

# Plastic

What it is, how we use it and its environmental impacts

Secondary Schools Resource



**An Roinn Tithíochta,  
Rialtais Áitiúil agus Oidhreacht**  
Department of Housing,  
Local Government and Heritage

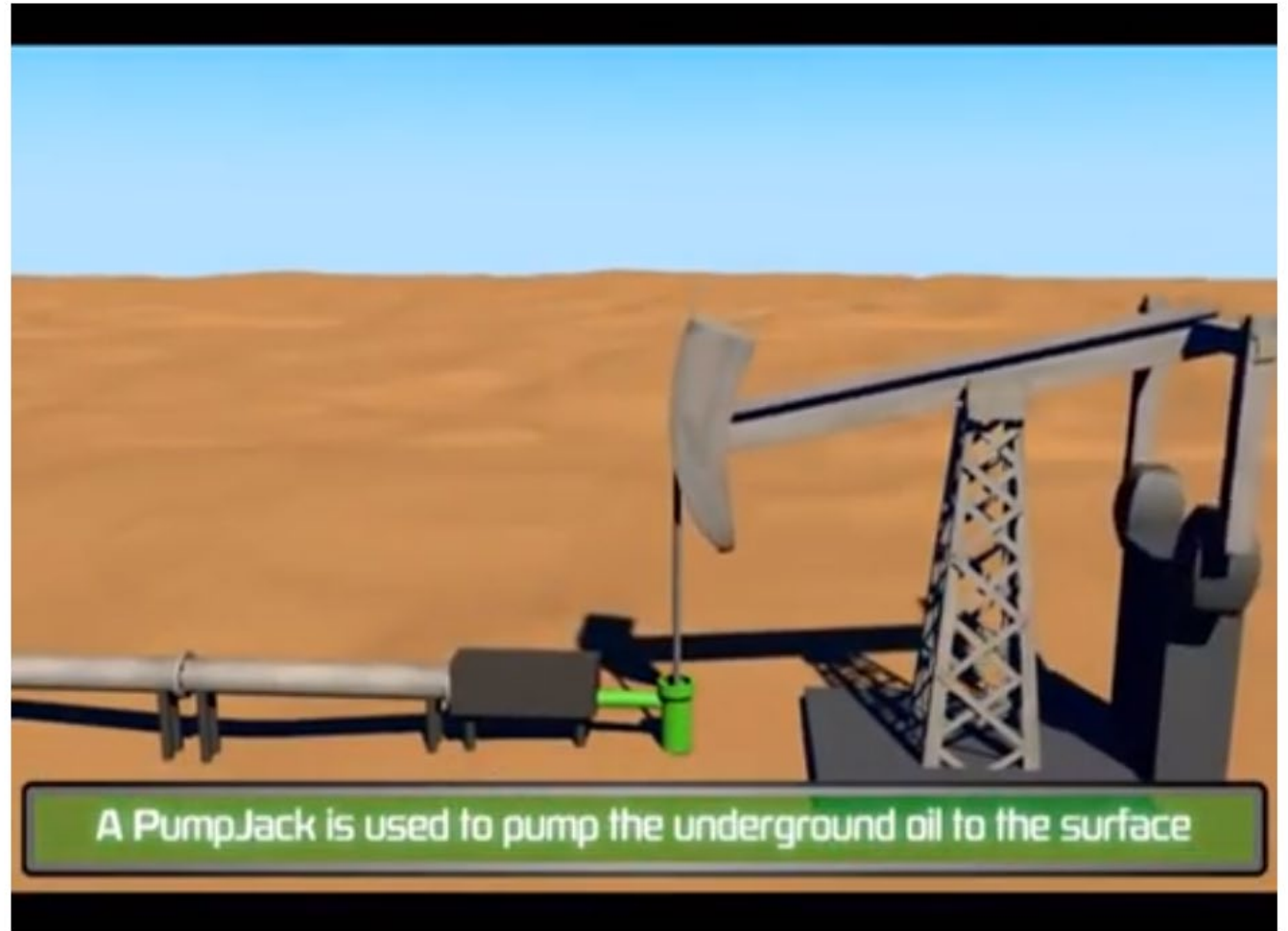
# What is plastic?

- **Plastic** is a material which is produced from oil by a chemical process and which is used to make many objects
- The term was derived from the Greek plastikos, which means “fit for molding.”
- The first synthetic plastic was made in 1907
- Now there are over 50 types of plastic



# How is plastic made?

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How Plastic Is Made

81,307 views

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<https://www.youtube.com/watch?v=w4VG-7ZFvDM>

A still from the movie Toy Story showing Woody and Buzz Lightyear. Woody is on the left, looking concerned. Buzz is on the right, looking excited and gesturing with his hands. The background is a simple room with a door and some furniture.

**PLASTICS**

**PLASTICS EVERYWHERE**

# How plastic is your life?

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Partner up and make a list of ten plastic things you use in your life every day.

Examples:

- Plastic toothbrush
- Plastic hair gel container
- Plastic on your phone charger





# Could you live without plastic?

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Clothing



Packaging



Electronics



Transport



Medical  
supplies



Recreation

# The truth is... plastic is great

- Strong
- Cheap
- Durable
- Light
- Waterproof
- Ability to be molded into any shape





# But... plastic is bad for the environment

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Unlike natural materials like cotton or food waste, plastic takes a long time to breakdown.

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In fact, it never really degrades, it just breaks up into smaller and smaller pieces.

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The inability to biodegrade means plastic is a huge contributor to the waste problem on our planet.

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The worlds plastic production reached almost 350 million tonnes in 2017.

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Packaging is the dominant generator of plastic waste, responsible for almost half of the global total production



Which item  
takes the  
longest to  
break down?

**Cotton**

**Plastic bottles**

**Milk carton**

**Cigarette**

**Plastic bag**

**Leather shoes**



Which item  
takes the  
longest to  
break down?

**Plastic bags: 500-1000 years**

**Plastic bottles: 70-450 years**

**Leather shoes: 25-40 years**

**Cigarette: 1-12 years**

**Milk carton: 5 years**

**Cotton: 1-5 months**



Particularly bad are... **single use plastics.**

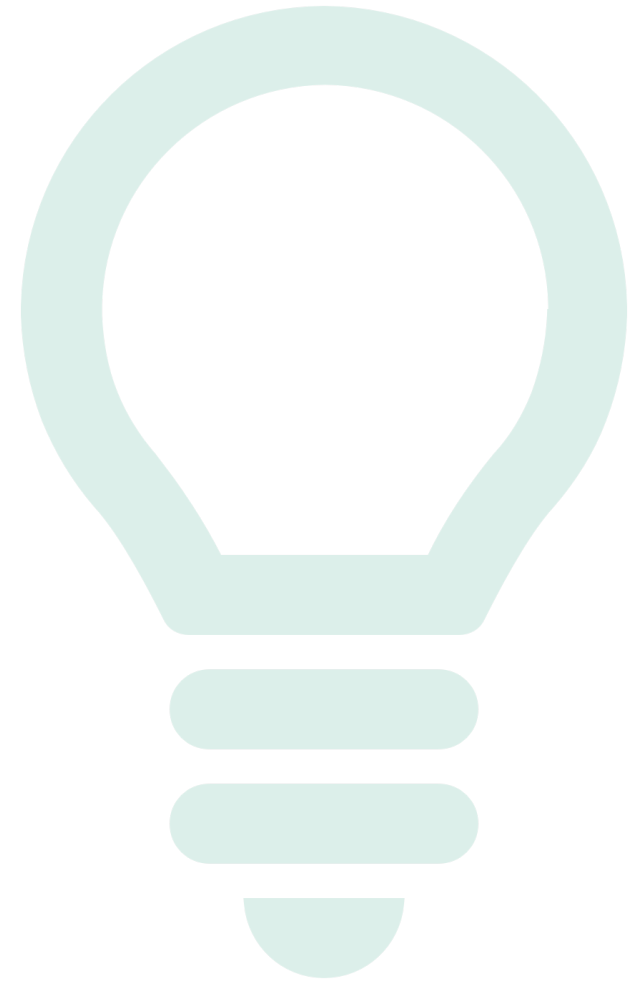
These are plastics that are designed to be only used once.

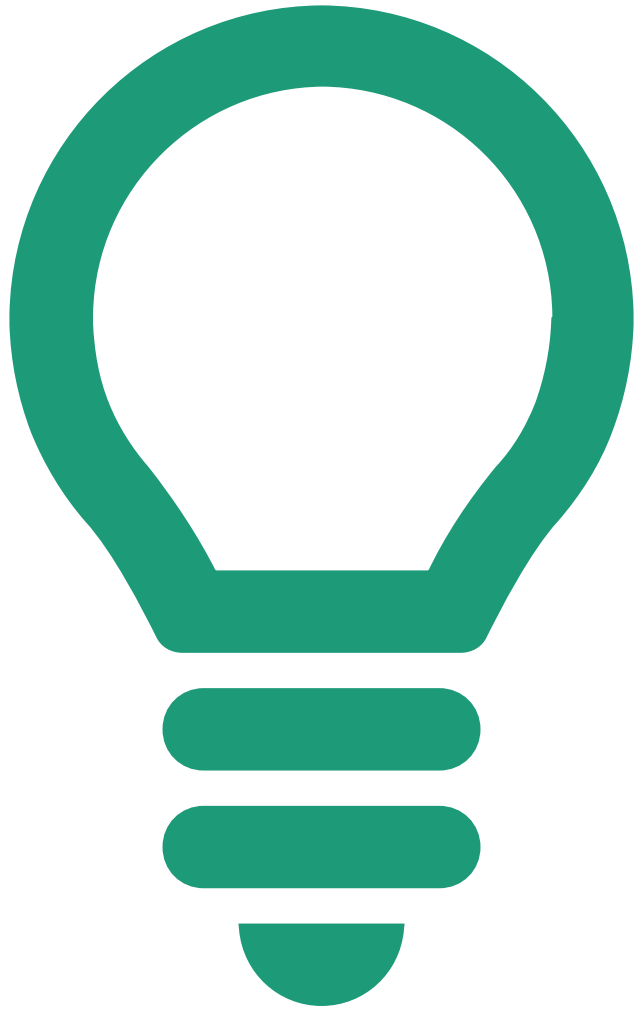
Plastics require a lot of energy and resources to make.

Plastics designed to be used once and then disposed of create a huge amount of waste



Can you list  
examples of single  
use plastics?





# Can you list examples of single use plastics?

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- Plastic bags
- Straws
- Coffee stirrers
- Water bottles
- Plastic cutlery
- Disposable face masks
- Plastic cups
- Coffee cup lids
- Plastic food packaging

Globally it is estimated that 500 billion disposable cups are discarded to landfill or incineration every year



# Buy, Use, Throw it away?

- Reflect upon the things you buy
- Think about the sustainability of the materials used in these products
- **Consumerism:** the human desire to own and obtain products and goods in excess of one's basic needs
- Are there alternatives to these plastic products?





## Case study: Plastics in the Ocean

# OUR WORLD OCEAN

## provides

### THE AIR WE BREATHE



**>50%** The ocean produces over half of the world's oxygen and stores 50 times more carbon dioxide than our atmosphere.

### CLIMATE REGULATION

**70%** Covering 70% of the Earth's surface, the ocean transports heat from the equator to the poles, regulating our climate and weather patterns.



### TRANSPORTATION



**76%** Percent of all U.S. trade involving some form of marine transportation.

### RECREATION



From fishing to boating to kayaking and whale watching, the ocean provides us with so many unique activities.

### ECONOMY



**\$282 billion** Amount the U.S. ocean economy produces in goods and services. Ocean-dependent businesses employ almost 3 million people.

### FOOD

The ocean provides much more than just seafood. Ingredients from the sea are found in surprising foods such as peanut butter and soymilk.



### MEDICINE

Many medicinal products come from the ocean, including ingredients that help fight cancer, arthritis, Alzheimer's disease, and heart disease.



# Ireland's Sea Statistics

- Ireland has over 3000km of coastline and 220 million acres of land beneath the sea.
- Ireland has 24 species of cetaceans (whales and dolphins)
- 71 species of shark live in Irish waters
- There's estimated to be over 30,000 shipwrecks off the coast of Ireland
- In the 2016 Olympic games, Ireland won three silver medals for sea sports (rowing and sailing)
- Seaweed harvested in Ireland is used in cold and flu remedies, and as an ingredient in ice-cream



Marine litter  
is harming  
our oceans  
health



The background of the slide is a dense, dark field of various pieces of marine litter. These include small, colorful plastic fragments, bottle caps, and a prominent, larger white plastic bottle that is partially crushed and torn. The litter is scattered across the entire frame, creating a textured and polluted appearance.

# Marine Litter

## The Big Offenders

1. Cigarette butts
2. Plastic bottles
3. Plastic bottle caps
4. Food wrappers
5. Plastic bags
6. Plastic lids
7. Plastic straws
8. Glass bottles
9. Other plastic bags
10. Styrofoam containers

# SOURCES OF MARINE LITTER



An Roinn Tithíochta,  
Pleanála agus Rialtais Áitiúil  
Department of Housing,  
Planning and Local Government

/ [CLEANCOASTS.ORG](https://CLEANCOASTS.ORG) //



Fáilte Ireland  
National Tourism Development Authority

- 1 LITTER DROPPED IN TOWNS AND CITIES
- 2 OVERFLOWING LITTER BINS
- 3 LITTER DROPPED AT THE BEACH
- 4 POORLY MANAGED INDUSTRIAL WASTE DISCHARGES
- 5 LOST SHIPPING CONTAINERS
- 6 LOST/DISCHARGED FISHING GEAR
- 7 RECREATIONAL LITTER BLOWN BY THE WIND
- 8 POORLY MANAGED LANDFILL SITES
- 9 MICROBEADS FROM PERSONAL CARE PRODUCTS
- 10 SEWAGE RELATED LITTER



Plastics can collide with and abrade marine life



# Plastics can entangle, strangle and choke animals

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Plastic can be mistaken for food

A photograph of a surfer riding a wave in a heavily polluted ocean. The water is a milky, opaque white color, and the air above the wave is thick with a dense cloud of plastic debris. Various types of trash are visible, including a yellow plastic bottle, a brown cardboard box, a blue plastic cup, and numerous smaller pieces of plastic and organic matter. The surfer, a man in blue and white patterned shorts, is positioned in the lower left, riding the base of the wave. The background shows a distant shoreline with green trees under a clear sky.

Plastic can  
soak up  
toxins in the  
oceans



After all it  
provides, lets help  
save the ocean  
from plastic



What's the solution?

## LINEAR ECONOMY



## CIRCULAR ECONOMY





# What can you do?

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Use fewer  
plastic products



Avoid single-use  
plastics



Recycle



Educate yourself  
and others



Participate in  
beach cleans



Write to an  
elected official





Activities



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Register your school as a  
Clean Coasts Group

- Take guardianship of a stretch of local beach
- Organize clean up events
- Reduce the environmental impact of marine litter
- Actively protect sites of important biodiversity
- Improve your mental and physical health



Investigate what these common packaging symbols mean? Educate the whole school community!



Design a poster to increase awareness on plastic waste in your school



# Videos

- What is plastic and how is it made  
<https://thekidshouldseethis.com/post/plastics-101-what-is-plastic-and-how-is-it-made>
- Kids take action against Ocean Plastic  
<https://www.youtube.com/watch?v=hKFV9IquMXA>
- Circular Economy <https://youtu.be/zCRKvDyyHmI>
- A brief history of plastics  
<https://www.youtube.com/watch?v=QW3OGMZ1bWc>
- Clean Coasts Video <https://www.facebook.com/CleanCoasts/videos/clean-coasts-do-good-feel-good/10160489289715716/>
- Plastic Oceans- the Riptide Movement  
<https://www.facebook.com/TheRiptideMovement/videos/plastic-oceans-episode-1-riptide-movement-with-clean-coasts/415287392340570/>





Educate the school community on alternatives  
to single use plastics



Go plastic  
free for a day,  
a week, or a  
month!



Advertise the campaign in school



Encourage teachers and other students to  
join the campaign



Document the highs and lows on social  
media



Create video content so people can follow  
your journey



- **‘Fast fashion’** involves increased numbers of new fashion collections every year, quick turnarounds and often lower prices
- <https://www.youtube.com/watch?v=ECkLgq2W9RU>

Carry out a research project.  
Suggested topic: Fast Fashion



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# Be the Change!

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