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Quarterly Problem

- Green Edition -

Plastic bottles



Plastic production has sharply increased over the last 70 years. In 1950, the world produced just two million tons. It now produces over 450 million tons.

Plastic has added much value to our lives: it's a cheap, versatile, and sterile material used in various applications, including construction, home appliances, medical instruments, and food packaging.

However, when plastic waste is mismanaged – not recycled, incinerated, or kept in sealed landfills – it becomes an environmental pollutant. One to two million tons of plastic enter our oceans yearly, affecting wildlife and ecosystems. We are using a lot of plastic bottles.

Can you find out how many plastic bottles your family use in one week, and collect them? How could this be reduced?

Plastics are used in a wide variety of products and have displaced other materials such as wood, metal, and glass. One of the main applications of plastics is plastic packaging. The production of plastic involves four basic steps: acquiring raw materials, synthesizing a basic polymer, compounding the polymer into a usable fraction, and finally, molding or shaping the plastic.

Products made of plastic are usually marked with a triangle surrounding a number that tells us what type of plastic the product is made of. PET plastic is the most common type used in bottles.

Brainstorm-Box

Can you think about why we use plastic bottle, and come up with a list of advantages and disadvantages of using plastic over glass in production of bottles?
Can we possibly do without plastic in bottle production, and why?

Types of plastics	Symbol	Applications
Polyethylene terephthalate (PET)		Beverage bottles, medicine jars, rope, clothing and carpet fibre
High-density polyethylene (HDPE)		Containers for milk, motor oil, shampoos and conditioners, soap bottles, detergents and bleaches
Polyvinyl chloride (PVC)		All kinds of pipes and tiles
Low-density polyethylene (LDPE)		Cling-film, sandwich bags, squeezable bottles and plastic grocery bags
Polypropylene (PP)		Lunch boxes, margarine containers, yogurt pots, syrup bottles, prescription bottles, plastic bottle caps and plastic cups
Polystyrene (PS)		Disposable coffee cups, plastic food boxes, plastic cutlery and packing foam
Polyethylene (PE) Acrylonitrile butadiene styrene (ABS) Polyamide (PA) or nylons Polybutylene terephthalate (PBT)		Baby bottles, compact discs and medical storage containers

Whose proposals seems most environment-friendly, and why?

Focus on phrasing your approach in a clear and comprehensible way. Also state what foundation you have used for your reasoning.

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