

The GOOD the BAD and the UGLY of PLASTICS

Year 5 – 6 Incursion

This presentation **was delivered** by Gould League General Manager Anne-Maree McInerney at a recent Teacher PD Day.

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PLASTIC is a word that originally meant "*pliable and easily shaped.*"

It only recently became a name for a category of materials called **polymers**.

The word polymer *means "of many parts."*

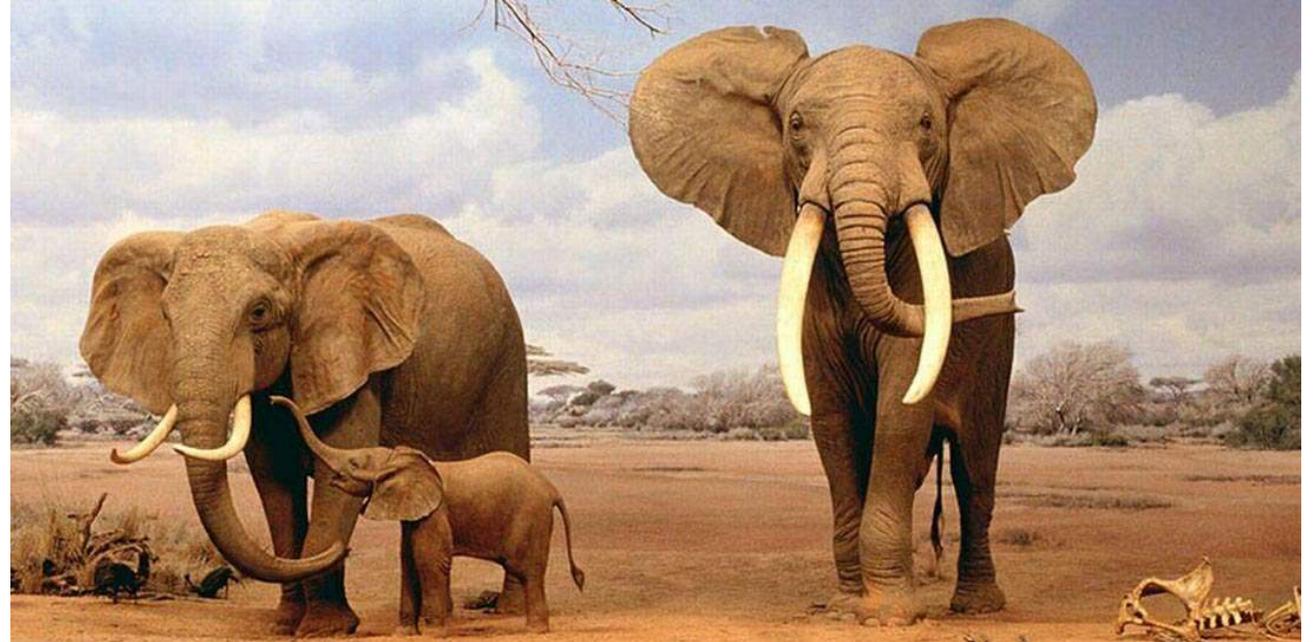
Polymers are made of long chains of molecules.

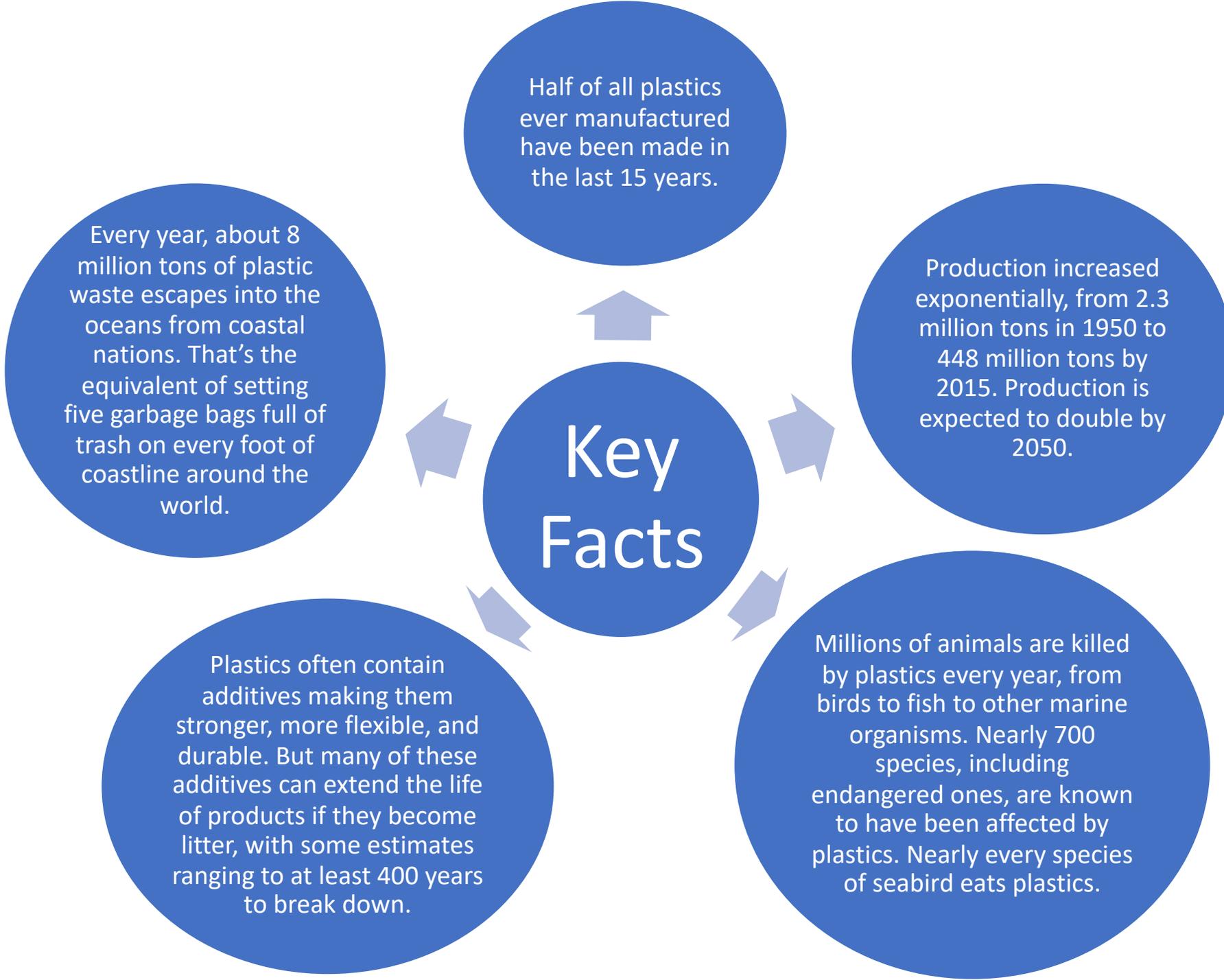
Synthetic polymers are made up of long chains of atoms, arranged in repeating units, *often much longer than those found in nature.* It is the length of these chains, and the patterns in which they are arrayed, that make polymers strong, lightweight, and flexible. In other words, it's what makes them so *plastic.*

Polymers abound in nature. Cellulose, the material that makes up the cell walls of plants, is a very common natural polymer. Carbon atoms provided by petroleum and other fossil fuels also popular natural polymers.

Polymers have become an essential part of our lives - for last 50 years plastics have saturated our world and changed the way that we live.

What's the connection?





The GOOD

Plastic supports our lives each and every day.

Plastic packaging helps protect and preserve goods, while reducing weight in transportation, which saves fuel and reduces greenhouse gas emissions.

Plastics revolutionized medicine with life-saving devices, made space travel possible, lightened cars and jet—saving fuel and saves lives with helmets, medical incubators, and equipment for clean drinking water.

Pros

- Plastics are convenient
- Plastics are cheap
- Variety of different uses
- Hygienic packaging material
- Other packaging materials would increase product prices
- Products have a long durability with plastic wrappings
- It is durable
- Plastics are lightweight
- Odorless in most cases
- Plastic products could be used multiple times
- Plastics are not fragile
- Plastic has a long lifespan
- Many industries rely on plastics
- Processes around plastics have been optimized
- Potential eco-friendly plastics in the future
- There are even worse materials out there

The BAD

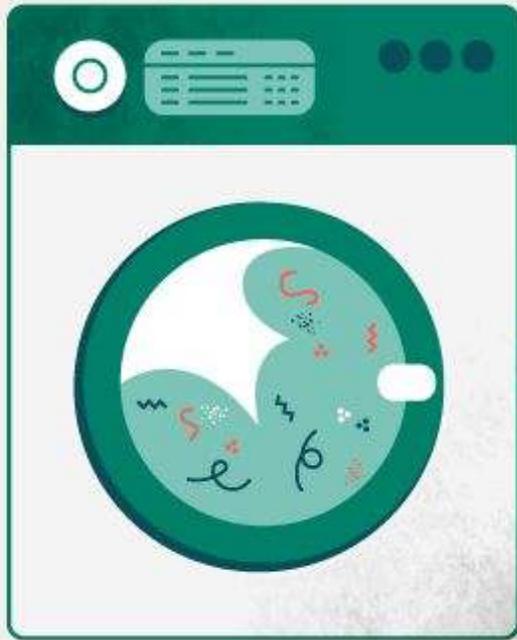
Cons

- Plastics hurt the environment
- Environmental dumping
- Non-renewable resource
- Not sustainable in the long run
- Water pollution
- Air pollution
- Acid rain
- Land pollution
- Littering
- Resource depletion
- Visual pollution
- Global warming
- Ocean pollution
- Soil pollution
- Endangerment and extinction of species
- Public health problems

Plastic Microfibers Polluting Our Planet

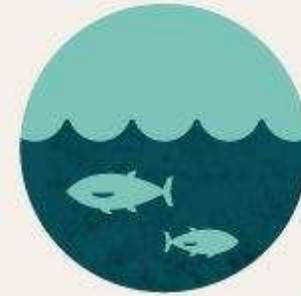
OUR LAUNDRY

A single load of laundry can release **700,000** plastic microfibers



POLLUTES

These plastic microfibers then contaminate our:



OCEANS



**LAND &
FARM FIELDS**



RIVERS

Pew Centre research 2022 found Paint was leading source of Microplastics world wide



Accounting for 1.9 million metric tons of that leakage globally into oceans and waterways. Leakage occurs during painting—of buildings, ships, roadways and a huge range of other applications—and from wear and tear, paint removal and disposal of unused paint.

The second largest source is tyre particles, which were responsible for nearly 1 million metric tons of microplastic leakage in 2016. Vehicle tyres shed tiny particles during normal use.

Pellets and textiles are the third and fourth largest sources, respectively.

The UGLY



There is HOPE

Leadership + Innovation + Education + Investment



Our plastic goals

By 2025 we will:

- Halve the amount of virgin plastic we use in our packaging and achieve an absolute reduction of more than 100,000 tonnes
- Collect and process more plastic packaging than we sell
- Ensure that 100% of our plastic packaging is designed to be fully reusable, recyclable or compostable
- Use 25% recycled plastic in our packaging





Dove's beauty refillution

Buy once, refill for life. Dove has started a deodorant revolution with its first refillable stainless steel case. The refills use far less plastic, and the small amount used is 98% recycled. With a lifetime guarantee on the case, it's designed to be bought once and used for life.



A world-first: Magnum's recycled plastic ice cream tubs

Magnum collaborated with supplier SABIC, to develop recycled plastic ice cream tubs in Europe that are food-grade and able to withstand freezing temperatures. This new technology uses low quality, mixed plastic waste that wouldn't otherwise be recycled. Magnum's new tubs – more than 7 million of them – are now going global.



Tackling the black plastic problem

Most black plastic ends up in landfill because the colour pigments are very tricky for waste sorting systems to detect. In the US we partnered with plastics recyclers to develop new pigments that make black plastic recyclable. We've switched all our Axe, Lynx and TRESemmé black plastic bottles to the new technology.





Replas REDcycle Program – Soft Plastics partnership with Woolies and Coles

how to REDcycle

1. collect



2. drop



3. recycle



Innovation in supply chains to use recycled materials



Positive impact since 2012



224

METRIC TONS OF WASTE FISHING NETS COLLECTED



2,200

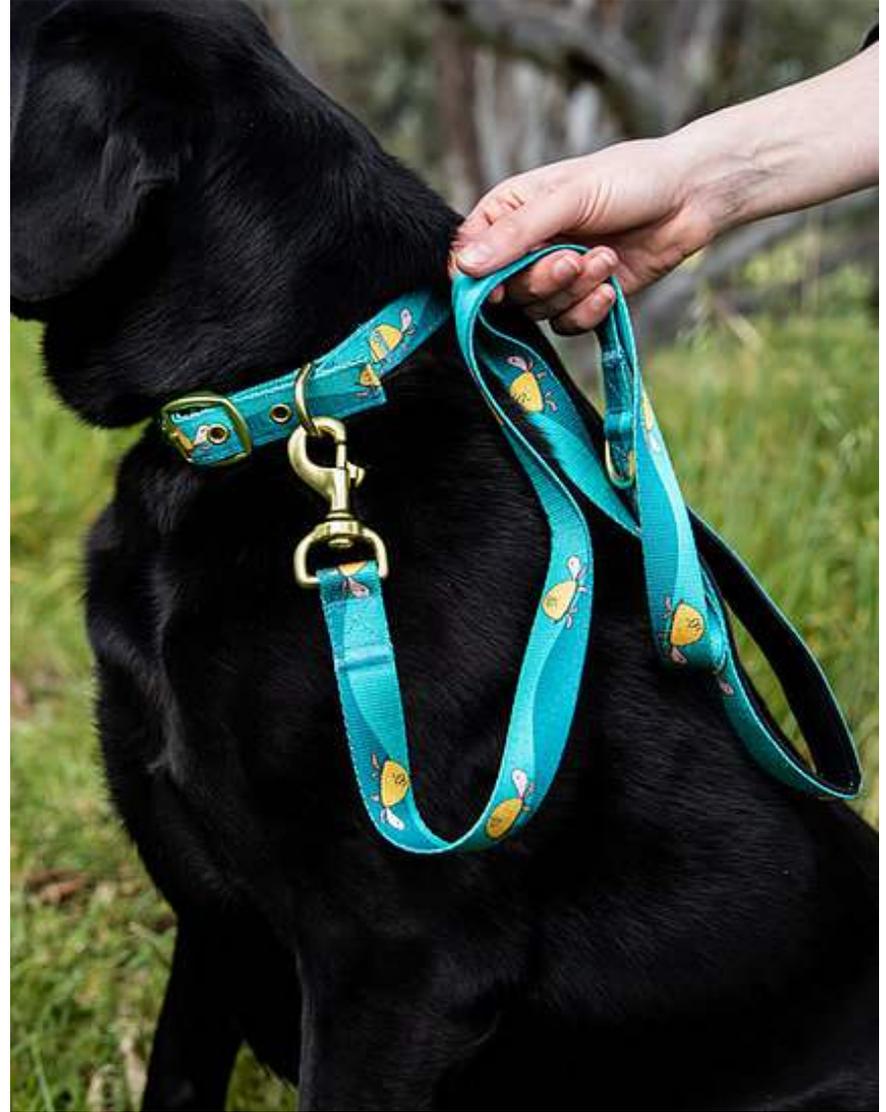
FAMILIES NOW HAVE ACCESS TO FINANCE



64,000

PEOPLE ENJOYING A HEALTHIER ENVIRONMENT





We can make recycling FUN – VW Fun Theory





Oslo Kommune
Miljø og Samfunnsplanlegging
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A circular economy for plastic

The circular economy considers every stage of a product's journey – before and after it reaches the customer. This approach is not only vital to stop plastic pollution, it also offers strong economic, social, and climate benefits. By 2040 a circular economy has the potential to:

- reduce the annual volume of plastics entering our oceans by 80%
- reduce greenhouse gas emissions by 25%
- generate savings of USD 200 bn per year
- create 700,000 net additional jobs

The circular economy considers every stage of a product's journey – before and after it reaches the customer.

To create a circular economy for plastic we must take three actions:

Eliminate

Eliminate all problematic and unnecessary plastic items

Innovate

Innovate to ensure that the plastics we do need are reusable, recyclable, or compostable.

Circulate

Circulate all the plastic items we use to keep them in the economy and out of the environment

The transition to a circular economy where all materials are able to be collected and recycled/upcycled - is dependent on how individuals and organisations learn to innovate and apply what they've learned in the real world.

The education sector, from primary school to postgraduate study, plays a vital role in ensuring students of all ages are equipped with the key skills and knowledge to apply circular thinking in their chosen careers.



If it can't be
reduced, reused,
repaired, rebuilt,
refurbished,
refinished, resold,
recycled or
composted,
then it should
be restricted,
redesigned
or removed
from production.



- Pete Seeger

Incursion Activities

Module 1
OCEAN OF THE FUTURE
Virtual Reality Experience and
Poster Design

- Students will use the virtual reality experience to gain an insight into the problems caused by plastic waste entering our oceans and will develop a Call to Action in the form of a Poster in terms of steps they and their fellow students can follow to prevent this.

Module 2
Preventing waste in our
Oceans incorporating Marine
Timeline Activity

- Students will discover how waste enters the oceans and explore what happens to it when it gets there and the impact it has on the marine environment. They will also learn actions that can be taken by individuals and communities to prevent this.

Module 3
How we can upcycle
waste before it gets into
our oceans

- In this module students will explore the use of waste materials as a resource for design and production of alternate products and have an understanding of the negative and positive impact that human actions can have on the marine environment.

Call to Action

- Students are empowered to create positive change that will benefit our shared environment. Visitation certificate/poster available for classroom.



sodastream®



Questions before you get to try
the VR and swim with whales?

