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БИОРАЗНООБРАЗИЕ

Методические указания

по английскому языку

для студентов 2 курса Лесохозяйственного факультета

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Введение

Предлагаемые методические указания адресуются студентам 2 курса лесохозяйственного факультета и имеют профессионально-ориентированную направленность. Они составлены согласно карте специальности факультета, что в языковом плане нашло воплощение в 14 разделах. Каждый раздел представлен рубриками:

- подготовка к коммуникации,
- упражнение по фонетике,
- текст для изучающего или поискового чтения,
- лексические и грамматические упражнения к тексту,
- информационные упражнения к тексту (под рубрикой “Test yourself”),
- материалы по развитию компетенций в говорении,
- материалы по развитию компетенций в письменной речи.

Такая структура отдельного раздела находится в полном соответствии с требованиями, предъявляемыми к Интернет-тестированию по окончании изучения базового курса английского языка.

К методическим указаниям отдельной брошюрой выпускается англо-русский словарь, содержащий материал по каждому из 14 разделов, что делает методические указания более ценными.

Unit 1 PARTS OF A TREE

Before you read

1. Discuss the questions with your partner.

What parts of a tree do you know?

How do trees feed?

2. Pronunciation guide

margin [ˈma: dʒin]

armor [ˈa:mə]

resin [ˈrezin]

quantity [ˈkwɒntiti]

anchor [ˈæŋkə]

phloem [ˈfləʊem]

cambium [ˈkæmbiəm]

tissue [ˈtisju:]

Reading

3. Read the text and find information about the basic parts of a tree.

Parts of a tree

Trees come in various shapes and sizes but all have the same basic structure. They have a central column called the trunk. The bark-covered trunk supports a framework of branches and twigs. This framework is called the crown. Branches in turn bear an outside covering layer of leaves.

A tree is anchored in the ground using a network of roots, which spread and grow thicker in proportion to the growth of the tree above the ground. In a mature tree, most of the cells of the trunk, roots, and branches are dead or inactive. All growth of new tissue takes place at only a few points on the tree, by the division of specialized cells. These actively growing areas are located at the tips of branches and roots and in a thin layer just inside the bark. Lastly, trees have reproductive structures; either flowers or cones.

Leaves, bark, twigs and fruit can make quick work of tree identification. Shape, although not a tree "part", plays a key role in tree species characteristics.

Leaves are food factories of the tree. Powered by sunlight, the green substance in leaves, called chlorophyll, uses carbon dioxide and water to produce life-sustaining carbohydrates. The entire process is called photosynthesis. Leaves are also responsible for respiration and transpiration.

A tree's leaf is one major marker that helps in keying out and identifying any species of tree. Most trees can be identified by the leaf alone. Leaves come in many shapes and sizes. The "star" shape of sweetgum is totally different from the heart-shaped leaf of an eastern redbud. Note that leaves can be described by observing their base, their margin and their tip or apex. Each characteristic has a name and is used a part of the identification process. A leaf can either be simple (no extra leaflets) or compound (three or more leaflets). This leaf structure is always a help with tree identification because of each tree species' leaf structure.

Bark is a tree's natural armor and protects from external threats. Bark also has several physical functions; one is ridding the tree of wastes by absorbing and locking them into its dead cells and resins. Also, the bark's phloem transports large quantities of nutrients throughout the tree. Xylem carries water and minerals from the roots to the leaves. Phloem carries manufactured food (sugars) from the leaves to the roots. The cambium (a watery layer only a few cells thick) is the generative layer, giving rise to both xylem and phloem.

Vocabulary

4. Check if you know the key words.

Branch; cell; cone; crown; leaflet; margin; nutrient; resin; root; stem; tissue; twig

5. Read the words in the box and complete the sentences from the box.

Flowers, marker, leaves, bark, phloem, roots, compound, nutrients, ~~trunk~~

- 1) Trees have a central column called the trunk.
- 2) A tree is anchored in the ground using a network of...
- 3) Trees have reproductive structures: ... or cones.
- 4) A tree's leaf is one major ... that helps in identifying any species of tree.
- 5) A leaf can be simple or..
- 6) ... protects from external threats.
- 7) The bark's phloem transports... throughout the tree.
- 8) ... carries manufactured food from the leaves to the roots.
- 9) ... responsible for respiration and transpiration.

Grammar: Word Formation (Словообразование)

6. Name the part of speech.

various (adj)	lastly	flower	identify (v)
division (n)	central	growth	substance
basic	reproductive	dentification	external
actively (adv)	layer	inactive	responsible
structure	quantity	characteristics	generative

7. Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line.

- | | |
|--|------------------------|
| 1) Trees have the same <u>basic</u> structure. | BASE
CENTRE
GROW |
| 2) They have a ... column called the trunk. | |
| 3) All ... of new tissue takes place of only a few points on the tree. | |

- | | |
|---|-------------------------------|
| 4) These ... growing areas are located at the tips of branches. | ACTIVE
RESPONS
IDENTIFY |
| 5) Leaves are ... for respiration and transpiration. | |
| 6) Leaf structure helps with tree ... | |

Test yourself

8. Read the text again and say if the following sentences are true (T) or false (F) or they don't have the information.

- 1) Plants can be of various shapes and sizes.
- 2) The central column of the tree is called the branch.
- 3) In a mature tree most of the cells of the trunk are active.
- 4) Small particles are found in the leaf cells called chloroplasts.
- 5) Roots are responsible for respiration..
- 6) Green substance in leaves is called photosynthesis.
- 7) The bark phloem transports nutrients throughout the tree.

9. Write an appropriate noun for each of these definitions.

- a) The part of a tree which is under the surface ...
- b) The small green things on plants and trees...
- c) A part of a tree which has leaves on it...
- d) The tall, round, central part of a tree...
- e) The hard outside surface of a tree...

Speaking: Parts of a Tree

10. Describe using the pictures: crown, trunk, leaves, roots, bark.

Writing: Business Letters

11. Match the numbers (1-6) with the types of letters a-f.

(1) New Jersey Power Company
5695 South 23rd Road
Ridgefield, 2) NJ 08976

(3) Mr. Frederick Morris
(4) Director of Market
Smith Printing Company
(5) 673 Sixth Avenue
Milwaukee, (6) WI 8905

- a) the addressee's position
- b) the street name in the mailing address
- c) The ZIP Code in the return address
- d) the addressee's name
- e) the sender
- f) the ZIP Code in the mailing address

Unit 2 HOW TREES WORK FOR US - TAKE A LOOK!

Before you read

1. Discuss the questions with your partner.

- What do trees provide people with?
- What careers are connected with forest?

2. Pronunciation guide

raccoon - [rə'ku:n]

candy wrapper - ['kændi] ['ræpə]

cereal - ['siəriəl]

crayon - ['kreiɔn]

observe - [əb'zə:v]

variety - [və'raɪəti]

obvious - ['ɒbvɪəs]

hazelnut - 'heɪzlnʌt]

walnut - ['wɔ:lnʌt]

Reading

3. Read the text and find examples illustrating the importance of the topic.

How Trees Work for Us – Take a Look!

Many animals, such as birds, squirrels, raccoons and a variety of insects, spend much of their lives in trees. These animals are born in trees, live in trees, raise their young in trees and seldom come down to the ground. Trees provide them shelter from the weather and from enemies, food in the form of fruits, nuts, leaves, bark and roots. Even dead trees provide shelter and food for many insects.

However, wood is not the only product that comes from trees. Practically every part of a tree is used to make paper for magazines, newspapers, candy wrappers, and cereal boxes. Sap, the liquid that flows in trees, is used to make maple syrup, chewing gum, crayons, paint, and soap. Dyes and medicines are made from the bark, while leaves and roots provide oils for cosmetics and medicines.

Not to be forgotten are the jobs that trees provide for people – loggers and tree planters, for example. All the products made from trees create many more jobs. Did you ever wonder who makes pencils or chewing gum? Many types of trees provide food for people too. Apples, pears, peaches and cherries come from trees, as do nuts like walnuts and hazelnuts. Trees make our world a nicer place. Image your neighborhood without trees. Parks and campgrounds would certainly not be the same without trees. We all love the sight of trees.

The quality of our environment – the air, soil and water – depends on the roles trees play. Trees help create rain as they expel moisture into the atmosphere: their roots draw it from the soil and their leaves return it to the air. Trees clean the air we breathe by taking in carbon dioxide through the leaves and then giving off oxygen we need to breathe. If trees didn't breathe, neither could we. Roots help hold soil in place to prevent erosion which not only saves soil, but also keeps our waterways cleaner. You may have observed that water is usually cleaner where an abundance of trees is. Trees provide shade in summer to help cool our homes, in winter, they block wind to help warm our homes.

Vocabulary

4. Check if you know the key words.

Depend; hazelnut; insect; observe; obvious; quality; raccoon; shelter; squirrel; variety; walnut.

Grammar: Pronouns (Личные, указательные, притяжательные, неопределенные, возвратные местоимения)

5. Choose the correct form.

- 1) Many animals and insects spend much of their/they lives in trees.
- 2) These/this animals are born and live in trees.
- 3) Trees provide them/they shelter from enemies.
- 4) We probably can't think of anyone/someone who lives in a tree.
- 5) Many of ours/our live in wooden houses.
- 6) Furniture inside our/ours homes is made from wood.
- 7) Practically every part of a tree is used to make any/some useful product.

6. Read the sentences below. Use the pronouns given in capitals at the end of each line to form a pronoun that fits the space in the same line.

- | | |
|--|------|
| 1) Many animals raise <u>their</u> young in trees. | THEY |
| 2) Trees make ... world a nicer place. | WE |
| 3) Image ... neighborhood without trees. | YOU |
| 4) Trees help create rain: ...roots draw it from the soil. | THEY |
| 5) Trees provide shade in the summer to help cool ... homes. | WE |

Test yourself

7. Read the text again and complete 1-8 with the suitable ending from a-i.

- | | |
|--|--|
| 1) Many animals and insects spend... | a) when there is an abundance of trees. |
| 2) Trees provide food... | b) is used to make some useful product. |
| 3) Furniture and many other obvious | c) much of their lives in trees. items inside our homes... |
| 4) Practically every part of a tree... | d) in the form of nuts, fruits, leaves, bark and roots. |
| 5) Trees make our world... | e) the air we breathe. |
| 6) Trees clean... | t) hold soil in place. |
| 7) If trees didn't breathe, | g) neither could we. |
| 8) Roots help... | h) are also made from wood. |
| 9) Water is usually cleaner... | i) a nicer place |

Speaking: How Trees Work for Us

8. Work in pairs Discuss the role of trees in our life. Use the words from ex. 2, 4, 5 to help you.

Writing: Informal Letters

9. Is it a formal or an informal letter? Complete the gaps with the words from the box.

Your(2), yours, myself, me, this (2), it, she, yourself

Dear Kyra,

Thank you for 1) your letter. It was interesting to hear about your life. Now I want to tell you something about 2) ... Well, I am still at university. I have a brother. He is older than 3) ... We don't get on very well. My dad is a teacher but my mum doesn't work 4) ... is a housewife. My family and I live in a flat in a small town. That's normal here - people don't usually live in houses in my country. What about in. 5) ... ? The town isn't very pretty but we live close to the sea and to mountains. That means we can go to the beach in summer and skiing in winter. At university I'm studying biology. I think 6) ... subject is more difficult than studying literature and the arts. I want to be a biologist. What about 7) ... plans? Anyway 8) ... is the first time I've written a letter in English so I hope you can understand 9) Take care of ... 10) ... and write soon.

David

Unit 3 DEFINING SPECIES, POPULATIONS HABITAT

Before you read

1. Discuss the questions with your partner.

- What is the difference between the African and the Asian elephant?
- What is a habitat?

2. Pronunciation guide

acorn ['eɪkɔːn]

distinguishable [dɪ'stɪŋɡwɪʃəbl]

ensure [ɪn'ʃʊə]

hybrid ['haɪbrɪd]

obscure [əb'skjʊə]

scientific [,saɪən'tɪfɪk]

various['veəriəs]

giraffe [dʒə'reɪf]

Reading

3. Read the text and explain what 'species, population, habitat' mean.

Defining species, populations, habitat

Various observable differences allow organisms to be put into named categories, such as elephant, giraffe or oak tree. On closer inspection these categories can be seen to be divisible into a series of smaller categories; for example, there are at least two types of elephant (the African and the Asian

elephant) distinguishable by their body size (the African is larger) and various other characteristics, such as their teeth and the size of their ears. African elephants can be further divided into three separate types, based on size and habitat preferences: the forest or round-eared; the bush or large-eared and the pygmy.

That two individuals possess different characteristics does not necessarily mean that they belong to different species. A species is defined strictly as comprising all organisms that are able to interbreed and produce viable (healthy and fertile) offspring. Two closely related species may be able to produce hybrids.

It is conventional to give species a latinized specific name. The name 'oak' is a common name, derived from the Anglo-Saxon 'ac' meaning fruit or acorn. The common name, the pedunculate oak, is in fact quite a good one, because it identifies an important characteristic of this species. Unfortunately, it has a second common name – common oak!

Conversely, one common name may correspond to several species. Therefore, to avoid confusion and ensure that each species has one name that is used internationally, the common or pedunculate oak also has the scientific name *Quercus robur*. Incidentally, the origins of the two parts of this scientific name are quite obscure. *Quercus* is an old Latin name that is used for all oak species. It is possible with the Greek for pig, *choiros*, because pigs are fond of acorns! The species name *robur* apparently means 'strength' or possibly 'hardwood' or 'elite', all suitable names for the oak.

A population is a group of individuals of the same species, all of which have the potential to interbreed and that live close to each other. Individuals from different populations of the same species are less likely to interbreed.

A habitat is defined as the type of environment where individuals of a species live. These habitats may occur in saltwater, freshwater or on land (terrestrial). Each habitat has its own environmental characteristics – high or low temperatures, bright light or shade, plentiful rain or draught. And species that have found a place in a habitat have inherited their own methods for surviving these conditions.

Vocabulary

4. Check if you know the key words.

Common; define; ensure; habitat; interbreed; offspring; population; possess; scientific; species; various

Grammar: Comparatives & Superlatives (Степени сравнения прилагательных)

5. Complete the sentences with the comparative or superlative degree of the adjective given in brackets.

- 1) On closer inspection the categories can be divided into smaller categories. (small)

- 2) There are at ... two types of elephant. (little)
- 3) The African elephant is ... than the Asian elephant. (large)
- 4) African elephants can be ... divided into three separate types. (far)
- 5) Individuals from different populations of the same species are ... likely to interbreed. (little)
- 6) The common names are... used than the scientific names. (often)
- 7) Individuals from a tree species can provide the habitat for one or... species of insect. (many)
- 8) Orchid species are often described as the ...and unusual plants. (beautiful)
- 9) The... value of biodiversity is yet unknown. (great)

Test yourself

6. Read the text again and choose the correct answer.

- 1) There are ... types of elephant.
a) three; b) two; c) four.
- 2) The African elephant is ... than the Asian elephant.
a) larger; b) smaller; c) the same.
- 3) Two closely related species may be able to produce ...
a) hybrids; b) population; c) habitat.
- 4) Ac means ...
a) acorn; b) cone; c) leaf.
- 5) A ...is a group of individuals of the same species.
a) habitat; b) population; c) subspecies.

7. Read the text again and find the terms to the definitions below.

- 1) The nut of an oak tree.
- 2) A plant or animal group whose members all have similar general features.
- 3) The type of place that a plant normally grows in.
- 4) A group of individuals of the same species.
- 5) A member of a population.

Speaking: Defining species, populations, habitat

8. Think of a suitable Russian equivalent for the following idioms. Use them in sentences or stories of your own.

- As smart as a fox.
- Every dog has its day.
- As happy as a clam.
- Crocodile tears.
- Let the cat out of the bag.
- Curiosity killed the cat.
- Like a fish out of water.

Writing: Business Letters

9. Put the parts of the formal letter in correct order.

1) We thank you for your letter dated the 29th September and are pleased to send you our latest catalogue and the current price list. We shall send you a special offer as soon as we have your exact requirements.

2) George Finchley & Sons, 68 Bond Street, London
4 October 2010

3) Yours faithfully,

4) Dear Sirs,

Sally Blinton
Sales Manager

5) Messrs Dickson & King, 9 Newgate Street, London

Unit 4 PINE

Before you read

1. Discuss the questions with your partner.

- What is the most popular tree in Russia?
- How tall is a Scots Pine?

2. Pronunciation guide

Europe [ˈjʊərəp]

Asia [ˈeɪʃə]

Siberia [saɪˈbəriə]

Occur [əˈkəː]

Diameter [daɪˈæmɪtə]

Mature [məˈtʃʊə]

Clearance [ˈkliərəns]

Reading

3. Read the text. Find the sentences with the words from ex. 2. Translate them into Russian.

Pine

The Scots Pine (*Pinus sylvestris*; family *Pinaceae*) is a species of pine native to Europe and Asia, ranging from Ireland, Great Britain and Portugal in the west, to eastern Siberia, south to the Caucasus Mountains, and as far north as well inside the Arctic Circle in Scandinavia. In the North of its range, it occurs from sea level to 1,000m, while in the south of its range, it is a high altitude

mountain tree, growing at 1,200- 2,600 m altitude. It is readily identified by its combination of fairly short, blue- green leaves and orange – red bark.

It is an evergreen coniferous tree growing up to 25 m in height and 1m trunk diameter when mature, exceptionally to 35-45 m tall and 1.7 m trunk diameter.

The bark is thick, scaly dark grey-brown on the lower trunk, and thin flaky and orange on the upper trunk and branches. The pine grows most rapidly in height during the period from 20 to 50 years of age. The lifespan is normally 150- 300 years, with the oldest recorded specimens (in Sweden) just over 700 years.

The shoots are light brown, with a spirally arranged scale- like pattern. On mature trees the leaves (‘needles’) are glaucous blue-green, often darker green to dark yellow- green in winter, 2.5-5 cm long and 1-2 mm broad.

The pine has a tap-root system that extends far down into the ground and makes the tree resistant to wind and fire. The stands are not very dense, and in open stands the branches are heavier and more numerous than in denser stands. The pine growing near the coast and in the higher altitudes is lower and more branched.

Scots Pine is the national tree of Scotland, and it formed much of the Caledonian Forest which once covered much of the Scottish Highlands. Overcutting for timber demand, fire, overgrazing by sheep and deer, and even deliberate clearance to deter wolves have all been factors in the decline of this once great pine and birch forest.

Scots Pine is an important tree in forestry. Pine is essentially a construction material of good quality. The wood is used for pulp and sawn timber products. A seedling stand can be created by planting, sowing or natural regeneration.

It has been widely used in the United States for the Christmas tree trade.

Vocabulary

4. Check if you know the key words.

Clearance; coniferous; deliberate; diameter; flaky; height; identify; lifespan; mature; occur; pine; scaly; spirally

5. Match the words with their definitions.

- | | |
|-----------------|--|
| 1) native(n) | a) someone who was born in a particular place |
| 2) fairly(adv) | b) scaly bark is so dry that small pieces of it fall off |
| 3) scaly(adj) | c) the length of time |
| 4) flaky(adj) | d) removal of something |
| 5) lifespan(n) | e) full growth or completed development |
| 6) maturity(n) | f) to some degree, but not completely |
| 7) clearance(n) | g) breaking easily into small flat pieces |
| 8) saw(v) | h) to cut something with a saw |
| 9) height(n) | i) how high something is |
| 10) dense(adj) | j) with a lot of trees, plants growing close together |

Grammar: Articles (Артикль)

6. Underline the correct variant.

- a) The Scots Pine is a/ the species of pine.
- b) Scots Pine grows in the/ - Europe and the/- Asia, for example in the/- Ireland, the/-Great Britain and the/- Portugal.
- c) We can find Scots Pine in the/- Siberia, south to the/ - Caucasus Mountains, and inside the/- Arctic Circle in the/- Scandinavia.
- d) It is a/the high altitude mountain tree.
- e) It is an/a evergreen coniferous tree.
- f) The/- lifespan is normally 150-300 years, with the/- oldest recorded specimens just over 700 years.
- g) Scots Pine formed much of the/- Caledonian Forest which once covered much of the/- Scottish Highlands.
- h) It has been widely used in the/- United States.

Test yourself

7. Answer the questions.

- 1) Where does Scots Pine grow?
- 2) When do pines grow in height most rapidly?
- 3) What are the shoots and the 'leaves'?
- 4) What is the root system of the pine?
- 5) Why is Scots Pine an important tree in forestry?

8. Read the text again and say if the following sentences are true (T) or false (F) or they don't have that information.

- 1) The Scots Pine grows best on dry, sandy soils.
- 2) It is readily identified by its combination of fairly short, blue- green leaves and orange – red bark.
- 3) It is an evergreen coniferous tree growing up to 55 m height.
- 4) The lifespan is normally 350- 500 years.
- 5) At the age of 120 to 150 years the growth in height stops.
- 6) The pine growing near the coast and in the higher altitudes is lower and more branched.
- 7) Scots Pine is the national tree of Scotland.
- 8) Pine is a construction material of low quality.

Speaking: Pine

9. Describe the pine: habitat; bark; leaves; shoots; a root system; use in forestry

Writing: Articles.

1. Correct the mistakes in the sentences by adding or removing a/an/the.

- 1) Could you get a loaf of bread from the baker's?
- 2) Milk is good for children.
- 3) We travelled to the Hungary by a car.

- 4) Have you got a brother or the sister?
- 5) War between two countries was longest in history.
- 6) Who was first astronaut who walked on Moon?
- 7) Nile is longest river in world.

Unit 5 FORESTS AFFECT THE SOIL

Before you read

1. Discuss the questions with your partner.

- How do forests affect the soil?
- Is there a humus layer in the forest?

2. Pronunciation Guide

horizont[hə'reɪzn]

decay[di'keɪ]

micro['maɪkrəʊ]

honeycomb['hʌni,kəʊm]

humus['hju:məs]

rainfall['rein,fɔ:l]

excessive[ɪk'sesɪv]

Reading

3. Read the text and say if you agree with the author.

Forests Affect the Soil

Forests affect the soil most of all through litter. Litter breaks the impact of rain, retards runoff, and filters rainwater into the soil without disturbing soil structure. In dry weather, litter reduces surface evaporation. When litter decays, it provides mineral elements for tree growth. It shelters microbiotic life, which breaks down many kinds of complex substances into simple forms, and it shelters worms that help to keep the soil granular and mellow. In extremely cold weather, the forest litter acts as a blanket through which the heat from the soil cannot escape rapidly. Litter therefore reduces the depth of freezing of forest soils. When a forest soil does freeze, it tends to honeycomb and it becomes therefore permeable to sudden rains that may come in late spring.

Litter is the source of the human horizon of a forest soil and the humus layer is the part of a forest soil that distinguishes it from an agricultural soil. Cultivated soils contain humus, too, but it chiefly comes from a humus layer previously formed under grass or forest. The humus of a farmed soil is maintained only by extraordinary methods of crop rotation and fertilizing, whereas the humus layer of a forested soil is maintained by the yearly leaf fall. When bare fields are planted to trees the humus layer increases in thickness. This increase is a good index of site recovery.

Forests help prevent peak floods through their effect on the soil. A porous, permeable soil absorbs rainfall faster than a cultivated soil. A soil covered with

litter, brush, and tree stems retards runoff of much surface water that may not be absorbed quickly. Experiments show that from a 40- to 50- inch rainfall in Ohio, forests store about 6 inches more water than fields in cultivated row crops.

The forest intercepts much of the force of wind-driven rain, and thus prevents beating of the protective litter and soil. It protects the soil from excessive heat, light, and drying winds. Its roots hold the soil in place.

Vocabulary

4. Check if you know the key words.

Affect; decay; disturb; evaporation; excessive; horizon; humus; layer; litter; permeable; protect; rainfall.

5. Complete the following sentences with the words from the box.

blanket, humus, forests, soil, evaporation, litter , absorbs.
--

- 1) Forests affect the soil trough litter.
- 2) In dry weather litter reduces surface
- 3) In extremely cold weather, the forest litter acts as
- 4) The ... layer is the part of a forest soil.
- 5) ... help prevent peak floods.
- 6) A porous permeable soil ... rain fall faster than a cultivated soil.
- 7) The forest protects ... from excessive heat.

Grammar: Prepositions (Предлоги)

6. Complete the sentences with the correct preposition (*into, by, without, from, about, with*).

- a) Humus comes from a humus layer.
- b) The humus of a farmed soil is maintained ... extraordinary methods of crop rotation.
- c) The humus layer of a forested soil is maintained ... yearly leaf fall.
- d) A soil covered ... litter retards runoff.
- e) Forests store ... 6 inches more water than fields.
- f) Litter filters rain water ... the soil ... disturbing soil structure.

7. Underline the correct preposition.

- 1) Forests affect the soil through/from litter.
- 2) At/In dry weather litter reduces surface evaporation.
- 3) When litter decays, it provides mineral elements for/from thee growth.
- 4) Litter breaks down/up complex substances into/in simple forms.
- 5) Litter acts as a blanket through/from which the heat from/for the soil cannot escape rapidly.
- 6) In/At late spring may come sudden rains.
- 7) Forests help to prevent peak floods through/from their effect on/at the soil.

Test yourself

8. Complete the sentences 1-6 with the endings a-f

- 1) Litter breaks...*b*.
- 2) Litter shelters worms that...
- 3) When a forest soil freezes, it...
- 4) The humus of a farmed soil is...
- 5) The humus layer of a forested soil is....
- 6) Forest prevents...
 - a) beating of the protective litter and soil.
 - b) the impact of rain.
 - c) help to keep the soil granular and mellow.
 - d) maintained by the yearly leaf fall.
 - e) maintained by extraordinary methods of crop rotation and fertilizing.
 - f) tends to honeycomb.

Speaking: Forests affect the soil

9. Give a summary of the text using the key words.

Writing: Business Letters

10. Is it a letter of application or a job advertisement?

The position offers a competitive salary and it includes some health benefits.

While our ideal candidate will possess or be working towards a Forestry Diploma or Degree, we encourage applications from those that have the experience required for this position.

Unit 6 AIR POLLUTION

Before you read

1. Discuss these questions with your partner.

- Which gases break down the ozone layer?
- How are they produced?

2. Pronunciation Guide

Havoc ['hævək]

Aerosol ['eərə, sɔl]

Ozone ['əʊ, zəʊn]

Monoxide [mə'nɒk, said]

Fuel [fju:əl]

Sulfur ['sʌlfə]

Impurity [im'pjʊərəti]

Statue ['stætʃ u:]

Enough [i'nʌf]

Blood [blʌd]

Reading

3. Read the text and say which gases cause acid rain.

Air Pollution

The polluting gases released through human activity can havoc in the air. CFCs (chlorofluorocarbons) used to be used in aerosols, air-conditioning units, and polystyrene foam. They break down ozone in the upper atmosphere and allow more harmful UV rays to reach the Earth's surface. Being exposed to more UV rays will increase the risk of skin cancer (although this can be reduced with sun cream).

Australia has high level of skin cancer because it is under an ozone hole. The increase in UV rays might also kill plankton in the sea – this could have a massive effect on the sea ecosystem because plankton are at the bottom of the food chain. Scientists predict that fish levels will drop (meaning among other things, less food for us to eat).

When fossil fuels are burnt without enough air supply they produce the gas carbon monoxide (CO). It's a poisonous gas. If it combines with red blood cells, it prevents them from carrying oxygen. Carbon monoxide's mostly released in car emissions. Most modern cars are fitted with catalytic converters that oxidize the carbon monoxide (to make carbon dioxide), decreasing the amount that's released into the atmosphere.

Acid Rain is Caused by Sulfur Dioxide and Oxides of Nitrogen. As well as releasing CO₂, burning fossil fuels releases other harmful gases. These include sulfur dioxide and various nitrogen oxides. The sulfur dioxide (SO₂) comes from sulfur impurities in the fossil fuels. The nitrogen oxides in the air, caused by the heat of the burning. When these gases mix with the rain clouds they form dilute sulfuric acid and dilute nitric acid. This then falls as acid rain. Internal combustion engines in cars and power stations are the main causes of acid rain.

Acid rain can cause a lake to become more acidic. This has a severe effect on the lake's ecosystem. Many organisms are sensitive to changes in pH and can't survive in more acidic conditions. Many plants and animals die. Acid rain can kill trees and damages limestone buildings and statues.

Vocabulary

4. Check if you know the key words.

Aerosol; allow; carbon monoxide; fuel; hydrogen; impurity; increase; nitrogen; oxygen; ozone; pollution; predict; sulfur.

5. Complete the sentences with the words from the box.

break down , kill, releases, harmful, power, fitted, burnt

- 1) Chlorofluorocarbons break down ozone in the upper atmosphere.
- 2) This allows more ... UV rays to reach the Earth's surface.
- 3) The increase in UV rays might also... plankton in the sea.
- 4) When fossil fuels are ... without enough air supply they produce the gas carbon monoxide (CO).
- 5) Most modern cars are ... with catalytic converters.

- 6) Burning fossil fuels ... other harmful gases.
- 7) Internal combustion engines in cars and ... stations are the main causes of acid rain.

Grammar: Conjunctions (Союзы)

6. Underline the correct variant.

- 1) Australia has high levels of skin cancer because/because of it is under an ozone hole.
- 2) Scientists predict *that/then* fish levels will drop.
- 3) *When/Where* fossil fuels are burnt without enough air supply they produce the gas carbon monoxide (CO).
- 4) *If/Since* it combines with red blood cells, it prevents them from carrying oxygen.
- 5) Most modern cars are fitted with catalytic converters *that/who* oxidize the carbon monoxide.
- 6) *As well as/as well* releasing CO₂, burning fossil fuels releases other harmful gases.

Test yourself

7. Read the text again and choose the correct answer.

- 1) ... are used in aerosols, air-conditioning units, and polystyrene foam.
a) carbon monoxide; b) chlorofluorocarbons; c) sulfur dioxide.
- 2) The increase in UV rays might also kill ... in the sea.
a) plankton; b) fish; c) animals.
- 3) If ... combines with red blood cells, it prevents them from carrying oxygen.
a) carbon monoxide; b) carbon dioxide; c) sulfur dioxide.
- 4) Carbon monoxide's mostly ... in car emissions.
a) released; b) decreased; c) included.
- 5) Internal combustion engines in cars and power stations are the main ... of acid rain.
a) gases; b) causes; c) conditions.
- 6) Many organisms are sensitive to changes in pH and can't ... in more acidic conditions.
a) increase; b) survive; c) decrease.

Speaking: Air Pollution

8. What damage can be caused by acid rain?

Writing: Business Letters

9. Is it a Curriculum Vitae (CV) or a Memo? Match the headings with the sections.

Interests

Work experience

Key skills

Personal profile

References

Personal Details

Education

- 1) Name Robert Brown
 Address 4 Ash Grove Road, Anytown, Ot2 7 IR
 Tel: 0666364582
 Email: robertb@mktg.ssu.co.uk
 Nationality British
 Date of birth 12/10/86
 Marital status Single
- 2) I am reliable, well organized, and used to working on my own initiative. I am comfortable working on my own or as part of a team.
- 3) Familiar with Microsoft Word and Excel
 Clean driving license
 Good problem- solver
 Self- motivated
 Fluent in German
- 4) 2009- Present Marketing Assistant, Success Solutions Unlimited, Manchester Duties include planning and implementing all advertising and promotion, responding to enquiries, monitoring student performance
- 2008-2009 Teacher of English, Churchill School of English, Munich, Germany
- 5) 2004- 2007 London University: BA in English Literature and Language
- 1997- 2004 Minster College Secondary School, Wells
 8 GCSEs, 3 A levels: English (A), German (B), Art(C)
- 6) Football, sailing, reading, landscape painting
- 7) Available on request

Unit 7 BIODIVERSITY

Before you read

1. Discuss the questions with your partner.

- What language does the word 'biodiversity' come from?
- How can you define an extinct species? Give examples.

2. Pronunciation guide

Poodle ['pu:dl]

Siamese ['saɪmi:z]

Beagle ['bi:gl]

Niche [ni: tʃ]

Rottweiler ['rɒt,wɑɪlə]

Fungi ['fʌŋgi:]

Unique [ju: 'nik]

Episode ['epɪsəʊd]

Reading

3. Read the text. What does 'biodiversity' mean?

Biodiversity

Biodiversity is a word that describes the variety of living things. 'Bio' (from a Greek word) refers to living and 'diversity' refers to differences and variety. Living things express their diversity in hundreds of different ways – both external and visible and internal and invisible.

There are 3 kinds of biodiversity.

- Variety of genes. Poodles, beagles and rottweilers are all dogs – but they're not the same because their genes are different. It's the difference in our genes that makes us all different.

- Variety among species. Scientists group living things into distinct kind of species. For example, dogs, dragonflies, and daisies are all different species.

- Variety of ecosystems. Coral reefs, wetlands, and tropical rainforests are all ecosystems. Each one is different, with its own unique species living in it. Genes, species, and ecosystems working together make up our planet's biodiversity.

There is genetic diversity within a species, which results in the differences between you and your brothers and sisters and cousins and grandparents even though we all members of the human race – the species *Homo Sapiens*. Genetic diversity is the reason why Siamese cats have different body shape and hair colouring from the black and white moggy next door.

There is evolutionary diversity, which has given rise to all the different species of animals and plants on this Earth and is genetic diversity on a wider scale. This is also known as species diversity.

Each species is adapted – and sometimes highly specialized – to survive in a particular environment or a range of environments. Only the human species, through cultural and racial diversity and technology, seems to have adapted itself to survive in almost every environment on the Earth.

Many of the world's different plants and animals are under severe threat of extinction. Many species have already been lost. A species is said to be extinct when it has not been seen for over 50 years. Dinosaurs became extinct 65 million years ago but, in the last 50 years, more animals and plants have become extinct, because of hunting and loss of habitat. Globally, many hundreds of species will face extinction in a very few years without intensive conservation, education and environmental management and policy – making.

Much of the Earth's great biodiversity is rapidly disappearing, even before we know what is missing. Species of plants, animals, fungi, and microscopic organisms such as bacteria are being lost at such alarming rates that biologists estimate that three species go extinct every hour. Scientists around the world are cataloging and studying global biodiversity in hope that they might better understand it or at least slow the rate of loss.

Vocabulary

4. Check if you know the key words.

Adapt; biodiversity; disappear; estimate; extinct; fungus; inherit; particular; racial; rainforest; threat.

5. Complete the sentences with the words from the box.

Different, kinds, survive, Earth's, extinction, variety , niche
--

- 1) Biodiversity is a word that describes the variety of living things.
- 2) There are 3 ... of biodiversity.
- 3) Variety of genes makes us all
- 4) Each species is adapted to
- 5) Ecologists call the role a species plays in its environment a
- 6) Many of the world's different plants and animals are under severe threat of
- 7) Much of the ... great biodiversity is rapidly disappearing.

Grammar: The Verb: The Present Simple Tense , The Present Continuous Tense (Глагол: Настоящее простое время, настоящее продолженное время)

6. Choose the correct verb in each sentence.

- 1) Living organisms express/are expressing their diversity in hundreds of different ways.
- 2) The difference in our genes makes/ is making us all different.
- 3) Scientists group/are grouping living things into distinct kind of species.
- 4) Much of the Earth's great biodiversity is rapidly disappearing/disappears.
- 5) Scientists around the world study/are studying global diversity in hope that they might better understand it.
- 6) Three species go/ are going extinct every hour.

Test yourself

7. Read the text again and choose the correct answer.

1. There are ... kinds of biodiversity.
a) 3; b) 2; c) 4.
2. Coral reefs, wetlands, and tropical rainforests are all.
a) Ecosystems; b) populations; c) habitats.
3. There is ... diversity within a species, which results in the differences between you and your brothers.
a) genetic; b) evolutionary; c) cultural.
4. Each species is ... to survive in a particular environment.
a) inherited; b) adapted; c) disappeared.
5. Dinosaurs became ... 65 million years ago.
a) extinct; b) external; c) internal.
6. Three species go extinct every
a) hour; b) minute; c) hour.

Speaking: Biodiversity

8. Give the author's definition of biodiversity. Mention the comparison of the author and your opinion on the reasons.

Writing: Present Simple, Present Continuous.

9. Make up questions to the underlined words.

- 1) There are 3 kinds of biodiversity.
- 2) Scientists group living things into distinct kind of species.
- 3) Evolutionary diversity has given rise to all the different species of animals and plants on this Earth.
- 4) The human species seems to have adapted itself to survive in almost every environment on the Earth.
- 5) Much of the Earth's great biodiversity is rapidly disappearing
- 6) A species is said to be extinct when it has not been seen for over 50 years.
- 7) Many hundreds of species will face extinction in a very few years.

Unit 8 HISTORY OF ENGLISH GARDEN

Before you read

1. Discuss the questions with your partner.

- When were the earliest cultivated English gardens planted?
- Do you know any garden styles?

2. Pronunciation guide

Conqueror ['kɒŋkərə]

Palace ['pæləs]

Monastery ['mɒnəstərɪ]

Medieval [medi'i:vəl]

Renaissance [rə'neɪsɪs]

Ax [æks]

Flora ['flɔ:rə]

Fauna ['fɔ:nə]

Saxon ['sæksn]

Punctuate ['pʌŋktʃueɪt]

Reading

3. Read the text and name the stages in the history of the English garden.

History of the English garden

Outstanding horticultural works of previous generations have always made way for the style of the next so finding unaltered examples of historical gardens in England is nearly impossible. But this is what makes gardens so wonderful and varied.

So where did it all begin? Did our earliest ancestors have gardens? We know very little about the gardens of Anglo-Saxon England. There are however, basic tools such as axes and sickles dating back to the Neolithic age (2,500 - 1,500 BC) -around the time Stonehenge was built.

The earliest cultivated English gardens that we know of were planted by the Roman conquerors of Britain in the 1st century AD. During the Roman Occupation, the Roman army introduced new flora and fauna to British shores and although England's cooler climate definitely required a flexible approach, the Romans created gardens and introduced plants that are still cultivated in English soil today. The best example is probably Fishbourne Roman Palace in Sussex.

Latin makes up many of gardening terms, for example *topiarius* means topiary. Indeed, it is highly probable that the Romans introduced topiary to England.

The monastic gardening tradition arrived on English soil with the Norman conquest of 1066. Monasteries had both kitchen gardens and herb gardens to provide the practicalities of food and medicine. The monastery cloister provided an open green space surrounded by covered walks, generally with a well, or fountain at the center.

The next stage of the English garden came after the Reformation. Many landowners enclosed common land to create parks for keeping deer or cattle. This 'natural' landscape gave way to formal gardens near the house, still sheltered from the outside world by hedges or walls.

The Tudors followed the Italian influence in creating gardens which mirrored the alignment of the house, creating the harmony of line and proportion that had been missing in the Medieval period.

The Victorian period also saw a profusion of public gardens and green spaces aimed at bringing culture to the masses. Some of the finest Victorian gardens are public parks, like People's Park Halifax.

Gardening has always been a matter of personal taste. Yet, throughout Britain there are gardens great and small, formal and informal, private and public, that illustrate the British passion for creating green, growing spaces of their own. All are different, and all like their owners and creators, have a distinct personality.

Vocabulary

4. Check if you know the key words.

Aim; castle; fauna; fence; flora; gardening; landowner; medieval; monastery; palace; Renaissance; Stonehenge.

Grammar : The Verb: Past Simple/ Present Perfect Simple
(Глагол: Простое прошедшее время, настоящее завершённое время)

5. Put the verbs in brackets into the present perfect.

- 1) Outstanding horticultural works of previous generations (make) always way for the style of the next.
- 2) No Tudor gardens (survive)... intact.
- 3) Gardening (be) always a matter of personal taste.

Test yourself

6. Read the text again and choose the correct answer.

- 1) Stonehenge was built in ...
a) 2,500 - 1,500 BC; b) 2,500-2,000 BC; c) 2,000-1,500 BC.
- 2) The earliest English gardens were planted by ...
a) Anglo-Saxons; b) Romans; c) Italians.
- 3) ... makes up many gardening terms.
a) French; b) Latin; c) Dutch.
- 4) The Tudors followed ... influence in creating gardens.
a) French; b) Italian; c) Roman.
- 5) Some of the finest Victoria garden are public parks, like...
a) Fishbourne Palace; b) People's Park; c) Hampton Court Palace.
- 6) Gardening has always been a matter of ... taste.
a) public; b) personal; c) historical.

7. Read the text again and complete the sentences below.

- 1) The earliest English gardens were planted by...
- 2) During the Roman Occupation, the Roman army introduced...
- 3) Latin makes up...
- 4) Monasteries had both..
- 5) The next stage of the English garden came...
- 6) the Victorian period...
- 7) Great and small, formal and informal gardens illustrate...

Speaking: Biodiversity

8. Compare the different stages in the history of the English garden. Give a few to illustrate each stage.

Writing: Business Letters

9. Is it a CV or a Memo? Complete it with the words from the box.

The Court Hotel, Peter, From, Subject

To _____ : Purchasing& Sales Supervisor

1) _____ : Manager

2) _____ : Court Hotel

I have recently heard that 3)_____ needs a large quantity of orange juice at once. We have a large supply of juice that we do not need. Please write to them and tell them that we would be happy to supply them if they can tell us how many bottles they need.

4)_____

Unit 9 THE TREE COMES OF AGE

Before you read

1. Discuss the questions with your partner.

- What processes are similar in plants and animals?
- Can you describe the process of photosynthesis?

2. Pronunciation guide

digestion[dai'dʒ estʃən]

carbon dioxide['ka:bən]

[dai'ɔksaid]

nutrition [nju: 'trɪʃən]

chlorophyll['klorəfil]

excess[ik'ses]

hemoglobin[,hi:mə'gləʊbin]

starch[stɑ:tʃ]

acid['æ sid]

Reading

3. Read the text and find which examples illustrate the importance of the topic.

The Tree Comes of Age

Our tree gradually becomes taller and broader, and in the course of time it reaches maturity. The complicated mechanism functions with the precision of a machine, and its many vital processes are well coordinated. Some of the processes, such as respiration or digestion of fats, are strikingly similar in both plants and animals. Others, as mineral nutrition, are found only in the plants.

Let us consider first the process of photosynthesis – that is, the building with the energy of light. In this process, organic matter is formed literally from thin air and water. The air contains minute amounts of carbon dioxide (0.03 percent by volume or three parts in 10,000 parts of air). Through millions of small pores, or stomata, on the leaf surfaces, air penetrates the leaves and gives up about 10 percent of its meager supply of precious carbon dioxide to the tree. Small particles are found in the leaf cells called chloroplasts; these contain a green substance (chlorophyll) similar in structure to the hemoglobin of the blood. In fact, in reflected light chlorophyll appears not green but blood red.

Carbon dioxide unites with the chlorophyll and in a chain of reactions, regulated by the enzymes, it combines with oxygen and hydrogen of water to form sugar. An excess of oxygen is released in this process. The energy that is needed for transformation of carbon dioxide and water into the organic substance (sugar) is supplied by sunlight. Only about 1 percent of the solar energy that falls on a leaf is used for photosynthesis. The sugar formed in the process of photosynthesis is dextrose. From it 95 percent of the body of the tree is ultimately made by a series of complicated reactions. Dextrose may be

converted into other sugars or it may be combined with nitrogen to form the amino acids, the building blocks from which proteins are made and on which all life, both plant and animal, depends. Part of the dextrose is also used for other purposes, such as conversion into starch, fats, and other substances.

Vocabulary

4. Check if you know the key words.

Acid; carbon dioxide; chlorophyll; convert; fat; hemoglobin; nutrition; photosynthesis; release; respiration; starch.

Grammar: The Passive (Пассивный залог)

5. The verbs in the sentences below are in the passive voice. Read and translate them.

- 1) Organic matter is formed from thin air and water.
- 2) The energy that is needed for transformation of carbon dioxide and water into the organic substance is supplied by sunlight.
- 3) Dextrose may be converted into other sugars.
- 4) In the leaf cells are found small particles called chloroplasts.
- 5) Dextrose may be converted into other sugars or it may be combined with nitrogen to form the amino acids.

6. Choose the correct verb. Is it the Active or the Passive?

- 1) Many vital processes (are well coordinated/coordinate well).
- 2) Air (penetrates/is penetrated) the leaves.
- 2) Only about 1 percent of the solar energy (is used/uses) for photosynthesis.
- 3) Dextrose (may convert/may be converted) into other sugars.
- 4) Part of the dextrose (is used/uses) for other purposes.
- 5) Mineral nutrition (is found/are found) only in the plants.
- 6) The energy that is needed for transformation of carbon dioxide and water is supplied (by/for) sunlight.

Test yourself

7. Read the text again and choose the correct answer.

1. Respiration is similar in both plants and animals.
a) different; b) various; c) similar.
2. Mineral nutrition is found in ...
a) plants and animals; b) plants; c) animals.
3. In the process of ...organic matter is formed from air and water.
a) respiration; b) digestion; c) photosynthesis.
4. Trough millions of small pores air... the leaves.
a) converts; b) penetrates; c) forms.
5. Chloroplasts are ... in structure to the hemoglobin in blood.
a) similar; b) red; c) green.
6. ... combines with oxygen and hydrogen of water to form sugar.

- a) carbon dioxide; b) amino acids; c) dextrose.
7. Only ... percent of solar energy is used for photosynthesis.
a) 10; b) 5; c) 1.
8. Dextrose may be ...into other sugars.
a) used; b) converted; c) divided.

Speaking: The Tree Comes of Age

8. Can you prove the importance of the process of photosynthesis? Give examples.

Writing: The Passive

9. Rewrite each sentence so that it contains the agent *by*.

- a) People built ships with sails more than 5,000 years ago.
Ships with sails were built by people more than 5,000 years ago.
- b) The Chinese probably printed the first books more than a thousand years ago.
- c) The Remington company sold the first modern typewriters in the 1870s.
- d) Edison recorded the first words on a gramophone record in 1877.
- e) The Lumiere brothers created the first modern cinema in France in 1895.
- f) Valdemar Poulsen invented the tape recorder in 1899.

Unit 10 A CHANCE FOR SEEDS TO GERMINATE

Before you read

1. Discuss the questions with your partner.

- When do seeds germinate?
- Why are leaves green?

2. Pronunciation guide

Require [ri' kwaɪə]

Chance [tʃa: ns]

Rainbow ['reinbɔu]

Stimulate ['stimjuleɪt]

Stir [stə:]

bare [beə]

germination [dʒɜ:mɪ'neɪʃn]

canopy ['kænəpɪ]

Reading

3. Read the text. Find the sentences with the words from ex. 2 and translate them into Russian.

A Chance for Seeds to Germinate

Fortunately for the understory, the dormant trees sleep until later into the spring. By the time the trees arose themselves, the understory has enjoyed several weeks of early springtime growth, and seeds that survived winter in the soil have had an opportunity to germinate.

Seed germination requires warm soil temperatures and plentiful water, both of which occur at this time of year. If, by chance, seeds should germinate in summer, the dim light on the forest floor often causes seedlings (newly germinated, baby plants) to grow with spindly stems and poorly developed leaves. Their chances for survival are slight.

The best time of year for seeds to germinate in the forest is early spring. By the time the canopy closes, the young plants are strong, well established, and able to survive for several months in the shade.

When a seedling grows in full sun, its stem is short and thick, the leaves are closely spaced, and they are green and fully expanded. The same plant in heavy shade has a thin, stretched-out stem bearing small, pale leaves.

Plants spend a lot of time and energy making seeds, because it is from them that the next generation grows. Many forest species have seeds with a built-in system that promotes germination in spring and prevents wasteful germination under the canopy in summer. This system depends on red light reaching seeds on the forest floor.

Sunlight is composed of the various colors seen in a rainbow. When light enters a leaf, the red and blue parts of the visible spectrum are trapped by leaf pigments. (The pigments channel the light's energy into food production in photosynthesis.) Under a heavy leaf canopy, very little red light reaches the ground, but green wavelengths pass right through the leaves. That is why leaves look green.

Many seeds possess special chemicals that, when stimulated by red light, start the seeds' germination. This happens in springtime in the forest, before the dominant trees have opened their new leaves. When the sun's red wavelengths reach and penetrate into the soil, the waiting seeds are stirred into activity.

In winter and spring in a deciduous forest, most of the sunlight reaches the soil between the trees' bare branches. When the snow melts and the soil warms in spring, red wavelengths in sunlight waken dormant seeds. In summer, the leaf canopy filters the sunlight. Very little red light penetrates to the forest floor. The green wavelengths that do reach the ground have no effect on seed germination.

Vocabulary

4. Check if you know the key words.

Canopy; dominant; generation; germinate; growth; require; seedlings; survival; trap; understory; visible.

5. Complete the sentences below with the words from the box.

germinate, soil, light, grows, green, red, germination, seeds, rainbow
--

1) Seeds that survived in winter in the soil have had an opportunity to germinate.

- 2) Seed germinations requires warm ... temperatures and plentiful water.
- 3) The best time of year for ... to geminate is the forest is early spring.
- 4) Plants spend a lot of time and energy making seeds, because it is from them that the next generation ...
- 5) Sunlight is composed of the various colours seen in a ...
- 6) When ... enters a leaf, the red and blue parts of the visible spectrum are trapped by leaf pigments.
- 7) Very little ... light reaches the ground, but ... wavelengths pass right through the leaves.
- 8) Many seeds possess special chemicals that, when stimulated by red light, start the seeds' ...

Grammar: Participle I or Participle II (Причастие I и II)

6. Choose the correct form of the Participle

- 1) The dim light on the forest floor often causes seedlings to grow with spindly stem and poorly developed / developing leaves.
- 2) The young plants are well established / establishing.
Plants spend a lot of time and energy making / made seeds.
- 3) The system depends on red light reaching / reached seeds on the forest floor.
- 4) Many seeds possess special chemicals that, when stimulated / stimulating by red light, start the seed's germination.
- 5) When the sun's red wavelengths reach and penetrate into the soil, the waiting / waited seeds are stirred into activity.

Test yourself

7. Read the text again and say if the following sentences are true (T) or false (F) or they don't have that information.

- 1) The dominant trees sleep until later into the spring.
- 2) Seed germination requires hot soil temperatures.
- 3) By the time the canopy closes, the young plants are able to survive for several months in the shade.
- 4) Many forest species have seeds with a built-in system.
- 5) This system depends on green light reaching seeds on the forest floor.
- 6) When light enters a leaf, the green parts of the visible spectrum are trapped by leaf pigments.
- 7) Many seeds possess special chemicals that, when stimulated by red light, start the seeds' germination.
- 8) When the sun's red wavelengths reach and penetrate into the soil, the waiting seeds are stirred into activity.

Speaking: A Chance for Seeds to Germinate

8. Define the term seed 'germination' and its value for plants.

Writing: Business Letters

9. Is it a letter of application or a letter of complaint?

I should like to be considered for the post of secretary in the sale department currently advertised in the Morning Male.

I enclose a CV which gives full details of my qualification and career.

Unit 11 CONSERVATION AND RECYCLING

Before you read

1. Discuss the questions with your partner.

- Why is it important to conserve natural habitats and populations?
- What do you know about recycling?

2. Pronunciation guide

harvesting ['hɑ:vistɪŋ]

poacher ['pəʊtʃ ə]

endanger[in'deɪndʒ ə]

quota ['kwəʊtə]

ancient ['eɪnf(ə)nt]

poisonous ['pɔɪznəs]

manufacturing[,mænʃʊ'fæktʃərɪŋ]

quality ['kwɒləti]

Reading

3. Read the text and say if you agree with the author.

Conservation and Recycling

Conservation and recycling are all about what humans can do to reduce our impact on the environment. Conservation is important for protecting nature and culture. Conservation measures protect species by maintaining their habitats and protecting them from poachers and over-hunting/over-harvesting. There are several reasons why it's important to conserve species and natural habitats:

- Protecting endangered species. Many species are now endangered, often due to hunting and destruction of their habitats. They need to be protected to stop them becoming extinct.

- Protecting the human food supply. Overfishing is greatly reduced fish stocks in the sea. Conservation measures (e.g. quotas on how many fish can be caught) encourage the survival and growth of fish stocks. This protects the food supply for future generations.

Conservation measures in a woodland habitat may include:

- Coppicing- this is an ancient form of woodland management. It involves cutting trees down to just above ground level. The stumps sprout straight, new stems which can be regularly harvested.

- Reforestation- where forests have been cut down in the past, they can be replanted to recreate the habitat that has been lost.

- Replacement planting – this is when new trees are planted at the same rate that others are cut down. So the total number of trees remains the same.

Recycling conserves our natural resources. If materials aren't recycled they get thrown away as waste. There is more waste, so more land has to be used for landfill sites (waste dumps). Some waste is toxic (poisonous). So this also means more polluted land. More materials have to be manufactured or extracted to make new products (rather than recycling existing ones)- using up more of the Earth's resources and more energy.

Recycling uses up less of the Earth's natural resources. Recycling processes usually use less energy and create less pollution than manufacturing or extracting materials from scratch. Recyclable materials include metals, paper, plastics and glass.

There are some problems with recycling. First, recycling still uses energy, e.g. for collecting, sorting, cleaning and processing waste. Second, some waste materials can be difficult and time-consuming to sort out, e.g. different types of plastic have to be separated from each other before they can be recycled. Finally, in some cases, the quality of recycled materials isn't as good as new materials, e.g. recycled paper.

Vocabulary

4. Check if you know the key words.

Conserve; coppice; endanger; harvesting; human; manufacturing; measure; natural; poacher; poisonous; recycle; reforestation

5. Match these words with their definitions.

- | | |
|----------------|---|
| 1) poacher | a) someone who illegally catches or kills animals, birds |
| 2) harvest | b) to cut trees regularly to ground level |
| 3) to conserve | c) the useless materials, substances |
| 4) waste | d) containing poison |
| 5) poisonous | e) to keep things apart from each other |
| 6) to separate | f) how good or bad it is |
| 7) quality | g) to treat waste materials so that they can be used again |
| 8) to recycle | h) to make something exist again |
| 9) to recreate | i) the activity of collecting plants, animals |
| 10) to coppice | j) to prevent land, water, or other natural resources from being damaged or destroyed |

Grammar: The Gerund. The Infinitive. (Инфинитив. Герундий.)

6. Choose the correct form of the infinitive.

- 1) It is important to be conserved/to conserve species and natural habitats.
- 2) Many species need to protect/to be protected.

- 3) New stems can be harvested/can harvest.
- 4) Forests can be replanted/can replant to recreate the habitat that has been lost.
- 5) There is more waste, so more land has been used/has to be used for landfill sites.
- 6) More materials have been manufactured/have to be manufactured to make new products.
- 7) Some waste materials can be difficult to be sorted out/to sort out.
- 8) Something can recycle / can be recycled.
- 9) We want to conserve / to be conserved our environment.

Test yourself

7. Read the text again. Complete the sentences 1-7 with a suitable ending from a-g.

- | | |
|--|---|
| 1) Conservation measures protect... | a) metals, paper, plastics, and glass. |
| 2) Many species are now... | b) endangered. |
| 3) Coppicing... | c) they get thrown away as waste. |
| 4) Reforestation is... | d) species. |
| 5) If materials aren't recycled... | e) an ancient form of wood management. |
| 6) Recyclable materials include... | f) the act of putting new trees into a place where the original trees have been cut down. |
| 7) Recycling processes usually use less... | g) energy and create less pollution than manufacturing. |

Speaking

8. What can you do to use natural resources wisely? Present your project on *Simple Things We Can Do to Save Our Environment*.

Writing: Business Letters

9. Is it a letter of inquiry or a letter of apology?

We are particularly interested in visiting several publishing plants in New York to give us a better understanding of the way modern newspapers and magazines are produced.

Would it be possible to arrange a tour through your plant sometime within the next three weeks?

Unit 12 CLIMATE CHANGE

Before you read

1. Discuss the questions with your partner.

- Do you think it is safe to spend much time in the sun?
- Do you often sunbathe? Why/ why not?

2. Pronunciation guide

Effect[ɪ'fekt]

Consequence[ˈkɒnsɪkwəns]

Flood[flʌ d]

Hurricane[ˈhʌ rɪkən]

Drought[draut]

Heat[hi:t]

Glacier[ˈglæsie]

Current[ˈkʌ rənt]

3. Read the text and say what impact climate change might have. Comment on the author's opinion. Give your arguments.

Climate change

Most climate scientists agree that the Earth is getting warmer. They're now trying to work out what the affects of global warming might be - sadly, it's not as simple as everyone having nicer summers. The consequences of global warming could be pretty serious. If climate scientists are right, there are several reasons to be worried about global warming. Here's a few:

As the sea gets warmer, it will expand, causing sea levels to rise. This would be bad news for people living in low-lying places, like the Netherlands, East Anglia and the Maldives- they'd be flooded.

Hurricanes are formed over water that's warmer than 26° C – so if there's more warm water, you would expect more hurricanes.

Higher temperatures make ice melt. Water that's currently 'trapped' on land (as ice) will run into the sea, causing sea level to rise even more. There's another problem too- lots of cold fresh water entering the sea could disrupt the ocean currents. As weather patterns change, the flood we grow will be affected, all over the world. Droughts in some places could force millions of people to move.

You'll notice that the word 'could' pops up quite a bit. That's because the climate is such a complicated system. For instance, if the ice melts, there's less white stuff around to reflect the sun's rays out to space, so maybe we'll absorb more heat and get even warmer. But...when the sea's warmer. More water evaporates, making more clouds-and they reflect the Sun's rays. So maybe we'd cool down again. It's hard to predict exactly what will happen, but lots of people are working on it, and it's looking too good.

You need to weigh the evidence before making judgments. To find out if our climate is really changing, scientists are busy collecting data about the environment. For instance, we're using satellites to monitor snow and ice cover, and to measure the temperature of the sea surface. We're recording the temperature and speed of the ocean currents, to try and detect any changes. Automatic weather stations are constantly recording atmospheric temperatures. Generally, observations of a very small area aren't much use. Noticing that your local glacier seems to be melting does not mean that ice everywhere is melting, and it's certainly not a valid way to show that global temperature is changing. Scientists can make mistakes- so don't take one person's word for something,

even if they've got a PhD. But if lots of scientists get the same result using different methods, it's probably right. That's why most governments around the world are starting to take climate change seriously.

We, human, have created some big environmental problems for ourselves. Many people and some governments think we ought to start cleaning up the mess. Scientists can help, mainly in understanding the problem and suggesting solutions, but it's the society that has to do something.

Vocabulary

4. Check if you know the key words.

Consequence; detect; drought; effect; evaporate; glacier; heat; hurricane; solution

5. Complete the sentences with the words from the box.

Melt, move, earth, predict, expand, satellites, <u>climate</u>
--

- 1) Most climate scientists agree that the climate is getting warmer.
- 2) As the sea gets warmer, it will ..., causing sea levels to rise.
- 3) Higher temperatures make ice
- 4) Drought in some places could force millions of people to
- 5) It's hard to ... exactly what will happen.
- 6) We're using ... to monitor snow and ice cover.
- 7) Most governments around the world are starting to take ... change seriously.

Grammar: Conditional Sentences. (Условные предложения).

6. Choose the correct verb. It is the first or second conditional?

- 1) If the sea gets /will get warmer, it will expand, causing sea levels to rise.
- 2) If there's /will be more warm water, you will expect more hurricanes.
- 3) If higher temperatures make /will make ice melt, water will run into the sea, causing sea level to rise even more.
- 4) The flood will be /is if weather patterns change.
- 5) If there is /will be lots of cold fresh water entering the sea, the ocean currents will disrupt.

7. Put the verbs in brackets into an appropriate tense.

- 1) If temperature (go up) went up by a degree, the sea would flood many parts of the world.
- 2) If every family (plant) ... just one tree, over a billion pounds of 'greenhouse gases' would be removed from the atmosphere every year.
- 3) If the polar ice melted, the level of the sea (rise)
- 4) If the level of the sea rose, this (be) ... bad news for people living in low-lying places.
- 5) The level of carbon dioxide would increase unless we (protect) the rainforests.

6) It would be too hot for some animals and too cold for others if the climate (change) ...

7) What (happen) ... if the climate changed?

Test yourself

8. Read the text again and choose the best title for each paragraph. There is one extra title.

- 1) Introduction
- 2) Data about the Environment
- 3) The consequences of global warming
- 4) Conclusion
- 5) Acid rains

Speaking

9. Complete the sentences below with ideas of your own.

- 1) If the sea gets warmer, it will...
- 2) If weather changes, the food we grow will be...
- 3) If the polar ice melts, the level of sea...
- 4) If the climate changes, it will...
- 5) The level of carbon dioxide will increase unless we protect...

10. What do you understand by the term green house effect? What problems might global warming cause?

Unit 13 SUSTAINABLE DEVELOPMENT

Before you read

1. Discuss the questions with your partner.

- Do you know any indicator species?
- Can lichen be used as an indicator of air pollution?

2. Pronunciation guide

pressure ['preʃə]

huge [hju:dʒ]

medicine ['medsn]

predator ['predətə]

lichen ['laɪkən]

sewage [sju:ɪdʒ]

Reading

3. Read the text. What does 'sustainable development' mean?

Sustainable Development

There is a growing feeling among scientists and politicians that if we carry on behaving as we are, we may end up causing huge problems for future generations...

Sustainable development needs careful planning. Human activities can damage the environment (e.g. pollution). And some of the damage we do can't easily be repaired (e.g. the destruction of the rainforest).

We need to plan carefully to make sure that our activities today don't mess things up for future generations- this is the idea behind the sustainable development...

Sustainable development meets the needs of today's population without harming the ability of future generations to meet their own needs. This isn't easy- it needs detailed thought at every level to make it happen. For example, governments around the world will need to make careful plans. But so will the people in charge at a regional level.

Reduction in biodiversity could be a big problem. Biodiversity is the variety of different species in an area – the more species, the higher the biodiversity.

Ecosystem (especially tropical rainforests) can contain a huge number of different species, so when a habitat is destroyed there is a danger of many species becoming extinct – biodiversity is reduced.

This causes a number of lost opportunities for human and problems for those species that are left. There are probably loads of useful products that we will never know about because the organisms that produced them have become extinct. Newly discovered plants and animals are a great source of new foods, new fibres for clothing and new medicines, e.g. the rosy periwinkle flower from Madagascar has helped treat Hodgkin's disease(a type of cancer), and a chemical in the saliva of a leech has been used to help prevent blood clots during surgery.

Loss of one or more species from an ecosystem unbalances it e. g. the extinct animal's predators may die out or be reduced. Loss of biodiversity can have a 'snowball effect' which prevents the ecosystem providing things we need, such as rich soil, clean water, and the oxygen we breathe.

Human impact can be measured using indicator species. Some organisms are very sensitive to changes in their environment and so can be studied to see the effect of human activities – these organisms are known as indicator species. For example, air pollution can be monitored by looking at particular types of lichen, which are very sensitive to levels of sulfur dioxide in the atmosphere (and so can give a good idea about the level of pollution from car exhausts, power stations, etc.) The number and type of lichen at a particular location will indicate how clear the air is. If raw sewage is released into a river, the bacterial population in the water increases and uses up the oxygen. Animals like mayfly larvae are good indicators for water pollution, because they are very sensitive to the level of oxygen in the water.

Vocabulary

4. Check if you know the key words.

Ability; damage; destruction; development; environment; exhaust; lichen; medicine; oil; predator; reduce; sewage; sustainable.

5. Complete the sentence with the words from the box.

Future, ~~damage~~, harming, unbalance, danger, sensitive

- 1) Human activities can damage the environment.
- 2) Sustainable development meets the needs of today's population without... the ability of future generations to meet their own needs.
- 3) When a habitat is destroyed there is a... of many species becoming extinct.
- 4) Loss of one or more species from an ecosystem...it.
- 5) Some organisms are very...to changes in their environment.
- 6) Air pollution can be monitored by looking at particular types of...
- 7) If we carry on behaving as we are, we may end up causing huge problems for...generations.

Grammar: Modal Verbs (Модальные глаголы)

6. Choose the correct variant.

- a) If we carry on behaving as we are, we (must, may) end up causing huge problems for future generations.
- b) Human activities can/ should damage the environment.
- c) Some of the damage we can't/ shouldn't easily be repaired.
- d) Ecosystems may/ can contain a huge number of different species.
- e) Loss of one or more species from an ecosystem must/ can unbalance it.
- f) This may/ should explains the disappearance of the dinosaurs.

7. Complete the text using the expressions from the box.

Could destroy, will simply be, may be, must be, can't be(2), ~~will probably be~~, could reduce

This summer there 1) will probably be a lot of forest fires – as always during the hot weather. These fires will not only destroy thousands of trees but 2).... homes as well. What are the causes of forest fires? Some fires 3)... the result of natural causes, particularly in hot, dry weather. But this 4)... why fires occurs at other times, when a fire starts in several different places at the same time, it 5)... an accident; it 6)...because someone started it deliberately. We 7)... the number of fires by employing more people to guard the forests, but this 8)... something the government can't afford.

Test yourself

8. Read the text again and say if the following sentences are true (T) or false (F) or they don't have information.

- 1) Sustainable development needs careful planning.
- 2) Oil is a renewable resource.
- 3) A definition of SFM is known as sustainable forest management.
- 4) Reduction in biodiversity is a big problem.
- 5) Biodiversity is the variety of different habitants.

- 6) Loss of one or more species from an ecosystem balances it.
- 7) Human impact can be measured by using indicator species.
- 8) Air pollution can be monitored by looking at particular types of animals.
- 9) If you find mayfly larvae in a river, it indicates that the water is clean.

Speaking

9. **Explain how lichen can be used as an indicator of air pollution.**
Give two reasons why it is important to conserve biodiversity.

Unit 14 SILVICULTURE

Before you read

1. **Discuss the questions with your partner.**

Where does the word 'silviculture' come from?

What aspects does silviculture include?

2. **Pronunciation guide**

pruning[ˈpruːnɪŋ]

veneer[vəˈniə]

initially[iˈniəl̩ li]

prefer[priˈfəː]

technique[tekˈniːk]

rarely[ˈreəli]

practice[ˈpræktɪs]

feudal[ˈfjuːdl]

warden[ˈwɔːdn]

Reading

3. **Read the text and define the main aspects of silviculture.**

Silviculture

Just as agriculture is the cultivation of fields, so silviculture (from the Latin *sylva*, meaning forest) is the cultivation of forest. Silviculture refers to the establishment and management of trees for wood production. The potential to manipulate tree and forest growth so as to enhance their value or the benefits they provide makes silviculture the most powerful tool of the farm forester. For example, as a result of careful pruning a tree that might otherwise only be of value for firewood can be turned into high value veneer or sawlog. Alternatively, a regrowth native forest dominated by just one tree species could be thinned to promote regeneration thereby enhancing its biodiversity.

Until the 18th century silviculture was rudimentary and rarely practiced. The foresters of western Europe during the Middle Ages were mainly game wardens who patrolled hunting reserves for feudal landlords. Trees were treated as a readily available natural resource to be exploited without much regard for their replacement. Exploitation is still the rule in much of the world, particularly in the Tropics and in the boreal forests.

A silvicultural regime is a series of management interventions imposed on trees or forests over time, from establishment through to harvest and regeneration. Initially, decisions must be made about initial spacing, layout and establishment methods. Later the owner must decide about the time and timing of thinning, pruning, fire, grazing and harvesting. Choosing to let nature take its course is also a silvicultural decision. However, not intervening in a forest's growth pattern is rarely the most appropriate strategy for achieving farmers' preferred outcomes.

Forest growth is largely determined by how the mix of plants in the forest responds to the soil and climate in which they are growing. Silvicultural design and intervention enables farmers to direct this growth in an attempt to maximize the economic, environmental or aesthetic value of the forest. There are six aspects of silviculture that forest growers need to consider:

- what to grow* – the forest genetic composition.
- preparing the site for the forest* – modification of the physical environment.
- spacing and thinning after establishment* – managing the competition between trees.
- pruning* – treatment of individual trees.
- managing pests, weeds, diseases and fire* – forest protection.
- harvesting timber and other forest products* – harvesting options and techniques.

Vocabulary

4. Check if you know the key words.

Achieve; benefit; decision; enhance; layout; prefer; pruning; refer; technique; thinning; value; veneer.

5. Match the words with their translation.

- | | |
|----------------------|-------------------------------|
| 1) silviculture (n) | a) дерево, древесина; лес |
| 2) wood (n) | b) фанера |
| 3) forest (n) | c) лес, |
| 4) to exploit (v) | d) лесоводство |
| 5) veneer (n) | e) уборка урожая, сбор |
| 6) to promote (v) | f) состав |
| 7) harvest (n) | g) обрезка сучьев |
| 8) composition (n) | h) продвигать, способствовать |
| 9) pruning (n) | i) разрабатывать |
| 10) to intervene (v) | j) вмешиваться |

Grammar: Relative Clauses (Определительные придаточные предложения)

6. Make a relative clause from two sentences.

- 1) The foresters of western Europe during the Middle Ages were mainly game wardens. They patrolled hunting reserves for feudal landlords.

2) Forest growth responds to the soil and climate. Soil and climate determine how the mix of plants in the forest are growing.

3) Silvicultural design and intervention enables farmers to direct forest growth. They attempt to maximize the economic, environmental or aesthetic value of the forest.

Test yourself

7. Read the text again and say if the following sentences are true (T) or false (F) or they don't have the information.

- 1) Until the 18th century silviculture was rarely practiced. (t)
- 2) The silvicultural systems employed for harvesting mature trees can be grouped in four categories.
- 3) Exploitation is still the rule in much of the world, particularly in Europe.
- 4) Silviculture refers to the establishment and management of trees for wood production.
- 5) Most commercial tree species do best under full sunlight and must be grown in stands of even age.
- 6) Pruning means forest protection.
- 7) The owner must decide about the time and timing of thinning, pruning, fire, grazing and harvesting.

Speaking: Silviculture

8. Speak on the topic: "I have chosen the job of a forester (landscape designer) because...". Highlight a few points that make this job attractive to you. Use the following phrases:

- to like working outdoors;
- to plant trees and watch them grow;
- to see the result of the work gradually;
- to have attractive surroundings full of living trees, bushes and grass;
- to remain fit and healthy.

Writing: Relative Clauses

9. Complete the sentences with *why*, *when*, or *where*.

- a) Most of us at some time wanted to know... *why* leaves change colour and fall in autumn.
- b) It is difficult to predict exactly ... this will happen, as it depends on the autumn weather.
- c) It also depends on... exactly the tree is growing, since some trees may receive more light than others.
- d) The leaves start to change colour ... the tree stops making chlorophyll, the substance which gives them a green colour.

- e) The trees stop making chlorophyll... there is not enough light for the [process of photosynthesis to work.
- f) Other colours in the leaf are hidden by the chlorophyll, and this is ... we only see these colours when the tree stops making chlorophyll.
- g) Red colours in the leaves are made by food trapped in the leaves... the tree stops making food.
- h) Deciduous trees have adapted to survive the winter without leaves, which is one reason ... their leaves fall off in autumn.
- i) They are less likely to be damaged... strong winds blow.
- j) Many deciduous trees also produce flowers ... they have no leaves, as this makes it easier for them to pollinate.

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