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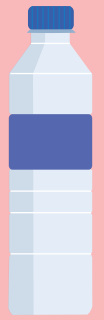
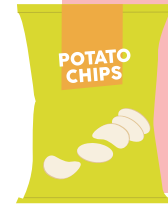
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Student Guide

PLASTIC.

Remaking Our World

Recommended for ages 13 and up

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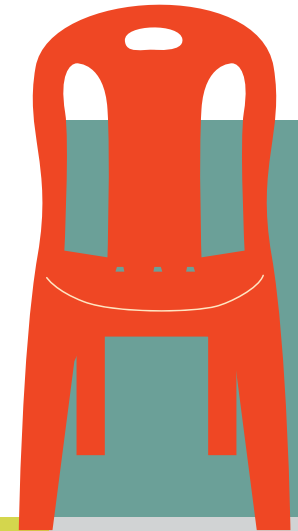
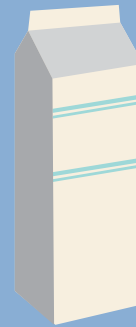


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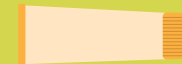
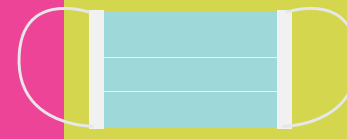
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ABOUT THE EXHIBITION

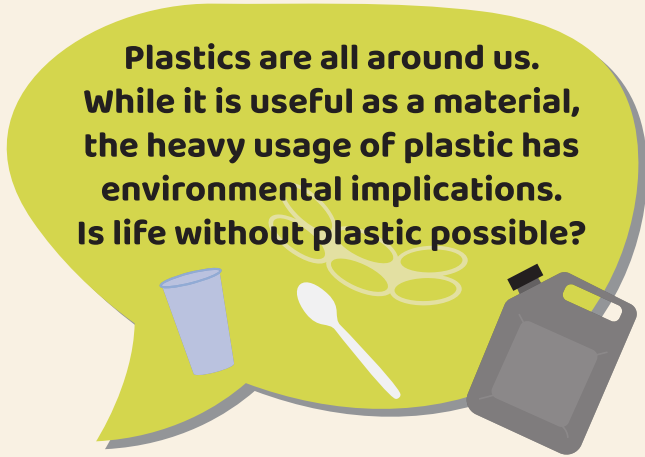


Plastic has shaped our daily lives like no other material: from packaging to footwear, from household goods to furniture, from automobiles to architecture. A symbol of both carefree consumerism and revolutionary innovation, plastic has spurred the imagination of designers and architects for decades. Today, the dramatic consequences of the plastic boom have become obvious, and plastic has lost its utopian appeal.

This exhibition examines the history and future of this controversial material: from its meteoric rise in the 20th century and its environmental impact to cutting-edge solutions for a more sustainable way of using plastic. It features over 300 objects, posters, films and photographs from the Vitra Design Museum and its partners, including rarities from the dawn of the plastic age, objects of the pop era and contemporary designs and projects, with additional content on the use of plastic and sustainability in Singapore.

INTRODUCTION

Plastics are all around us. While it is useful as a material, the heavy usage of plastic has environmental implications. Is life without plastic possible?



Through your journey in **Plastic: Remaking Our World** today, find out more about:

- The history of plastic and how it became such a big part of our lives
- The consequences of over-reliance on plastics
- Singapore's sustainability journey
- What we, as individuals, communities and societies, can do to minimise the negative impact of plastic

Examine the artefacts in the exhibition closely to complete the activities in this booklet.

You can also attempt the questions marked with the following symbols as you explore the exhibition:

Think



Discuss





Here are some tips to remember as you explore the exhibition:



Pay close attention to what you see and hear around you. Some of the answers you're looking for may just be near you!



Examine the objects in the museum carefully. Touch the objects **ONLY** if the signs indicate that it is permissible to do so.



Turn off the flash on your camera or phone when taking photographs.

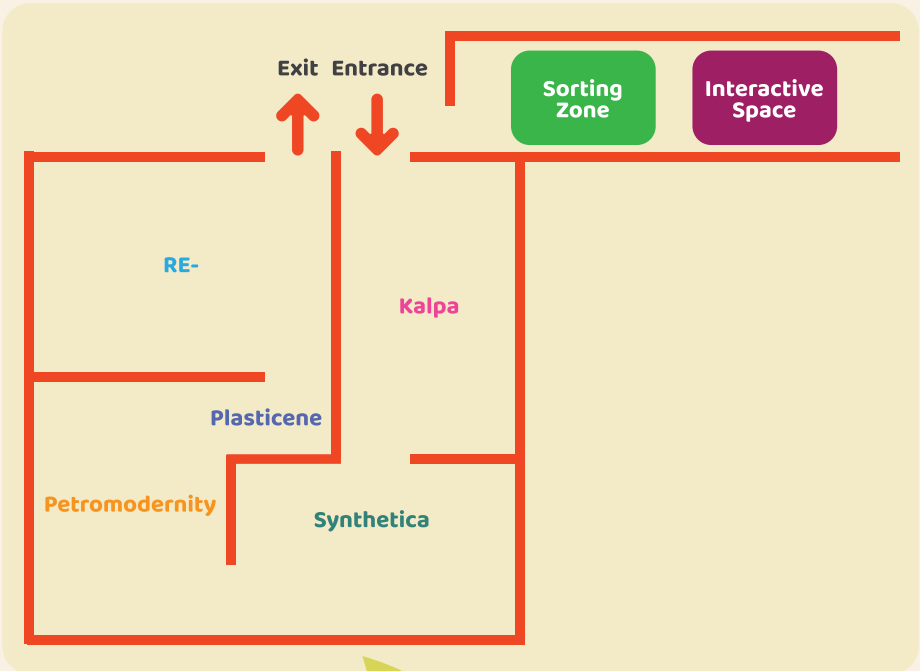


Speak softly while discussing with your friends and do not run. This will ensure a good experience for everyone!



Food and drinks should be consumed outside the galleries.

GETTING AROUND



**Start your exploration from
the exhibition (pages 5–11)
or from the sorting zone and
Plastics In Our Lives
interactive space (pages 12–13)**

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THE AGE OF PLASTICS

How much plastic products and waste do you see around you?

 **Kalpa**
(refer to the map on page 3)

Fossil fuels like coal and oil took more than two hundred million years to form under the earth's surface. Synthetic materials made from these fuels needed only a century to become a global problem.

Watch the video installation *Kalpa* to find out more.



Kalpa, Asif Khan, 2022 © Vitra Design Museum, photo: Bettina Matthiessen



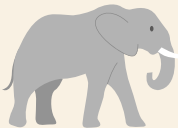
Based on the video and your own knowledge, discuss and list down some environmental, social, economic and health problems created by the overuse of plastic.

BEFORE PLASTICS

What was life without plastic like?

Before the first fully synthetic plastic was developed in 1907, many luxury and household objects were created using natural materials that had similar properties to plastic. These materials were easily shaped by applying heat and pressure to create beautiful forms.

Look at the objects in the gallery and name the material below based on the plants or animals they were made from!

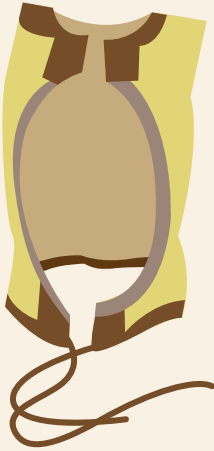


Why were these natural materials replaced by plastics in the late 20th century?

PLASTICS AND INVENTION

Why did plastic become such a popular raw material?

By the late 19th century, there was a growing demand for easily shaped materials that could be produced quickly and inexpensively. Inventors began experimenting with “semi-synthetic” plastics by modifying natural compounds like cellulose (derived from plants) in the laboratory.



This spinal brace for a child with tuberculosis was made from newly developed semi-synthetic plastic.

What are the benefits of a plastic brace as compared to one fully made of metal?

Look around the gallery for examples of other objects made of early plastics.



What properties do you think inventors were trying to achieve in the newly created plastics? What made plastic such a useful material?

PLASTICS AND WAR

What was the role of plastics in World War Two and after?

Natural materials became increasingly scarce during World War Two (1939–1945). The production of plastics was important in creating lightweight and durable military equipment cheaply and in large quantities.



After the war, plastics found their way into civilian lives and became the material of choice for many common household objects.

Below are examples of how some plastics were used for military purposes. Look around the gallery – can you identify and discuss what these materials may have been used for in the household?

Material	Military Usage	Household Usage
Nylon	Parachutes and tyres	
Saran	Protect from corrosion at sea	
Bakelite	Helmets and weapons	
Acrylic	Cockpit canopies	



From what we have learnt so far, it seems like there are positive aspects to plastics and many ways in which they can be used. How did plastics become an environmental problem later on?

PLASTICS AND MODERNITY

How has plastic shaped our life today?

Periods of human history have been defined by the materials that made the greatest impact on society, such as the Stone Age, Bronze Age, or Iron Age. Accordingly, it has been proposed that we are currently in the Age of Plastics, or the **Plasticene**.

The invention of modern plastics has opened up new possibilities. In this gallery, you will see how items made of plastic have become important in every aspect of our lives.

Here are some examples of areas in which we rely heavily on plastic. Explore the gallery and identify some important plastic objects used in **healthcare** and **telecommunications** and draw them or write them down in the spaces below.

HEALTHCARE



Ball Chair
Eero Aarnio
1963
© Vitra Design Museum,
photo: Jürgen Hans

ART / DESIGN

ECONOMY



TELECOMMUNICATIONS



Can you imagine a world without plastic today?
Are there any plastic objects that you encounter regularly which you feel cannot be replaced by any other material?

PLASTICS AND THE ENVIRONMENT

Why have single-use plastics become a huge global problem?

The proliferation of single-use plastics such as utensils and bags was initially celebrated. However, as early as the 1960s and 1970s, people began to realise the growing problems caused by over-reliance on plastic and its careless disposal.

Compare the two images and their titles below, which show different attitudes towards the “throwaway society”:



*“Throwaway Living”, LIFE, 1 August 1955.
Reproduction © Getty / Photo: Peter Stackpole.*



“The world cannot afford the luxury of a throwaway society”, c. 1990, Oxfam. Victoria and Albert Museum, London.



What are some benefits and drawbacks to single-use plastics?

Benefits

Drawbacks

PLASTICS AND INNOVATION

How can we reduce plastic pollution?

The consequences of plastic use are now recognised globally, and many new innovations and initiatives around the world attempt to tackle these problems.

Aside from the 3 familiar "R"s – Reduce, Reuse and Recycle – there are other proposed "R"s that can help to minimise the use and disposal of plastics. Find out more about the following projects in the gallery and add a tick to the last column below if you would use or have used a similar product or system:

Dixon	Refuse	Drinking fountains that encourage use of reusable bottles instead of purchase of single-use ones.	<input type="checkbox"/>
Algramo	Reduce	A circular system that allows refills of shampoo and detergent at local dispensers.	<input type="checkbox"/>
Evergreen returnable bottles	Reuse	Glass and PET bottles that can be reused multiple times in deposit-refund systems.	<input type="checkbox"/>
Helen Kirkum	Repurpose	One-of-a-kind sneakers created out of discarded materials.	<input type="checkbox"/>
Shiftphone	Repair	A smartphone designed to be easily repairable by users.	<input type="checkbox"/>
Waste2Wear	Recycle	Clothing made from recycled PET bottles.	<input type="checkbox"/>

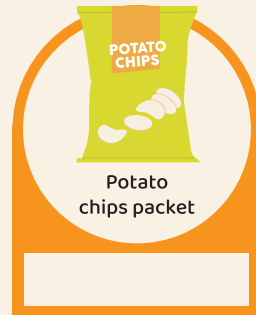


What local stores, projects or initiatives do you know of that practise one or more of these "R"s? Do you use or support their efforts? Why or why not?

SORTING ZONE: PLASTICS AND RECYCLING

The sorting zone is located outside the exhibition gallery. Explore the sorting zone to find out more about different categories of plastics and their use in everyday objects.

What plastic type does each item below belong to? Visit the Clean & Green Singapore website at go.gov.sg/cgsrecycle to find out whether these items below are recyclable in Singapore.



Plastic waste makes up the largest category of material disposed in Singapore. In 2022, only 6% of plastic waste was recycled, while the remaining 94% (about 944,000 tonnes) was disposed of.



Is recycling a sustainable way of reducing plastic waste in Singapore? What else can be done?

INTERACTIVE SPACE: PLASTICS IN THE HOUSEHOLD



Explore the "home" outside the exhibition. As you step into our cosy set-up, what is the first object you see? Does it contain plastic?



Find out more about the presence of plastics in our lives, and think about your own usage of plastics.



How many plastic objects do you have in your bedroom at home?

Objects

How many plastic objects does your family dispose of in an average day?

Objects



How can we reduce the use of plastics in our homes, and in our lives?

REFLECTIONS: SUSTAINABLE DEVELOPMENT

Having explored the pros and cons of plastic in our lives, including its impact on the environment, it is important for us to reconsider our relationship with plastic and work together to create a more sustainable world.

Have you heard of the United Nations (UN) **Sustainable Development Goals**? These are a set of 17 goals adopted by UN Member States as a universal call to action to protect the planet and improve the lives of everyone, everywhere.



Take a look at the Sustainable Development Goals on the adjacent page and circle those that you think can be achieved through the reduction of plastic waste.

Find out more about our commitment to the Sustainable Development Goals through the Singapore Green Plan 2030 at www.greenplan.gov.sg!

SUSTAINABLE DEVELOPMENT GOALS



REFLECTIONS: WHAT CAN WE DO ABOUT PLASTICS IN OUR LIVES?



What do you think we can do about the plastic pollution problem:

As an individual?

What actions can you personally take?

As a community?

What can you do together with your neighbourhood or school to help?

As a society?

What larger goals should our society or country aspire towards?

How would you inspire others to take action against plastic pollution?
Write a tagline or design a logo that could be used in your own campaign.