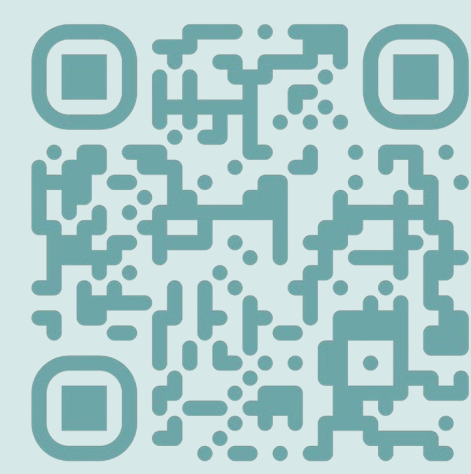




Access Sources

The Plastic Age

A museum for the future

The museum concept consists of educational exhibitions, including facts regarding the challenges plastics can create, several interactive activities and provide solutions. We want people to feel enlightened, inspired and motivated after visiting the museum. This will be achieved through presenting reasonable actions for the individual, current efforts to fight plastic pollution, and potential future solutions. Interactivity is a primary focus, increasing engagement and making the visit more exciting.

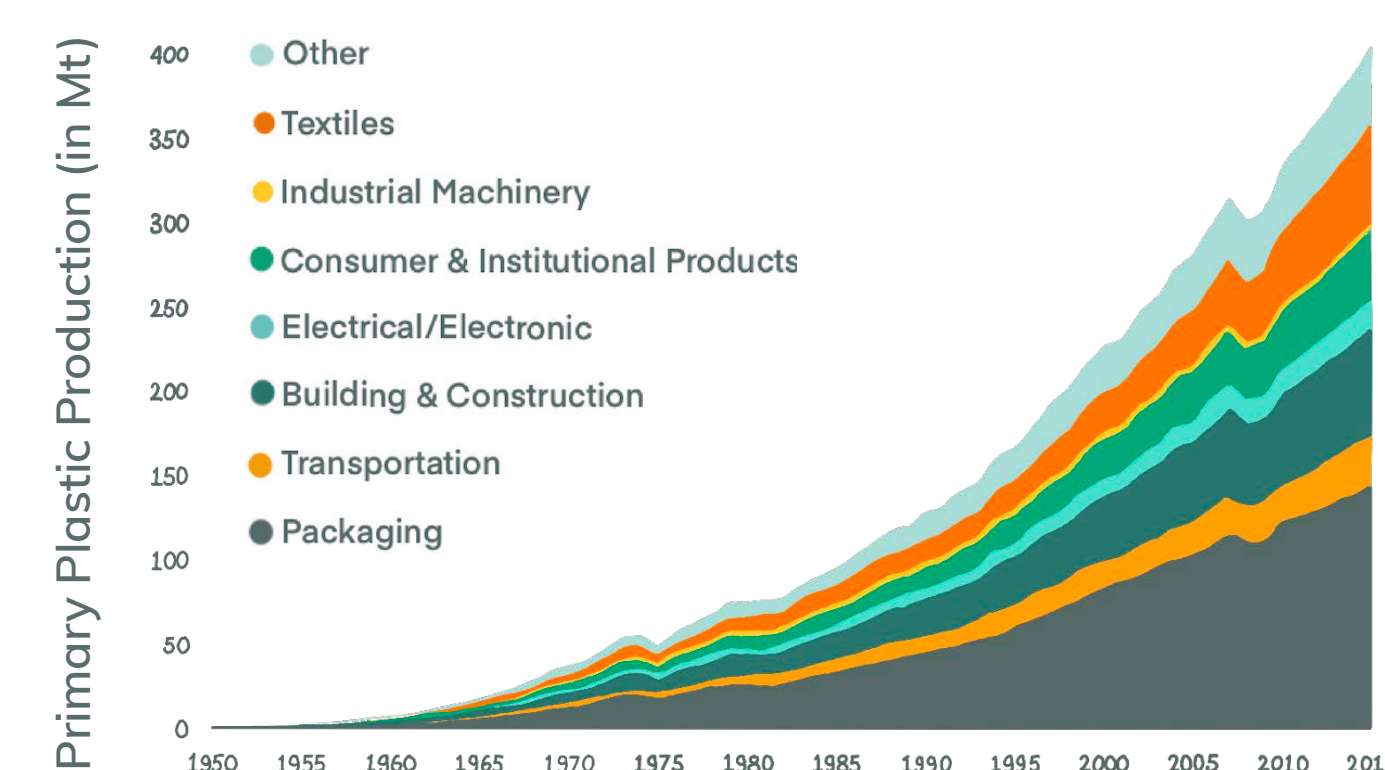
“The average person eats 21g of plastics per month”

The target audience will be families, sparking interest for a large variety of age groups. During framework development, a survey was distributed to obtain information about which topics were interesting to our target audience. We also did field research, visiting the museum “Kystens Arv” which had an exhibition about marine plastic pollution.

ENTRY

What is Plastic?

- Polymer made up of several units.
- Can be molded into objects and retain its shape [1].
- Synthetic: the original substance is changed chemically, giving it different characteristics [2].
- Two main categories: Thermosets and thermoplastics, differ in whether they can be reshaped/remolded.
- Used in lots of applications: packaging, textiles, electronics and construction. Different applications need different types of plastic: PET in bottles, PVC in plumbing, PMMT in clothing, and PP in medical devices.
- Bakelite (1909) was the first fully synthetic material, and “founded” the modern plastics industry [3].
- However, it was not until more recently that plastics use exploded, with “half of all plastics ever manufactured have been made in the last 15 years” [4].
- Plastics paved the way for modern life, but also introduced several challenges. The material often contain additives, making them harder to degrade, with some taking several hundred years [4] Plastics are therefore hard to recycle because most products contain a mix of different materials and additives.



Before vs. After Plastic

Life has changed immensely after the introduction of plastic. People generally lived a simpler lifestyle before, and stressed the importance of reusing what they had. Milk and soda bottles were glass, and were returned, washed, and reused. Toys were made from wood and rubber, and clothes were made of natural and degradable materials.

Nowadays, the usage of single-use plastics has exploded. People live in a more fast-paced world where they want quick and easy options. The rise of consumerism has led people to own more and more, much of which is made from plastic. Many people have gotten used to an extremely high standard of living, with the conveniences that plastic materials offer. Additionally, most items are now cheaper to replace than to repair, and have worse durability.

Before

Cotton swimwear
Straw beach bag
Wooden plates, metal cutlery
Paper packaging for lunch
Ring toss game
Cotton towel



After

Polyester swimwear
HDPE cooler bag
Plastic plates and cutlery
Plastic goggles
Plastic beach ball
Plastic arm floaties
Plastic sand shovel



Did You Know?

- 80% of global litter is plastics and dominated by food and beverage items [5].
- Approximately half of the 6 million metric tons of microfibers released from laundry between 1950 and 2016 have entered water bodies [6].
- In 2016, a yogurt cup from 1975 was found on the beach [7].
- 60% of fish studied globally contained microplastics [8].
- The average person eats 21g of plastics per month [7].
- Microplastics were first detected in human placentas in 2020 [9].

Solutions

- Support efforts to promote a life cycle approach to plastic products.
- Raise awareness.
- Promote cost-effective monitoring of microplastics.
- Strengthen and increase cooperation at all levels.

Clean-ups

- Prevent plastics from entering the oceans through correct disposal.
- Available recycling bins.
- UN Environment estimates [10]:
 - 15% of marine litter floats on the surface.
 - 15% remains in the water column.
 - 70% rests on the seabed.
- No “garbage islands”, but rather an “Ocean Slurpee” invisible to the human eye [11].
- Marine litter collected by dragging a shallow net between two ships.
- Developing technologies like machine learning to detect plastics.
- An effective alternative is to remove plastic from rivers and coastal areas [12].
- River installations that collect waste before it reaches the oceans.
- Beach cleanups are also effective.
- International coastal cleanup day on the third saturday of September each year.

Recycling

Analysis of 36 papers identified three main drivers and barriers for consumer's recycling [13]:

- Personal environmental concern.
- Lack of knowledge regarding recycling.
- Difficulty/inconvenience for sorting/recycling systems.

Approx. recycling potential and technological maturity

