



KNOWLEDGE ORGANISER

SCIENCE: HUMAN IMPACT

YEAR FOUR

KEY KNOWLEDGE:

QUESTION 1: What impact do humans have on the environment?

ANSWER

- Over six billion people live on planet Earth. As the population grows, we are taking more and more land to live and using more of the world's natural resources. Many human activities also produce pollution, which is damaging the Earth's environment.
- Since farming began, 10,000 years ago, many wild landscapes have been transformed to create fields for crops and raising animals. Swamps and coastal marshes have been drained. Forests have been felled and grasslands have been plowed. However, removing tree and plant roots that help to bind the soil can make the soil loose and crumbly. High winds may then blow it away, or heavy rain may wash it into rivers. In some areas, soil erosion has turned fertile farmland into barren wastes.
- In the 1700s, the dawn of the industrial age revolutionized methods of manufacturing and made them more efficient. Since then, factories have been built all over the world. Factories consume huge amounts of natural resources and energy, and many give off chemical waste, which creates problems such as air and water pollution, and global warming.
- One of our main challenges is to find the right balance between using and conserving Earth's natural resources. The human species dominates Earth in a way that no species has done before. Our demands for fuel, water, land, and food are beginning to place a strain on the planet's limited resources. What makes us different from other species, however, is our ability to recognize these global problems and our inventiveness in doing something about them.
- All over the world, factories, power plants, farms, businesses, and homes produce huge amounts of pollution by releasing chemicals and other substances that pollute, or dirty, the natural environment. As people's use of energy and other resources grows, the Earth is becoming more polluted.
- Industrial waste, sewage, and chemical pesticides from farms seep into streams and rivers. Cars, factories, and power plants burning fossil fuels give off fumes that pollute the air. Chemicals called CFCs (short for chlorofluorocarbons), used to make refrigerators and aerosol sprays, destroy the ozone layer, which protects us from harmful sunlight. Household and other waste buried underground pollutes the land.

QUESTION 2: Why does clearing litter matter?

ANSWER

Litter discarded in streets and parks can travel through the storm water system to our rivers and creeks, where it can cause harm to wildlife. Removing litter from the environment costs everyone money. Litter is a threat to public health. Litter attracts vermin and is a breeding ground for bacteria.



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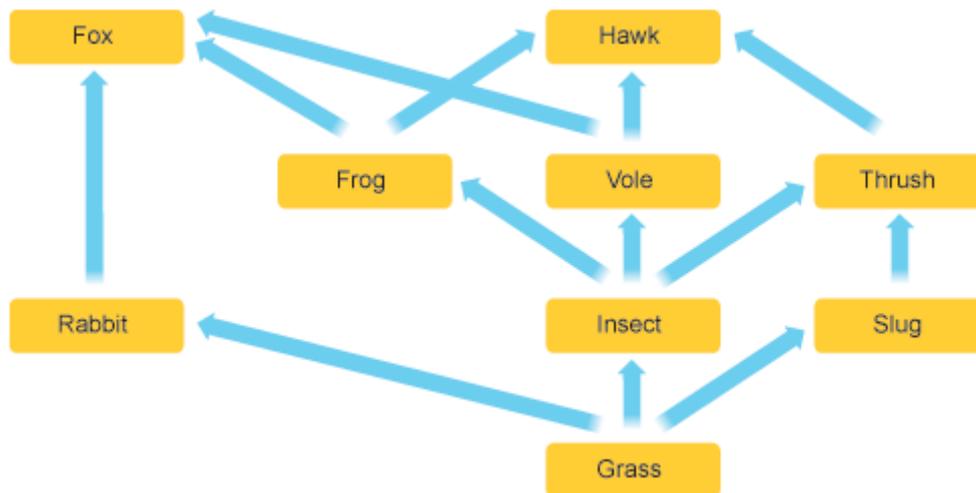
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QUESTION 3: What happens when a food chain is broken?

ANSWER

When a food chain is broken the link is missing and as a result there is an impact as described below:



What would happen if the grass died?

The grass is the producer, so if it died the consumers that feed on it - rabbits, insects and slugs - would have no food. They would starve and die unless they could move to another habitat. All the other animals in the food web would die too, because their food supplies would have died out. The populations of the consumers would fall as the population of the producer fell.

What would happen if the population of slugs decreased?

Slugs, rabbits and insects all eat grass. If there were fewer slugs there would be more grass for the rabbits and insects. With more food the populations of rabbits and insects would increase. However, the thrushes would have to eat more insects to maintain their population, so it is also possible that the population of insects could decrease. This in turn may reduce the populations of voles and frogs.

What would happen if the population of insects decreased?

There would be more food for the rabbits and slugs, so their populations would increase. However, there would be less food for the frogs and voles, so their populations would decrease. This means less food for the foxes and hawks. However, there are likely to be more rabbits and thrushes for them to eat, so their populations are likely to stay the same.