boat for the class, school or community. Have guides on board interpret the local marine environment. Or visit an aquarium, museum or zoo that has displays or exhibits on marine wildlife.

4. Ask the Experts

Ask the Department of Conservation, Ministry of Fisheries, the Forest and Bird Society or other environmental organisations to set up displays or give talks to educate students about the effect of marine debris.

5. Be Creative

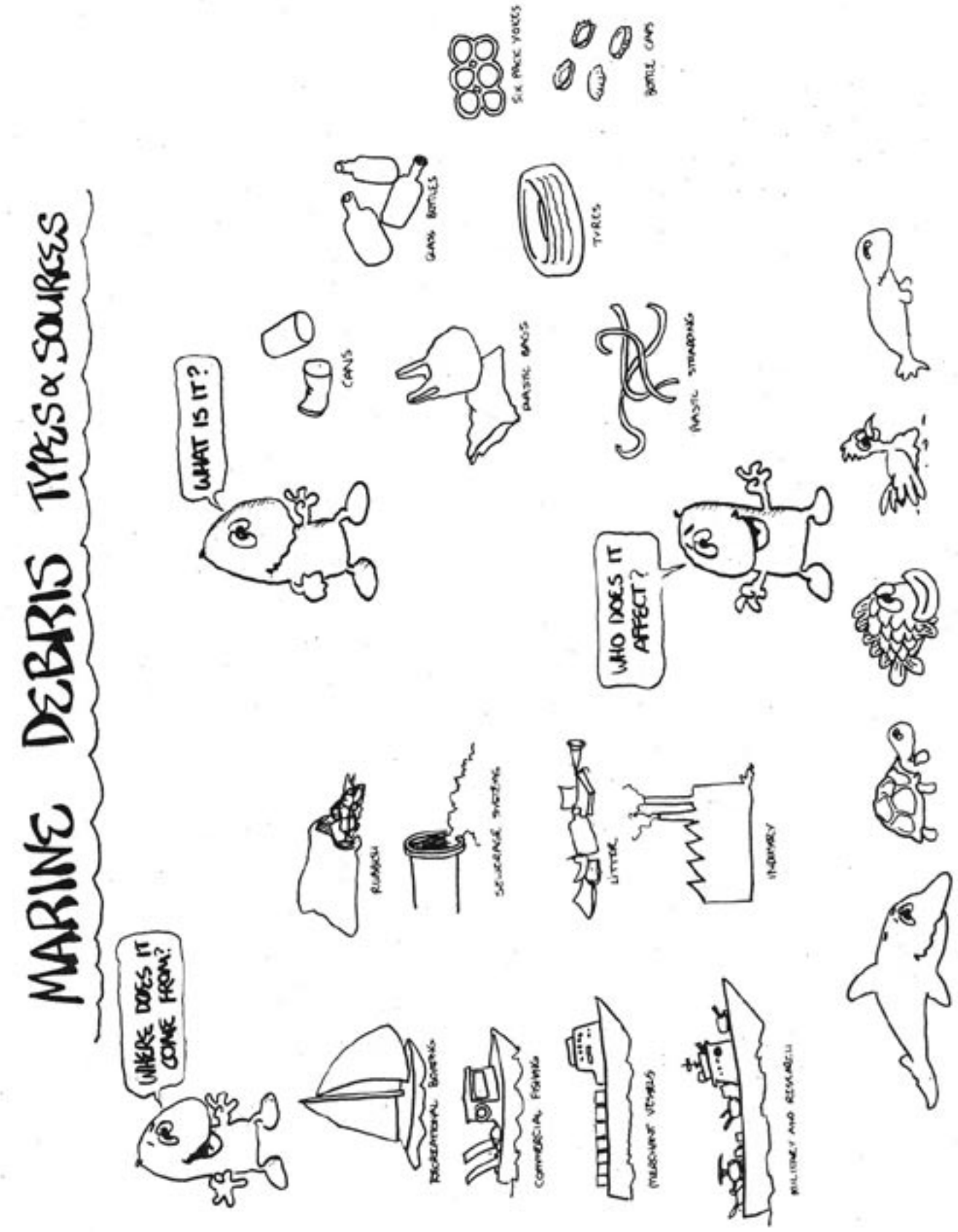
Create cartoons on marine debris. Make mobiles and display them as part of interactive marine debris displays in the classroom, halls or at the library. Include marine videos and films.

CELEBRATE SEAWEEK!!!

SEAWEEK is an annual public awareness campaign to increase community knowledge and appreciation of sea and marine habitats. SEAWEEK is usually in March or April. For more information contact:

Marine Education Society of Australasia (MESA)
PO Box 8
Portobello
DUNEDIN
(03) 478 0011

WORKSHEET 26



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PLASTICS AFLOAT

KEY CONCEPT

Marine debris is made up of many different types of waste.

LEARNING OBJECTIVES

Students will be able to describe the potential effects of plastic wastes on wildlife in marine and freshwater habitats and will suggest ways to remedy the problem.

MATERIALS

- Clean plastic waste from home.

BACKGROUND INFORMATION

Plastic waste often has a negative impact on marine and freshwater wildlife. Most plastic materials do not decompose in the water for hundreds of years. Aquatic animals will sometimes mistake plastic pellets, toys and containers for food. Too often birds, dolphins, fish, sea turtles and other sea life become entangled in plastic debris and subsequently die.

LEARNING STEPS

1. Ask students to collect and save a bag full of plastic containers, bags, wraps and bits over a two day period. Remind the students to wash the plastics before bringing them to school.

2. Students separate their plastic waste items into categories. One category will be those plastics that animals might consider food and the other category will be those plastics that may strangle an animal.

3. How does each plastic item affect marine wildlife?

4. Students create a collage or a mural with the used plastic materials to show how they affect marine wildlife. Discuss the message of the mural/collage. Have the students make a list of ways to prevent marine debris. Attach the list to the collage/mural. Display it in the school library. Ask the librarian to set up a display of marine related books, pamphlets and posters.

EXTRA ACTIVITIES

1. A Marine Excursion

Visit the local fish aquarium. Have the students think of questions to ask the staff such as "How does debris affect marine mammals? birds?" "How often does marine debris cause wildlife illness?"

2. Clean up the Beach

Why not clean up one of your local beaches? Local organisations can help co-ordinate a clean up. See Appendix to learn how to organise a beach clean up.

3. A visit from your litter warden

Contact your local council to ask if the litter warden can talk to the class about litter and rubbish problems in your area.

TIP NO WASTE IN THE DRAIN
Where Marine Debris Begins

KEY CONCEPT

Most marine debris is land based and carried out to sea via stormwater drains and waterways.

LEARNING OBJECTIVES

Students will learn about the consequences of tipping rubbish in a stormwater drain and how they can solve this problem.

MATERIALS

- Worksheet 27 "Clean Up That Rubbish"
- Plastic gloves
- Used plastic bags for collecting rubbish
- Bins or boxes for separating rubbish
- Worksheet 28 "Tip No Waste"
- "Tip No Waste" stencil provided by the Auckland Regional Council. Ph (09) 366 2070
- Polyurethane enamel spray paint in "Azure Blue".
- A camera for taking photos of the activity (optional)
- A kleensak to put used papers in
- A map of the school with stormwater grates

Ask parents in advance for the following items so there is one of each item for each class:

- old clothes or dust coat overalls for students to wear
- one or two big bits of cardboard to shield any nearby cars
- enough "Wet Paint" signs to label each wet stencilled fish, a piece of paper will do, with masking tape to tape it down
- four stones or weights to hold down each corner of the stencil before spraying
- newspapers to tape around the edge of the stencil, to protect the surrounding pavement or road from spray drift and some spare newspapers to replace the ones that get too painty

BACKGROUND INFORMATION

Stormwater is rain falling on to roofs, roads and pavements. This rain runs into street gutters and underground drains which lead to creeks and rivers and then to the sea.

Every day people throw away rubbish down stormwater grates where it ends up in our streams and harbours.

Paint, used motor oil, chemicals, food waste and other rubbish are often tipped down stormwater grates. Stormwater grates channel rainwater, and any other material that may end up in the grate, away to streams and harbours.

LEARNING STEPS

1. What is a stormwater drain? Stormwater is rain falling on to roofs, roads and pavements. This rain runs into street gutters and underground drains, which lead to creeks and rivers then to the sea.

2. Draw a map of your school and the roads around it. Take a walk around the school grounds and look for any stormwater drains. Mark the drains on the map.

3. Notice any rubbish in the stormwater grates. Where did this rubbish come from? Look around the footpath and street for rubbish. This rubbish sometimes ends up in stormwater drains with the help of rain and wind.

4. What kinds of materials make up the rubbish? Is there household rubbish? Grass clippings? Oil? Paper litter?

5. Using Worksheet 27, collect and categorise each piece of rubbish found in nearby drains.

6. Contact your local council to get their permission to label their stormwater drains.

7. Show students the "Tip No Waste" stencil and discuss how they will go about using it to warn people not to tip their waste down stormwater grates.

   Gather all necessary materials before you begin the activity. Wait for dry weather to do your stencilling, so the surfaces are nice and dry for painting.

8. Avoid very windy weather or the spray paint will be blown around too much and may damage cars or property.

9. Follow the attached diagrams about where to paint the stencil, depending on whether or not the footpath has a grass verge.

a. Tape the newspaper around the edges of the stencil to make a big frame to stop spray drifting around the edge of the stencil.

b. Use the wirebrush to scrub the area you are going to paint over, so the surface is free of dirt. The paint will then last longer.

c. Lay the stencil flat down on the ground next to or near the grate, making sure that it is facing the right way (see attached diagram).

d. Weight each corner of the stencil down so it is flat to the ground.

e. Spray the paint over the stencil in a zigzag motion. Be careful not to use too much paint or it will spoil the picture when you lift the stencil off the ground

f. Place a "Wet Paint" sign by each freshly painted stencil. Use cardboard weighted down, or paper taped to the footpath.

g. Make sure someone collects the "Wet Paint" signs at the end of the day.

10. When you have finished find a bottle of turps and wipe down the stencil. This makes the stencil last longer, so you can keep on using it or pass it on to others. Remember not to wash the stencil down over a drain or you will cause water pollution!!

11. Store the stencil flat with the paint.

    If you have any questions or need more information please contact the Auckland Regional Council on (09) 309 4420.

TEACHER SUGGESTIONS

If young children are involved in this activity select your sites with special care for traffic reasons, and make sure you have enough assistants to ensure the children's' safety.

EXTRA ACTIVITIES

1. Community Check

Check the surrounding area or community. Clean stormwater drains and paint fish stencils on drains.

2. Where Does it Come From?

Select a close coastal area to visit where outlet drains or pipes are situated. Get the children to discuss where the debris comes from and what happens to it.

WORKSHEET 27
CLEAN UP THAT RUBBISH

Type of Litter	Where Was it Found?	Can it be recycled? Reused? Composted?

WORKSHEET 28

Students list all materials found in the stormwater drain