Your notes

KS3 Science: revision notes

B3.2 Human interaction

Contents

1. Biodiversity
2. How humans affect biodiversity
3. Protecting biodiversity
4. Biomass and food security
5. Key terms
6. Quick questions
7. What to do next

Biodiversity

- **Biodiversity** is the variety of all the different species in an area, or on Earth.
- High **biodiversity** makes an ecosystem more stable, because species depend less on any one other species for food and shelter.
- Humans depend on **biodiversity** for food, medicines and materials.

How humans affect biodiversity

- As the human population grows, more land is used for building, farming, quarrying and dumping waste.
- **Deforestation** (clearing forests for farming, cattle and timber) destroys habitats and adds carbon dioxide to the air, because burnt or rotting trees release it and fewer trees are left to absorb it.
- **Pollution**: sewage, fertilisers and toxic chemicals pollute water; landfill and pesticides pollute land; smoke and acidic gases pollute the air.
- **Indicator species** show how polluted a place is: lots of lichens mean clean air, mayfly larvae mean clean water, and sludgeworms mean polluted water.
- **Greenhouse gases** such as carbon dioxide and methane trap heat, causing **global warming**. This leads to **climate change**: melting ice, rising sea levels, flooding, extreme weather, and species moving or dying out.

Protecting biodiversity

- Breeding programmes for endangered species, protecting habitats in nature reserves, replanting hedgerows and field margins, and seed banks.
- Reducing **deforestation**, cutting carbon dioxide emissions and recycling more instead of sending waste to landfill.

Biomass and food security

- A **pyramid of biomass** shows the mass of living material at each trophic level. It is usually pyramid-shaped because only about 10% of the **biomass** passes to the next level; the rest is lost in respiration, movement and waste such as faeces.
- **Food security** means everyone having enough safe, nutritious food. Threats include a growing population, changing diets, new pests and diseases, **climate change**, conflict and the cost of farming.
- Solutions include better farming methods, fish farms, and biotechnology such as genetically modified (GM) crops that resist pests, give bigger yields or contain extra vitamins. Some people worry about the effects of GM crops on health and wildlife.

Key terms

Biodiversity	The variety of all the different species in an area.
Deforestation	Cutting down large areas of forest.
Pollution	Harmful substances released into the environment.
Indicator species	A species whose presence or absence shows how polluted a place is.
Greenhouse gas	A gas that traps heat in the atmosphere, such as carbon dioxide or methane.
Global warming	The rise in the Earth's average temperature.
Climate change	Long-term changes in weather patterns, including those caused by global warming.
Conservation	Protecting species and habitats.
Biomass	The mass of living material.
Pyramid of biomass	A diagram showing the biomass at each trophic level.
Food security	Everyone having enough safe, nutritious food.
Genetically modified crop	A crop whose genes have been changed, for example to resist pests.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What is biodiversity?
2. Why is high biodiversity good for an ecosystem?
3. Which of these is a result of deforestation?
4. Which of these gases is a greenhouse gas?
5. What is a likely effect of global warming?
6. What do lots of lichens growing on trees show?

Your notes

7. Why is a pyramid of biomass usually pyramid-shaped?
8. About what percentage of biomass passes on to the next trophic level?

Answers

1. The variety of all the different species in an area
2. It makes the ecosystem more stable
3. Less carbon dioxide is absorbed by trees
4. Methane
5. Rising sea levels
6. The air is clean
7. Biomass is lost at each trophic level
8. About 10%

What to do next

Practise 14 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

Your notes