

Patrizia Caruzzo

FLASH on English

for CONSTRUCTION



ESP
Series

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 1 MP3 audio files downloadable from www.elionline.com

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Ecology

Ecology: a general overview

1 Read the questionnaire and tick (✓) the best answers for you. Then read the text below and check your answers.

	Yes	No	Don't know
1 Ecology is a science.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 It deals with living organisms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 It also deals with the environment of living organisms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Climate, solar insolation and geology influence the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Ecology is also called 'ecological science'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Ecology makes use of other sciences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



You can say 'yes' to every question in the questionnaire above.

Ecology is the science that studies the number of living organisms in the environment and how they are distributed. It also studies how the quantity and distribution of organisms are influenced and in turn influence their interactions with the environment.

The environment of an organism includes factors such as climate, solar insolation, geology and the other organisms that share its habitat.

Ecology is also called 'ecological science' and it is multi-disciplinary: this means that it draws on other branches of science, such as biology, geology, geography, meteorology, chemistry and physics.

2 Read the text again and choose the correct option.

- | | | |
|--|---|--|
| <p>1 Ecology studies...</p> <p>A the quantity of organisms in the environment.</p> <p>B how organisms are distributed.</p> <p>C both of these.</p> | <p>2 Ecology is also called...</p> <p>A meteorology.</p> <p>B ecological science.</p> <p>C physics.</p> | <p>3 Ecology makes use of...</p> <p>A other sciences.</p> <p>B the environment.</p> <p>C solar insolation.</p> |
|--|---|--|

3 Put these words in the correct column.

minerals atoms living organisms cells rocks lands
history of the Earth chemical bonds rivers

Biology	Geography	Geology	Chemistry

Ecology and its sub-disciplines

4 Complete the interview with the expressions from the box. The listen and check.

at different levels the dynamics of population the sphere of water behavioural ecology
about ecology and its sub-disciplines the sphere of air you can also examine communities of species

Interviewer: Mr Hale, could you tell us something
(1) _____?

Mr Hale: Well, as you know ecology has a great number of sub-disciplines. Some are more complex than others. For example, physiological and
(2) _____ focuses on the adaptations of the individual to his environment; population ecology examines
(3) _____ of a single species; community ecology studies the interactions between species in an ecological community. Ecosystem and landscape ecology are even more complex.

Interviewer: Can ecology be studied
(4) _____?

Mr Hale: Yes, of course. If you study the population level, you focus on individuals of the same species, but
(5) _____, ecosystem or biosphere levels.

Interviewer: Can you explain how the outer layer of the planet Earth can be divided?

Mr Hale: Yes, there are basically three compartments: the hydrosphere is (6) _____, the lithosphere is the sphere of soil and rocks and the atmosphere is (7) _____.

Interviewer: And what about the biosphere?

Mr Hale: Well, that's the sphere of life. In short, it is the part of our planet occupied by life.



5 Read the interview again and decide if the statements below are true (T) or false (F).

- 1 The sub-disciplines of ecology are all very complex. _____
- 2 Population ecology examines the population dynamics of a single species. _____
- 3 Ecosystem and landscape ecology are more complex than other forms of ecology. _____
- 4 If you study the population level, you concentrate on communities of species. _____
- 5 The outer layer of the planet Earth can be divided into four compartments. _____
- 6 The hydrosphere is the sphere of water. _____
- 7 The biosphere is the sphere of soil and rocks. _____

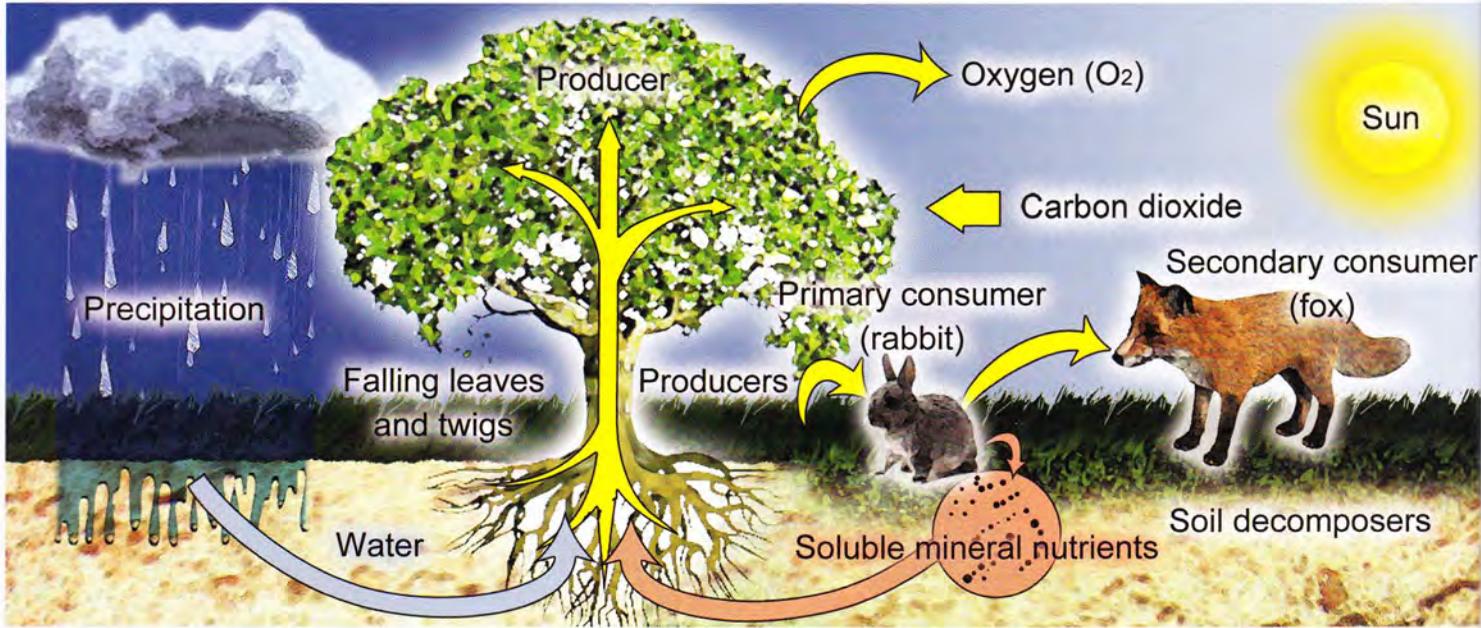
6 Now answer the questions.

- 1 What are the sub-divisions of ecology?
- 2 What does community ecology study?
- 3 What do you focus on if you study the population level?
- 4 How can the outer layer of the planet Earth be divided?
- 5 What is the lithosphere?
- 6 What is the atmosphere?
- 7 What is the biosphere?

The ecosystem and food chains

7 Look at the picture and answer these questions.

- 1 Do you know what a food chain is?
- 2 Do you think that you are part of it?



8 Read the text about food chains and check your answers.

Every living organism has a constant relationship with every other element in the environment. An **ecosystem** is a situation where there is interaction between organisms and their environment. An ecosystem can vary in size: it can be a pond, a field, a piece of dead wood or a rainforest.

In an ecosystem, species are connected by food chains. A **food chain** begins when energy from the sun is captured by plants and trees (primary producers) through photosynthesis. Then primary consumers (herbivores) eat plants and later secondary and tertiary consumers (carnivores) eat primary consumers. The energy they create by eating and digesting is lost as waste heat. When animals and plants die, very small bacteria break down their tissue (decomposition) and the chemicals that make up those living organisms are released into the soil and act as fertilisers to help green plants to grow. In this way the food chain starts all over again.

9 Read the text again. Match the two parts of the sentences.

- | | |
|--|--|
| 1 A food chain begins | a <input type="checkbox"/> release chemicals into the soil during decomposition. |
| 2 Carnivores are | b <input type="checkbox"/> help green plants to grow. |
| 3 Herbivores are | c <input type="checkbox"/> primary consumers. |
| 4 When they die, living organisms | d <input type="checkbox"/> secondary and tertiary consumers. |
| 5 The chemicals released into the soil | e <input type="checkbox"/> when plants and trees capture energy from the sun. |

10 Look at the picture of a food chain again and use your own words to explain the process.

In this ecosystem there is interaction between...

Human ecology

11 Read the text about human ecology and the ecosystem and match each paragraph with a heading.

- A Human beings and the ecosystem
- B What human ecology is about
- C Are human beings different?

1 _____

Ecology often studies ecosystems without humans in them. In fact humans consider themselves as a separate, unnatural component different from other species of animal in many ways. But we are the species that has the greatest impact on the changes in ecology today.

2 _____

The main difference between humans and other species is that we are conscious beings and we express our ambitions and aspirations through our relationship with the natural world. Our knowledge, principles, values and goals affect our behaviour. And we are also influenced by the society, culture, communities. As a consequence, cooperation and conflict between individuals and groups have an impact on our biosphere.

3 _____

Human ecology deals both with the influence of human beings on their environment and with the effect of the environment on human behaviour. It also investigates their strategies to adapt to different situations as they understand their impact on each other better.



12 Read the text again and answer the following questions.

- 1 Why do humans sometimes consider themselves different from other species?
- 2 What are the main differences between human beings and other living beings?
- 3 What are we influenced by? What are the consequences?
- 4 What does human ecology deal with and investigate?

13 What have you learnt about ecology? Write a short report using the information from the texts in this unit. Follow these guidelines:

- What is ecology? What does it study?
- How is it a multidisciplinary science? What are its sub-disciplines?
- How do food chains work?
- What is human ecology?

MY GLOSSARY

to act as /tu: ækt əz/ _____
 to affect /tu: ə'fekt/ _____
 aim /eɪm/ _____
 behaviour /bɪ'heɪvjə(r)/ _____
 to break down /tə breɪk daʊn/ _____
 compartment /kəm'pɑ:tmənt/ _____
 to deal with /tə diəl wɪð/ _____
 to draw on /tə drɔ: ɒn/ _____
 earth /ɜ:θ/ _____
 environment /ɪn'vaɪərənmənt/ _____
 food chain /fu:d tʃeɪn/ _____

goal /gəʊl/ _____
 to make up /tu: meɪk ʌp/ _____
 outer layer /'aʊtə(r) 'leɪə(r)/ _____
 to result in /tə rɪ'zʌlt ɪn/ _____
 relationship /rɪ'leɪʃnʃɪp/ _____
 to share /tə ʃeə/ _____
 soil /sɔɪl/ _____
 species /spi:ʃi:z/ _____
 tissue /tɪʃu:/ _____
 value /'vælju:/ _____