

Fishcare Victoria's

Litter Warriors Workbook

“Saving our Oceans
one piece at a time!”



Funded by Port Phillip Bay Fund



Purpose of this Book

The purpose of this book is to increase awareness of the indirect and direct impact of litter within Port Phillip Bay watershed. This workbook is funded by the Port Phillip Bay Fund - Community Small Grant.

This workbook is made to be aligned with the Victorian Curriculum F-10 directly related to Sustainability. This links multiple different sustainable content, but specifically can be linked into the following codes within this category:
Levels 3 and 4: (VCSSU056)
Level 5 and 6: (VCEBC005)

About Fishcare Victoria

We are a community operated not-for-profit with the motto 'We Fish, We Care'. Our work promotes responsible fishing practices and increased stewardship of Victoria's aquatic environments and is funded through the Recreational Fishing Licence trust fund.

Mission Statement

Shaping the sustainable future of recreational fishing in Victoria through education, hands-on experiences, communication and community participation.

For more information about Fishcare Victoria and more student resources, see our website www.fishcare.org.au

Created by:

Jacinta Early from Fishcare Victoria

Deakin University, Burwood students as part of SLE352 Community Science Project: Kate Lethborg, Maddison Lee Kersting, India Gillings, Andy Fung, Jonathon Simon Hughes Gardner.

© Fishcare Victoria, 2019.

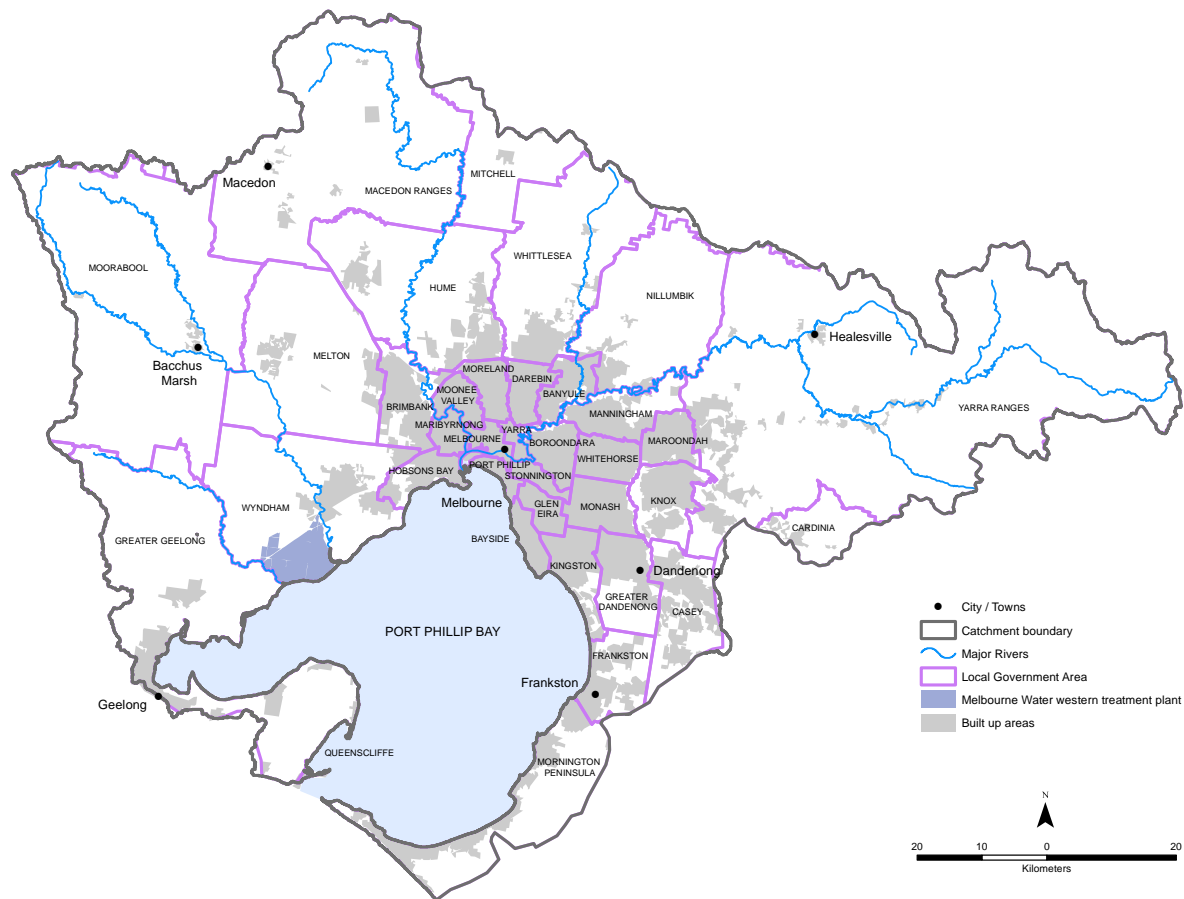
This work is copyright. Apart from any use permitted under the *Copyright Act 1968*, no part may be reproduced by any process, nor can any other exclusive right be exercised, without the permission of the Fishcare Victoria.

Published by Fishcare Victoria, March 2019

Disclaimer

This publication may be of assistance to you but Fishcare Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims any liability for any error, loss or other consequences that may arise from you relying on the information in this publication.

Watershed Woes



Objective:

For students to understand how the environment and waterways are all connected. By the end of the lesson to be able to define a watershed and its relevance to how litter in their community ends up in PPB.

Items:

- Large laminated print out of Port Phillip Bay Watershed
- Whiteboard Markers

Lesson plan:

We are living within the Port Phillip Bay Watershed, ask the following questions

What is a Watershed?

A watershed is the land area from which surface runoff drains into a stream, channel, lake, reservoir, or other body of water. People are either directly or indirectly connected to bodies of water, which connect to land. A watershed's borders are defined by mountain regions.

Point Source vs Non-Point Source pollution?

Point Source - a single identifiable source of pollution that is entering the environment.

Non-Point Source - also termed as diffuse pollution. Pollutants from a large area rather than a specific identifiable source. Caused by rainfall or snowmelt moving over and through the ground.

Questions:

What are different land use activities you see in your community?

What affect do these have on the environment?

What are the main sources of pollution in our watershed?

Using the image of Port Phillip Bay Catchment, figure out how litter could make it's way into Port Phillip Bay from your home or school.

For a more detailed look at waterways around your area, use <https://www.ppwracs.vic.gov.au/interactive-map/> and select all options under "Waterways & wetlands"

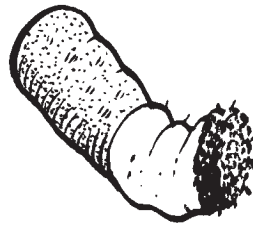
Type of Source

Pick out of the words which are Point Source or Non-Point Source pollution, and fill in the table below

Oil on roads, Waste water treatment plant, Litter in carpark, Discharge pipe, Animal waste, Factory discharge, Excess fertilizers

Point Source Pollution

Non-Point Source Pollution



Word Jumble

Using the jumbled words or phrases, match them to the correct pictures, writing the correct words underneath.



Eastern Australian Salmon



Plastic Bottle



Snorkeling



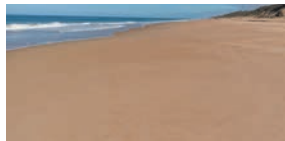
Weedy Sea Dragon



Pollution



Beach



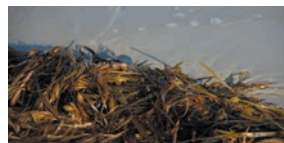
Waste



Sustainable Fishing



Fishing Rod



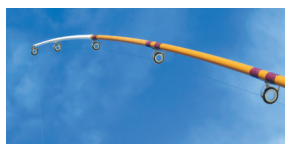
Healthy Coral



Boat



Dolphin



Turtle



Net



Hooks



Tide Pool



Casting



Little Penguin



Fur Seal



Seaweed



Biodegradable



Whale

Fill in the Blank

Using the jumbled words or phrases below fill in the blanks

Over Fishing, Eastern Australian Salmon, Beach, Dolphin, Waste, Fur Seal, Weedy Sea Dragon, Little Penguin, Biodegradable, Pollution, Sustainable Fishing, Casting, Hook, Tide Pool, Seaweed, Healthy Coral, Fishing Rod, Whale, Boat, Snorkeling, Plastic Bottle, Net, Turtle

1. A species of aquatic, flightless bird - _____.
2. A floating object used for traveling on water in fishing and other fun activities - _____.
3. A simple method of fishing where a ___ is thrown over the fish in order to catch it.
4. Where the ocean meets the land - _____.
5. A hard rock-like substance found in the ocean where damage to our oceans can cause their beautiful bleaching, yet beautiful colours can be found on - _____.
6. Rubbish - _____.
7. A species of animal that can be found making loud noises and roaming coastal rocks - _____.
8. A colourful and beautiful relative of the seahorse - _____.
9. A commonly used single use water storage unit that takes many years to decompose - _____.
10. Materials that microorganisms are capable of decomposing, therefore avoiding any pollution - _____.
11. A process by which fish caught from the oceans are caught at a rate where overall fish populations do not decline overtime as a result - _____.
12. A water activity where a mask allows for viewing of underwater marine life - _____.
13. A large marine reptile that has a leathery shell that double up as his/her home - _____.
14. A bubbly and energetic marine mammal - _____.
15. An act of throwing the fishing line of bait into the water - _____.
16. The worlds largest aquatic mammal group - _____.
17. The introduction of contaminants into the natural environment - _____.
18. The device used to catch the fish on the end of a fishing line - _____.
19. Marine algae (often found in sushi) - _____.
20. The device used in the activity 'fishing' - _____.
21. An Australian marine fish often found in cooler waters - _____.
22. Shallow pools of seawater exposed during low tide - _____.
23. The removal of fish from water at a rate that the species is unable to replenish in time causing under population or loss of the species - _____.

Malicious Microplastics

Objective:

For students to understand what the definition of microplastics is and what the different types are. Also, be able to identify the microplastics visually and on packaging, what they can do to reduce the amount of microplastics they use in various products.

What are microplastics & microbeads?

Microplastics are pieces of small plastic which are five millimetres or smaller. Macroplastics are any plastics that are larger than 5 millimetres. The common types of microplastics are:

Fragments

small pieces of a larger plastic object

Fibres

the most common type of microplastic, This comes from strands of clothing

Foam

Pieces which come from food containers and coffee cups and other Styrofoam products

Nurdles

plastic pellets that are used in manufacturing. Have yet to be turned into plastics

Microbeads

Microbeads may be found in some products. These include toothpaste, sunscreen, facial scrubs, body wash, cosmetics such as foundation and blush, and other care products.



Fragments



Fibres



Foam



Nurdles



Microbeads

As these are in such common ingredients, the microbeads get washed down drains after use, most wastewater treatment systems can't capture the microbeads so

they end up in our rivers, lakes and oceans. Due to their size, they are one of the hardest types of plastics to clean up and remove from the ecosystem.

Common microbead ingredients

Polyethylene (PE)	Polyethylene terephthalate (PET)	Nylon (PA)
Polypropylene (PP)	Polymethyl methacrylate (PMMA)	

The Australian Government is working with industry, who have taken positive steps, to ensure a voluntary phase out of microbeads from personal care and cosmetic products by July 2018.

What can you do to reduce your use of microplastics?

Do you have any products at home that use microplastics?

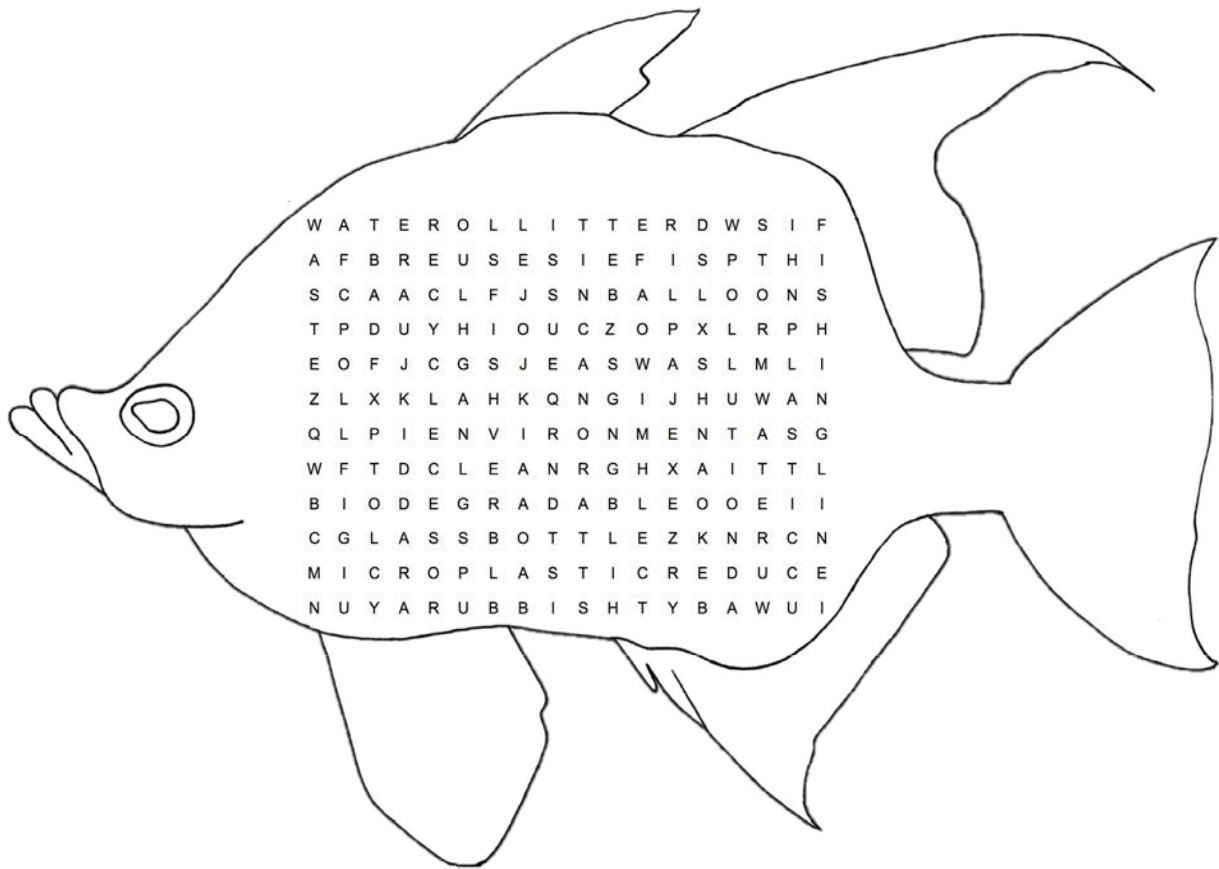
Now that you know what they are, how will it change what you do?

For more information on microplastics within Port Phillip Bay, check out the website www.ecocentre.com/cleanbayblueprint

Word Search

Find the words listed below in the word search, then use the leftover letters from the top two lines to make up the secret message

Bad	Fish	Plastic	Stormwater
Balloon	Fishing line	Pollution	Tin can
Bay	Glass bottle	Recycle	Toxic
Biodegradable	Issue	Reduce	Waste
Clean	Litter	Reuse	Water
Environment	Microplastic	Rubbish	



Fun fact: When the species is caught it grinds its teeth while on hook and line. The sound it makes when doing this is how it got its name!

Secret message:

Litter Lifetime

Objective:

Work together in groups to formulate their best estimate of how long some trash items might last in a landfill. This will allow them to learn about environmental consequences of not recycling.

Answers in the back of the workbook.

Lesson plan:

According to the National Waste Report 2016; Australia produced around 64 million tonnes of waste in 2014-15, with almost 60% of this being recycled. With Victoria producing around 12.39 million tonnes of waste, with 67% of this for recycling. The amount of waste produced equates to 2.6 million tonnes per capita. According to Clean up Australia, more than 5 million plastic bags are used by Australians each year and less than 4% are recycled. Decomposition is the breaking down or rotting of materials into smaller and smaller parts until it becomes part of the natural environment. Things that decompose are most organic items - things made from natural materials - which are broken down by tiny animals or microorganisms.

Discussion:

Discuss with students what type of objects they use in every day life and how they dispose of it once it's used.

Do they recycle it?

Can it be recycled?

What does decomposition mean?

How do things decompose?

What happens to the objects if they don't put it in the bin or recycle it?

Can they think of any examples of waste causing serious environmental damage?

Activity:

Circle the things listed below you think are litter.

Apple core

Banana peel

Confetti

Balloon

Plastic bag

Overflowing rubbish bin

What is the approximate Litter Lifetime of the various products?

Products:

Plastics bag



Soft drink can



Glass bottle



Paper bags



Coffee pods



Coffee cups



Nappies



Plastic rings from six pack



Plastic straw



Balloons



Woollen sock



Lifetime options:

One month, 6 months - 4 years, One year, 20 years, 30 years, 200 years, 200-500 years, 450 years, 500 years, Unknown
You can any lifetime option more than once.

Individually or in a group, take 5-10 minutes to determine how long each object you think will take to break down when left within the environment.

Groups/Individuals are to share which they thought would take the longest and how long they predicted it would take. Also, what they thought was the one would take the least amount of time to break down and how long it would take.

Reflection:

Now knowing how long things take to break down, does it change how you see each item?

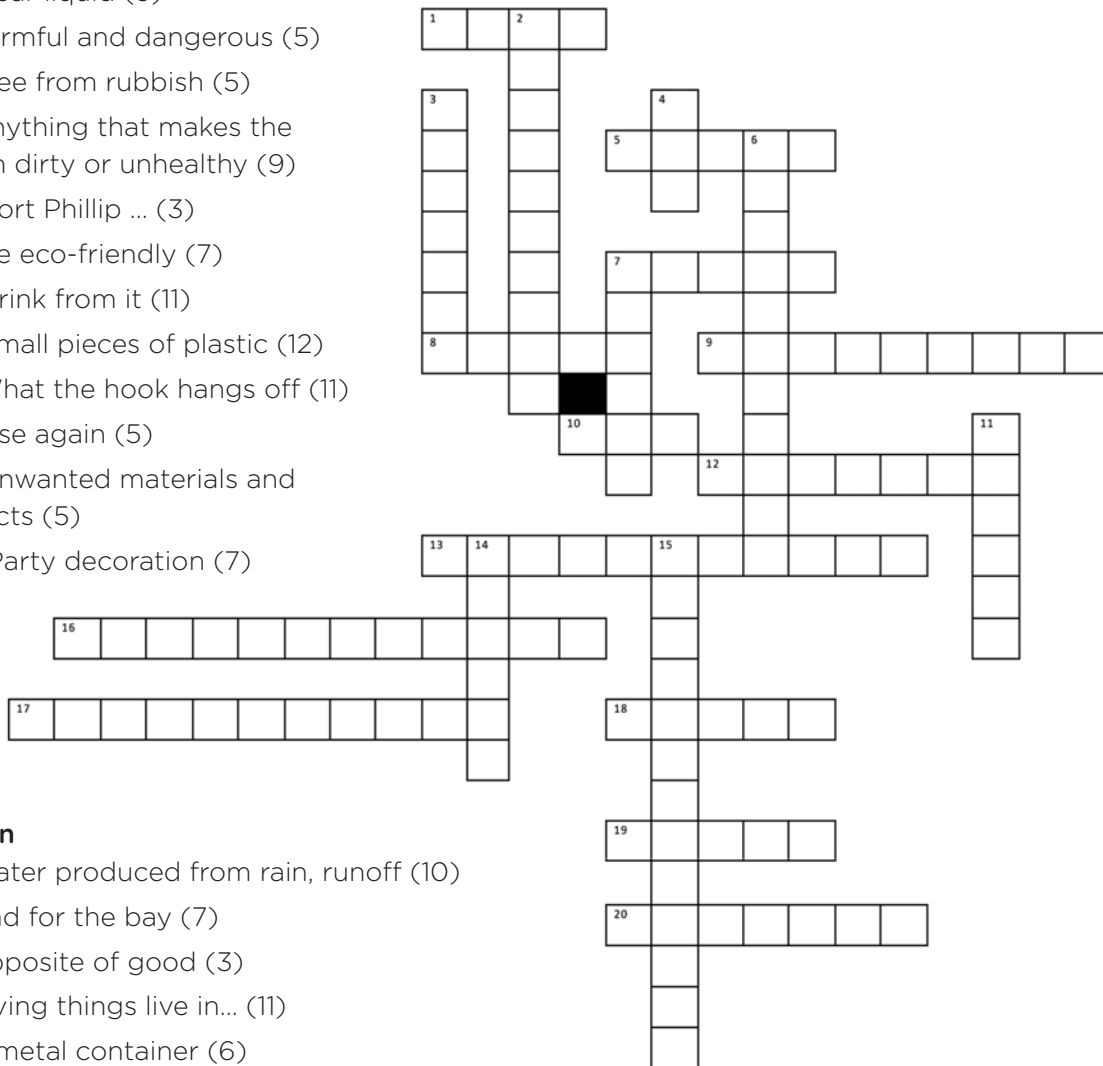
Will it cause you to use items differently?

How can you help the community be more litter aware?

Crossword

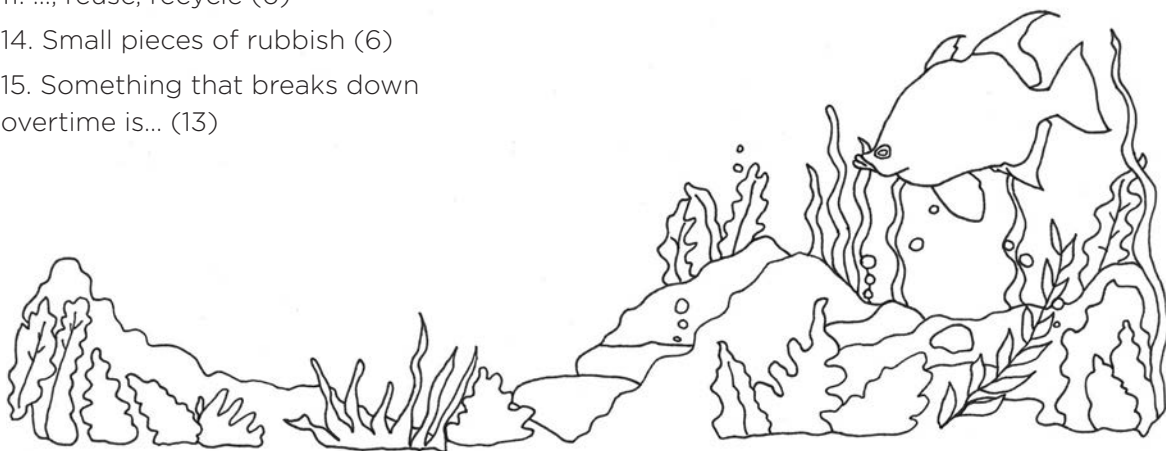
Across

- 1. Marine creature (4)
- 5. Clear liquid (5)
- 7. Harmful and dangerous (5)
- 8. Free from rubbish (5)
- 9. Anything that makes the earth dirty or unhealthy (9)
- 10. Port Phillip ... (3)
- 12. Be eco-friendly (7)
- 13. Drink from it (11)
- 16. Small pieces of plastic (12)
- 17. What the hook hangs off (11)
- 18. Use again (5)
- 19. Unwanted materials and objects (5)
- 20. Party decoration (7)



Down

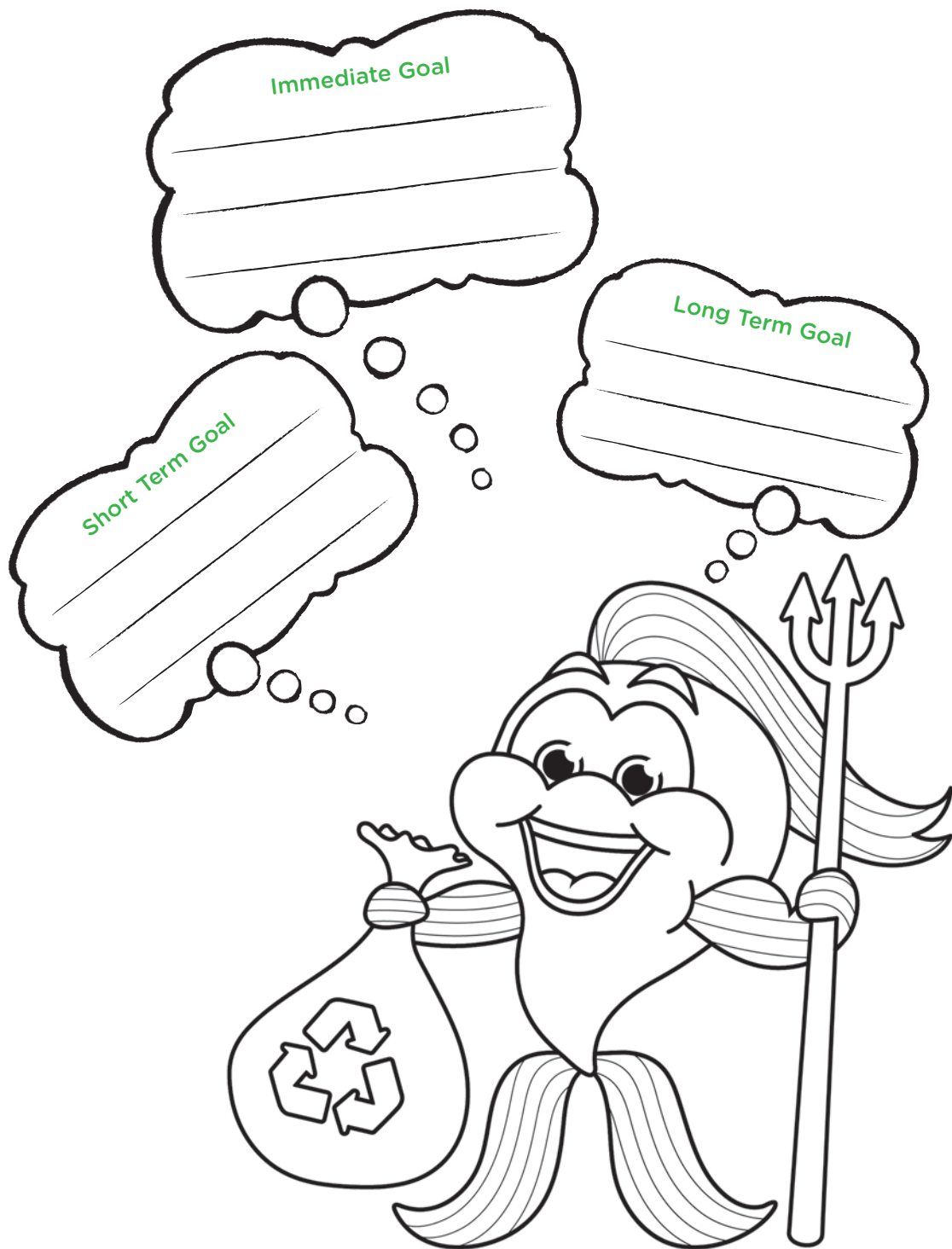
- 2. Water produced from rain, runoff (10)
- 3. Bad for the bay (7)
- 4. opposite of good (3)
- 6. Living things live in... (11)
- 7. A metal container (6)
- 11. ..., reuse, recycle (6)
- 14. Small pieces of rubbish (6)
- 15. Something that breaks down overtime is... (13)



Become a Litter Warrior

Don't let your litter warrior journey end at the end of this workbook!

Give yourself one immediate, one short term and one long term goal that you can achieve to help reduce the amount of litter/waste you or your families produce. Don't forget to add your colourful personal touches to the Litter Warrior!



Answers

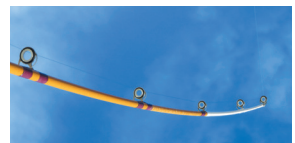
In page order



Point Source Pollution	Discharge pipe
Point Source Pollution	Waste water treatment plant
Point Source Pollution	Factory discharge
Non-Point Source Pollution	Excess fertilizers
Non-Point Source Pollution	Oil on roads
Non-Point Source Pollution	Animal waste
Non-Point Source Pollution	Litter in carparks

Type of Source

Word Jumble



Net

Plastic Bottle

Sustainable Fishing

Beach

Healthy Coral

Casting

Fishing Rod

Little Penguin

Pollution

Dolphin

Tide Pool



Fur Seal

Eastern Australian Salmon

Boat

Snorkeling

Seaweed

Hooks

Whale

Biodegradable

Waste

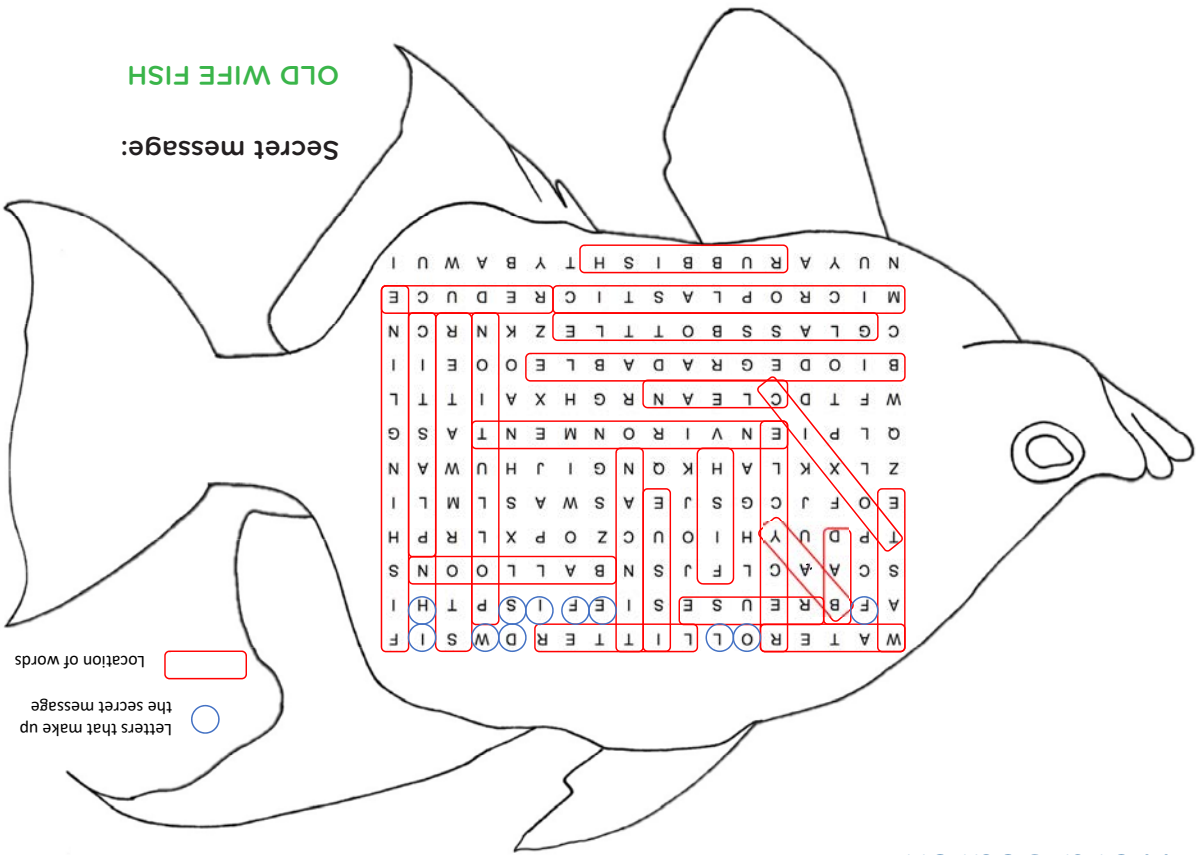
Turtle

Weedy Sea Dragon

Fill in the Blank

1. A species of aquatic, flightless bird - **Little Penguin.**
2. A floating object used for traveling on water in fishing and other fun activities - **Boat.**
3. A simple method of fishing where a **Net** is thrown over the fish in order to catch it.
4. Where the ocean meets the land - **Beach.**
5. A hard rock-like substance found in the ocean where damage to our oceans can cause their beautiful bleaching, yet beautiful colours can be found on **Healthy Coral.**
6. Rubbish - **Waste.**
7. A species of animal that can be found making loud noises and roaming coastal rocks - **Fur Seal.**
8. A colourful and beautiful relative of the seahorse - **Weedy Sea Dragon.**
9. A commonly used single use water storage unit that takes many years to decompose - **Plastic Bottle.**
10. Materials that microorganisms are capable of decomposing, therefore avoiding any pollution - **Biodegradable.**
11. A process by which fish caught from the oceans are caught at a rate where overall fish populations do not decline overtime as a result - **Sustainable Fishing.**
12. A water activity where a mask allows for viewing of underwater marine life - **Snorkeling.**
13. A large marine reptile that has a leathery shell that double up as his/her home - **Turtle.**
14. A bubbly and energetic marine mammal - **Dolphin.**
15. An act of throwing the fishing line of bait into the water - **Casting.**
16. The worlds largest aquatic mammal group - **Whale.**
17. The introduction of contaminants into the natural environment - **Pollution.**
18. The device used to catch the fish on the end of a fishing line - **Hook.**
19. Marine algae (often found in sushi) - **Seaweed.**
20. The device used in the activity 'fishing' - **Fishing Rod.**
21. An Australian marine fish often found in cooler waters - **Eastern Australian Salmon.**
22. Shallow pools of seawater exposed during low tide - **Tide Pool.**
23. The removal of fish from water at a rate that the species is unable to replenish in time causing under population or loss of the species - **Over Fishing.**

Word Search



What is litter?

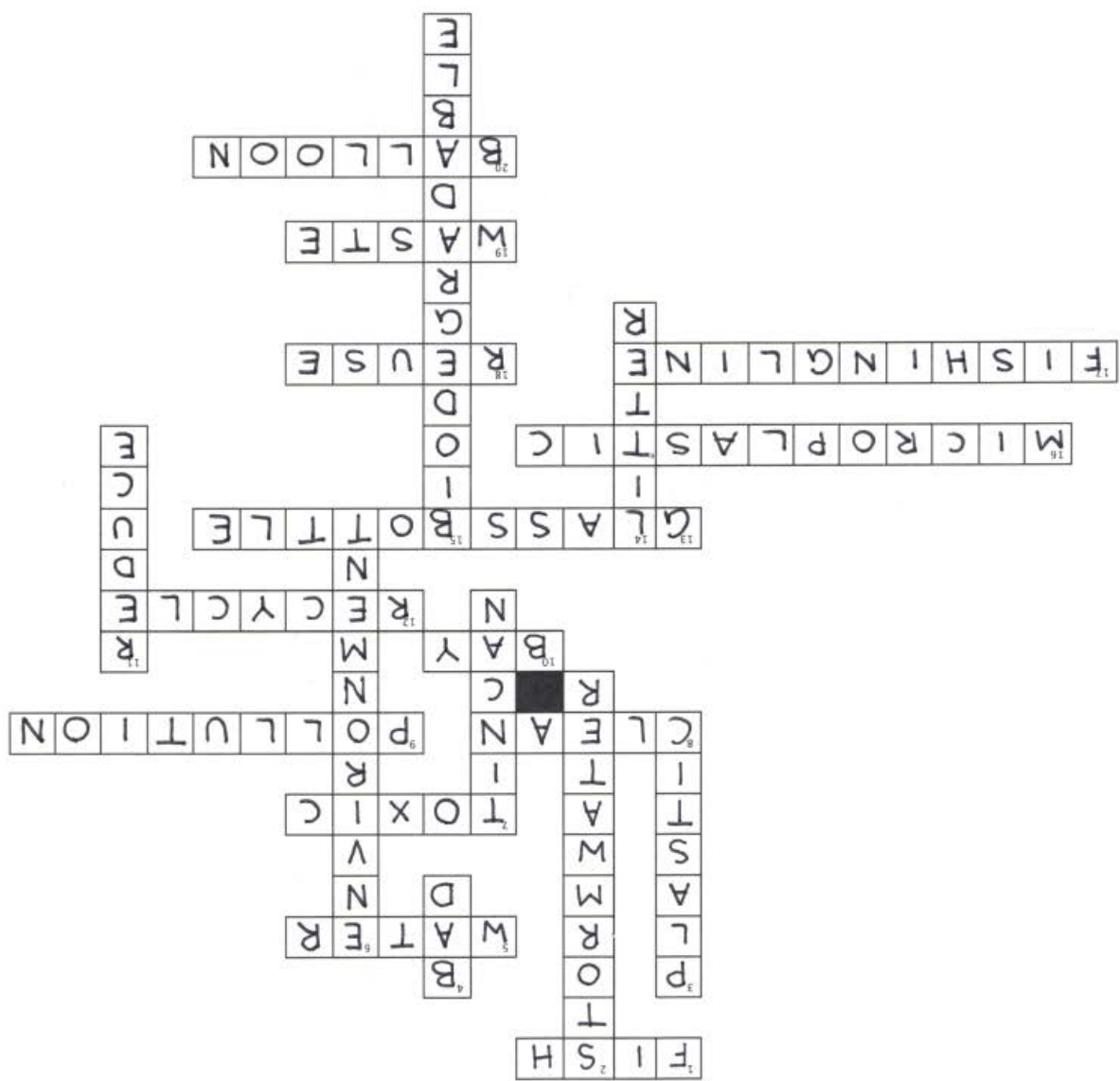
Circle the ones you think are litter.

Apple core, Banana peel, Confetti, Balloon, Plastic bag, Overflowing rubbish bin

All of them are classified as litter.

Litter Lifetimes

Products	Lifetime	Products	Lifetime
Plastics bag	20 years	Soft drink can	200-500 years
Glass bottle	unknown	Paper bags	one month
Coffee pods	500 years	Coffee cups	30 years
Plastics bag	20 years	Plastics bag	500 years
Soft drink can	200-500 years	one month	500 years
Glass bottle	unknown	six pack	200 years
Paper bags	one month	Plastic straw	6 months - 4 years
Coffee pods	500 years	Balloons	One year
Coffee cups	30 years	Woollen sock	One year



Crossword

