Lesson 6: I know the impact of pollution on biodiversity

Part I: Quick Quiz

Match the drivers of biodiversity loss to their definitions:

Habitat destruction	Killing animals in the wild for food or sport.
Climate change	Catching so many fish that not enough are left to breed.
Invasive species	Destroying habitats causing species to move or die out.
Hunting	The earth's temperature rising (or falling).
Overfishing	A species introduced to a new ecosystem, threatening it.

Part 2: The effect of pollution on biodiversity



Pollution is the introduction of harmful substances into the environment. There are many different types of pollution. In this lesson, we are going to focus on land/soil pollution but here's a quick reminder of some other types:

Air pollution

This mostly comes from cars, planes, power stations and factories. The UK has more than 32 million cars. When cars burn petrol to run, the fumes they give off contain carbon monoxide, carbon dioxide and nitrogen oxide. This combines with the air we breathe and can be harmful to animals and humans. Our modern lifestyles also need lots of electricity. To supply most of this, fossil fuels (coal, oil, gas) are burnt, and the effect is similar to burning petrol.



Water pollution

There are many different types of water pollution, but they often involve waste from rubbish dumps and factories seeping into water sources, or **pesticides** from farming contaminating rivers and oceans. This is harmful not only to plants and animals that rely on these water sources to survive, but also to many humans who need drinking water. Let's not forget the ongoing problem we are having with plastic pollution in our oceans.



Soil pollution

Much of this comes from similar sources to other pollution types, for example pesticides and other chemicals used in farming.





Think back to your food chain work. If insects are killed off, what will happen to the rest of the eco-system?





Organic farming is done without using pesticides and fertilisers. Instead they limit the damage done by pests through:

Avoiding monocultures

Monocultures are huge farms of all the same crop. This means pesticides are essential, as any pests and diseases would otherwise destroy the entire farm. By avoiding this, and instead growing smaller amounts of a greater variety of crops, it is much less likely that one disease or pest will destroy it all. Diseases and pests usually only like certain crops, so any that got in wouldn't destroy everything.

Companion planting

Planting certain crops next to each other can help them resist disease and reduce pests. For example, to increase their resistance to diseases, you should plant horseradish next to potatoes. Carrot-fly is a pest that affects carrots; however, if rosemary, sage or marigold is planted near the carrot crop, it keeps the carrot-fly away. Corn grows quite tall, and if you plant beans below it the corn not only protects the beans from pests by shielding it, but also gives the beans something to climb!

Here's an example of companion planting corn, beans and squash:



Crop rotation

If you grow the same crop in the same place year after year, like most large farms do, you will get a build-up of pests and diseases specific to that crop, so pesticides have to be.

Crop rotation means you do not to grow the same thing in the same place two years running. Some organic farms use this technique to reduce losses to pest and disease.

Soil pests and diseases tend to attack specific plant families over and over again. By rotating crops around different parts of land, the number of pests reduces as the crops they need have moved.



Vandana Shiva is an Indian activist who campaigns against the use of chemicals. She also promotes the use of the above organic farming methods.





Now design a poster inspired by Vandana Shiva, encouraging organic farming methods to reduce the impact chemical pesticides have on biodiversity.