

## Marine Debris (Geography)

KS4



Read the following information carefully.

Marine pollution is a growing problem in today's world. Our ocean is being flooded with two main types of pollution: chemicals and plastics.

Chemical contamination, or nutrient pollution, is concerning for health, environmental, and economic reasons. This type of pollution occurs when human activities, notably the use of fertiliser on farms, lead to the runoff of chemicals into waterways that ultimately flow into the ocean. The increased concentration of chemicals, such as nitrogen and phosphorus, in the coastal ocean promotes the growth of algal blooms, which can be toxic to wildlife and harmful to humans.

Marine trash encompasses all manufactured products—most of them plastic—that end up in the ocean. Littering, storm winds, and poor waste management all contribute to the accumulation of this debris, 80 percent of which comes from sources on land. Common types of marine debris include various plastic items like shopping bags and beverage bottles, along with cigarette butts, bottle caps, food wrappers, and fishing gear. Plastic waste is particularly problematic as a pollutant because it is so long-lasting. Plastic items can take hundreds of years to decompose.

This trash poses dangers to both humans and animals. Fish become tangled and injured in the debris, and some animals mistake items like plastic bags for food and eat them. Small organisms feed on tiny bits of broken-down plastic, called microplastic, and absorb the chemicals from the plastic into their tissues. Microplastics are less than five millimetres (0.2 inches) in diameter and have been detected in a range of marine species, including plankton and whales. When small organisms that consume microplastics are eaten by larger animals, the toxic chemicals then become part of their tissues. In this way, the microplastic pollution migrates up the food chain.

(Source: [www.nationalgeographic.org/encyclopedia/marine-pollution](http://www.nationalgeographic.org/encyclopedia/marine-pollution))



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Answer the following questions:

- 1. Why are the oceans being flooded with pollution?**
- 2. What is the chemical symbol for nitrogen?**
- 3. Where do you usually find lots of nitrogen?**
- 4. Why do we use fertiliser?**
- 5. Plastics are made of long chain molecules called polymers. What do you think is between these polymers, making plastics take hundreds of years to decompose?**
- 6. Which organism does a plastic bag in the ocean represent?**
- 7. Which marine reptile will eat a plastic bag by mistake?**
- 8. Do toxins in the food chain increase or decrease as you go up the chain?**
- 9. Microplastics are less than five millimetres in size. What is this in metres?**
- 10. What can be done to stop the pollution which is entering our oceans?**

Make a list of advantages and disadvantages of the two types of marine pollutants.

Compose a letter to the government explaining what these pollutants are doing to our oceans, and your ideas on how to combat the problem.

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### Answers:

1. More chemicals are being used as more fertiliser is needed to grow food. More plastics are being produced as more people are using them.
2. N
3. The air (approx. 70%)
4. To grow food
5. Strong bonds
6. Jelly fish
7. Sea turtle
8. Increase
9. 0.005m
10. Any ideas on reducing pollution – beach cleans/better waste disposal/recycling plastics etc