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ИНОСТРАННЫЙ ЯЗЫК
В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ

(английский)

Учебное пособие для обучающихся по основной образовательной программе среднего профессионального образования специальности 35.02.01 ЛЕСНОЕ И ЛЕСОПАРКОВОЕ ХОЗЯЙСТВО

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Женевская Е.В. Иностранный язык в профессиональной деятельности: Учебное пособие для обучающихся по основной образовательной программе среднего профессионального образования специальности 35.02.01 лесное и лесопарковое хозяйство [Электронный ресурс] / сост. Е.В. Женевская; Ивус О.Н.; ФГБОУ ВО Приморский ГАТУ. – Электрон. Текст. Дан. – Уссурийск: ФГБОУ ВО Приморский ГАТУ, 2024. – 130 с. – Режим доступа: www.de.primacad.ru

Учебное пособие составлено в соответствии с ФГОС ВО и требованиями программы обучения английскому языку в неязыковых вузах и имеет своей целью помочь обучающимся овладеть терминологическим минимумом и развить навыки устной речи в объёме тем, предусмотренных программой.

Издается по решению методического совета ФГБОУ ВО Приморский ГАТУ

ОГЛАВЛЕНИЕ

Введение

Изучение иностранных языков в современном обществе становится неотделимой составляющей профессиональной подготовки выпускников любого учебного заведения и от качества их языковой подготовки во многом зависит успешное решение вопросов профессионального роста и расширение контактов с зарубежными партнерами.

Данное учебное пособие предназначено для обучающихся по основной образовательной программе среднего профессионального образования специальности 35.02.01 лесное и лесопарковое хозяйство.

Пособие состоит из 6 разделов (по одному на каждый семестр). Неотъемлемую часть каждого раздела составляют тексты на профессионально-ориентированные темы с целью расширения словарного запаса и развития разговорной речи.

Тематический словарь

1. Прочитайте и выучите следующие слова и переведите словосочетания.

breeze – легкий ветер; a gentle breeze

cloud – туча, облако ; a big grey cloud

drizzle – моросящий дождь; it drizzles

dust - пыль; to raise dust

fog – туман ; dense (=thick) fog, fog clears (=lifts)

hail – град; it hails

hoar-frost – иней; hoar –frost on the trees

ice – лед; hard ice, ice melts

icicle – сосулька; an icicle hangs down

lightning – молния; lightning flashes, lightning strikes

mud – грязь; to stick in the mud

puddle – лужа; there are many puddles after the rains

rainbow – радуга; the rainbow came out

rainfall – осадки в виде дождя; annual (=yearly) rainfall

sleet – снег с дождем, мокрый снег; it sleets

slush – слякоть; the snow turns to slush

storm – буря; a heavy storm, a storm is gathering

Indian summer – бабье лето; a lovely period of Indian summer

thunder – гром; rolls (=claps) of thunder

wind – ветер; strong wind, wind blows

mild – мягкий; a mild afternoon

severe – суровый; severe climate

chilly – прохладный, холодный; a chilly autumn wind

clear – ясный; a clear day

degree – градус; three degree of frost

dry – сухой, засушливый; a dry year

to freeze (froze, frozen) – морозить, мерзнуть; to freeze hard

frost – мороз; light (=slight) frost

heat – 1) жара; 2) нагревать; intense heat

harvest season – время сбора урожая; early autumn is harvest season

temperature – температура; temperature Centigrade

weather – погода; what is the weather like today?

grow – расти, выращивать; to grow a tree

soil – почва; poor soil

sow – сеять; to sow crops

plow, plough – пахать; to plow soil

crop – с/х культура; to grow crops

2. Прочитайте и переведите словосочетания

a) на русский язык:

A breeze from the sea; covered with clouds, cloudy, cloudless sky; a dusty table; covered with ice; icicles on the roof; flash of lightning; a muddy road; puddles in the yard; heavy rain, in the rain, it rains hard (=heavily); a rainbow in the sky; a rainy day; snow melts, snowfall, snowstorm, it snows heavily (=hard); it thunders, thunderstorm; mild climate; severe cold; it clears up, clear sky; fall two degrees, rise three degrees, two degrees above zero, three degrees below zero, two degrees in the shade (in the sun); dry summer; it freezes, hard (=heavy, severe) frost, a frosty morning; the sun heats the ground, heated air; high (low) temperature, temperature rises (=goes up), temperature falls (=goes down); nasty (foggy, stormy, windy) weather, damp (raw, moist, wet) weather, a spell of fine (warm, lovely, sunny) weather, changeable weather, weather forecast.

b) на английский язык:

Дует легкий ветер; небо покрыто серыми тучами; часто моросит дождь; густой туман, туманный день; идет гард; земля покрыта инеем; лед тает;

вспышки молнии; грязные лужи; все цвета радуги; идет мокрый снег; снег превращается в слякоть; теплое бабье лето; гремит гром; сильный ветер; мягкий климат; суровая зима; прохладное утро; проясняется; 20 градусов в тени, 10 градусов мороза, 8 градусов выше (ниже) нуля; засушливый год; сильно подмораживает, ночные заморозки; сильная жара; низкая (высокая) температура, температура понизилась (повысилась); прогноз погоды, сырая погода, переменчива

3. Дайте определение каждому утверждению из левой колонки, используя слова из правой колонки:

1) a light gentle wind
2) a small dirty pool of rain water on the road
3) a period of calm warm weather which sometimes happens in the early autumn
4) water falling in drops from the clouds
5) the sudden loud noise which comes after a flash of lightning
6) a statement of what the weather is likely to be for the next day of few days
7) thick water vapour which is difficult to see through
8) weather conditions of a place or area

a) thunder
b) climate
c) puddle
d) weather forecast
e) rain
f) fog
g) breeze
h) Indian summer

4. Скажите по-английски:

Model: ± 10° - ten degrees above (below) zero

3°↑ - temperature rises three degrees

+23°, - 4°, 5°↑, 2°↓, -11°, +17°, 4°↑, 6°↓

5. Подберите подходящие по смыслу существительные к данным прилагательным.

Model : dark – dark clouds, dark sky, dark night etc.

Thin, dense, mild, occasional, chilly, severe, thick, clear, hot, moderate, heavy, muddy, changeable, hard, cloudy, dry.

6. Используйте следующие прилагательные для описания:

a) good weather;

b) bad weather.

*Dreadful, lovely, beautiful, awful, nasty, marvelous, terrible, wonderful, miserable, fin***.**

7. Прочитайте текст. Выпишите незнакомые слова с переводом в тетрадь. Переведите текст, используя записи.

Seasons and weather

There are four seasons in the year: winter, spring, summer and autumn. Each of them lasts three months. Every season is beautiful and pleasant in its own way, but also has some negative features.

Every year begins in winter. Winter is the coldest season all over the Northern Hemisphere. In some regions it may be severe: hard frosts and heavy snowfalls become a real disaster. But in our country winters are usually comparatively mild. It often sleets instead of snowing, and the snow turns to slush. The puddles may be not frozen, but still it is cold because of strong northern wind. The most unpleasant thing about winter is that the sun sets early and rises late. The days are short and the nights are long. But when the weather is fine: the sun shines, the air is fresh and frosty and the ground is covered with snow, people go for a walk to the forests and parks, enjoy doing winter sports, such as skating, skiing, sleighing and hockey. Besides we celebrate the most popular holidays: the New Year and Christmas in winter. So this season is favourite for many people.

At the end of March the weather gets gradually warmer. The days become longer and sunnier. Spring comes and nature awakens after a long winter sleep. Everything is full of life and joy. All kinds of plants and flowers come out filling the air with their fragrance. Birds come back from the south and build nests for their young. Although the weather generally clears up, spring is sometimes a very rainy season. There may be occasionally heavy rains, even with hail, in springtime. Spring is a busy season for farmers and people whose hobby is gardening. They must sow and

start cultivating most crops. And their hard work in spring will result in high yields of fruit, vegetables and cereals in harvest season.

Spring is followed by summer. The weather gets still warmer and often is very hot. Sometimes heat can be really unbearable. The sky is blue and cloudless almost every day. But heavy thunderstorms with flashes of lightning also occur in summer, they moisten the ground, which is essential for plants, and make the air fresher and easier to breath. There often appears a beautiful rainbow in the sky after the thunderstorm. Most people have their holidays in summer. They can go the seaside to lie in the sun and to swim in the sea, or just go hiking to the forest or to the mountains. In either way they come back to their work or studies refreshed and full of vitality.

Then autumn sets and the nature fades away. This season is also called "fall" because it is the period of falling leaves. The first part of autumn is the harvest time for many crops. Early autumn days are generally warm and nights are cool. As winter approaches, the air becomes chillier and frost often occurs at night. The sky is most overcast with low grey clouds. It often rains and drizzles. In October while the leaves are turning color and falling from the trees there comes the mild pleasant period of Indian summer. The days become noticeably warmer. The sun shines softly, the sky turns rich blue, the air is smoky and still, with almost no wind. Indian summer lasts from a week to 10 days, and sometimes for two weeks. In late November the freezing of lakes and streams and the first snowstorms mark the end of autumn.

8. Ответьте на вопросы:

1) What is the weather like in winter (spring, summer, autumn)?
2) What is the average temperature in winter (spring, summer, autumn)?
3) Which season is the hottest (coldest, rainiest) in the year?
4) What is the best season for tourism (sports)?
5) Why is autumn also called "fall"?
6) What period do we call Indian summer?
7) What are the advantages and disadvantages of each season?
8) Which is your favourite season and why?

9. Переведите предложения. Заполните пропуски нужными предлогами.

1) When the winter is mild, it often sleets instead ___ snowing, and the snow turns ___ slush.
2) The winters in our region may be rather cold because ___ strong northern wind.
3) Winter is a favourite season ___ many people.
4) The weather gets gradually warmer ___ the end of March.
5) Flowers fill the air ___ their fragrance.
6) There is often a rainbow ___ the sky ___ the thunderstorm.
7) People can enjoy lying ___ the sun in summer.
8) Indian summer usually lasts ___ a week ___ 10 days, and sometimes ___ two weeks.

10. Найдите и выпишите из текста пары антонимов.

The sun comes up in the east and goes down in the west. When the sun rises, it is morning. When the sun sets, it is evening. When the sun is in the sky, it is light. During the night, if the moon is not shining, it is dark.

December, January and February are the winter months. The summer months are June, July and August. In winter the days are short and the nights are long. In spring and autumn there are sometimes cold days, but there are also days when the weather is warm.

11. Составьте предложения из следующих слов.

1) drops, the, of, grass, fell, rain, the, on, first
2) is, summer, of, the, weather, October, called, Indian, sunny, in, spell
3) the, roofs, hang, of, the, icicles, from, houses
4) blue, great, the, sky, in, clouds, there, white, are

12. Составьте предложения с данными словами по образцу, учитывая, какой частью речи они являются.

Model:

- It often *rains*. (verb)
- There is often *rain*. (noun)

- It is often *rainy*. (adjective)

Sunny, sun, hot, snow (v.), snow (n.), wind, windy, cold (adj..), cool, cloud, cloudy, warm, fog, foggy.

13. Заполните пропуски в тексте данными ниже словами.

But, fairly, temperature, short, rains, know, changeable, people, winters, long, in a row, often, the weather, does.

Weather in Britain

In Britain ___ is very ___: it ___ a lot, but the sun often shines too. ___ can be ___ cold, with an average ___ of 5°C in the south; there is often snow.

Summers can be cool or warm, but the temperature ___ not usually go above 30°C. it is ___ cloudy, and there are rains for days or weeks ___. Days are ___ in summer and ___ in winter. There are sometimes fogs, ___ not so often as foreigners think. The British ___ never ___ what tomorrow's weather will be like.

14. Скажите, соответствует ли это действительности.

1. It often pours with rain in the desert.
2. It gets quite chilly in the desert in the evening.
3. Thunder makes a noise.
4. Lightning can kill people.
5. A shower is a gentle breeze.
6. A spell of hot weather may end in a thunderstorm.
7. If it is humid, the air will be very dry.
8. Below zero, water turns to ice.
9. Heavy rain means that it is pouring with rain.
10. When it's foggy, you need sunglasses.

15. Заполните пропуски в тексте необходимыми словами.

A. *Drier, humid, spell, winds, hot, blows, snows, heavy.*

The greatest influence of Japanese weather is the wind. During the summer it … from the Pacific, causing … and humid weather, but in winter the northwesterly … from Siberia are very cold and it … heavier on the mountains in the North West. The south-eastern parts receive cold dry air. Between June and mild July, there is a

… of wet weather when the rice fields get the water vital for growth. After that, there is less … rain, but the air is still … . Autumn, however, is … and usually very pleasant.

B. ***melts, sleet, frost, blizzards, thaws, snowdrifts, slush, icy.***

My first experience with real winter weather was when I went to Northern Canada. I was used to the sort of snow that falls in London, which quickly turns into brown … with the people walking on it. In fact most of the time I was in London, it didn't really snow properly, it was mostly … . Apart from that, British winters meant a bit of white … in my garden and occasionally having to drive very carefully on … roads early in the morning. I had never experienced the … and … that can paralyse a whole city in less than an hour and close roads completely. However, when the earth finally … and all the snow … away in spring, everything comes to life again and looks more beautiful than ever.

16. Определите значение идиом в следующих предложениях. Дайте их русские эквиваленты. Составьте ситуации с ними.

1. Did you see that dog chase those two cats? **It went like the wind**.
2. I'm going to get up early tomorrow morning, **come rain or shine.**
3. I'm certainly not going to spend all my money. I'm going **to save some for a rainy day.**
4. I don't think you should worry about the incident too much. **It' just a storm in a teacup.**
5. Our teacher has tried to explain it to us several times, but **I'm still in a complete fog.**
6. I've enjoyed living here, but **now there's a cloud on the horizon.** They are planning to build a new office block right opposite our house.
7. We are having a lot of problems at the moment, but **we'll weather the storm** if we stay together.

17. Переведите пословицы.

- March winds and April showers bring forth May flowers.
- A wet and windy May fills the barn with corn and hay.

- Mist in May and heat in June make the harvest right soon.
- If the first of July be rainy weather, it will rain more or less forty days together.
- Everything is good in its season.
- Every cloud has a silver lining.
- The longest day will have an end.
- It never rains but it pours.

1. Прочитайте слова и словосочетания. Выучите их.

plant – растение; сажать

grass – трава

grassland – травяные угодья

flower – цветок; цвести

blossom – цветок (на дереве); цвести (о деревьях)

high – высоко, высокий

height – высота

mountain – гора

desert – пустыня

species – вид, разновидность, род

ago – тому назад; (not) long ago

impossible – невозможный, невозможно; it’s impossible

without – без

to breathe – дышать

breath – дыхание

food – пища, продовольствие, корм; кормить, подавать (топливо, корм)

animal – животное; animal products

useful – полезный

use – употреблять, использовать, применять; in use

thing – вещь, нечто существующее

timber – лесоматериалы, строевой лес

wood – лесоматериал, лес

forest – лес

to change – менять, изменять

exchange – обмен

seed – семя, зерно, семена; to seed

to develop – развивать(-ся), разрабатывать

development – развитие

grain – зерно, структура (дерева)

knowledge – знание

unknown – неизвестный

scientist – ученый

science – наука

certainly – конечно

simple – простой; simplicity

nature – природа; natural

earth – земной шар, земля

ground – почва, земля

land – земля, суша

to link – соединять, связывать

sunlight – солнечный свет

matter – материя, вещество; as a matter of fact; What is the matter?

leaf (leaves) – лист (листья)

during – в течение (о времени)

to die – умирать; dead; death

necessary – необходимый

enough – достаточно

population – население

soon – вскоре

to want – хотеть, желать

conservation – сохранение

protection - защита, охрана

to protect - охранять, сохранять

to keep – держать, хранить

word – слово

unit – единица; единица измерения; установка

cell – клетка (биологическая); ячейка

thin – тонкий; редкий

thick – толстый; густой

paper – бумага

woody – древесный;

2. Прочитайте и переведите следующие слова и словосочетания..

Plants, man and plants; grass, flowers, trees; trees grow everywhere; high in the mountains; far out in the ocean; polar regions, in many deserts and polar regions; over 350 000 species of plants; the giant sequoia trees; over 100 metres high, about 9 metres wide; living things; pines; impossible; without; we breathe, we breathe oxygen; animals eat plants; man built houses; useful products; to get food; fields of grain; to grow food plants; to sow the seeds; develop new plants; in this way man developed new plants; for example; for instance; wild corn; little ears of wild corn; to use grain; over large territory.

3**. Прочитайте и переведите предложения.**

1) Plants grow everywhere.

2) Plants grow in many deserts and polar regions.

3) There are over 350 000 species of plants.

4) We see some plants only with a microscope.

5) Sequoia trees are over 100 metres high and about 9 metres wide.

6) There are platans in Russia 2000 years old.

7) Life is impossible without plants.

8) Plants also give beauty.

9) Man began to change plants about 10 000 years ago.

10) Christopher Columbus came to the New World.

11) The new corn grew over large territories there.

4. Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь, используйте их при переводе.

Man and Plants

Plants – grass, flowers and trees – grow everywhere: high in the mountains, far out in the ocean and in many deserts and Polar Regions.

There are over 350 000 species of plants. Some are so small, that we see them only with a microscope; some are very large, such as the giant sequoia trees in California, they are over 100 metres high and about nine metres wide. Plants are very old living things. Pine trees live 300-350 years. There are platans in Russia 2000 years old.

Life is impossible without plants, everyone knows it. We breathe the oxygen which comes from plants; we eat the food which also comes from plants or from animals that eat plants. Many thousand years ago man built houses and made useful things from timber which he got from trees. He made his clothing from plants too.

Plants also give beauty. People like to look at flowers, at fields of grain, they like to be in the forest.

Man began to change plants about 10 000 years ago, when he began to grow the first food plants. The first farmers saw that there were good plants and not so good plants. They sowed the seeds of good plants from them. In this way man developed the basic food crops of the world. For example, the Indians developed little ears of wild corn into large ears with many grains, which we use today. When Christopher Columbus came to the New World the new corn grew over large territory there.

5. Перескажите текст по следующей схеме.

1. The title of the text (article).	The title of the text is …
	The text is entitled …
	The text comes under the title…
2. The main idea of the text (article).	The main idea of the text is …

	The text is about …
	The text is devoted to …
	The text deals with …
3. The contents of the text (article).	According to the text …
	The author touches upon (illustrates, raises a problem of, describes}
	In conclusion …
	The author comes to the conclusion that …
4. You opinion of the text (article).	I found the text interesting (useful, of no value, too hard to understand)
	I think (believe, should say, consider)
	In my opinion …
	It seems to me …
	From my point of view…

6. Прочитайте, переведите и воспроизведите диалог.

(Peter comes to see Kate in her hostel)

Peter: May I come in? Hello, Kate. I saw you in the reading room in the evening. What did you read?

Kate: Hello, Peter. I read about plants in the English encyclopedia. It was very interesting. Do you know how many plants there are in the world?

Peter: Haven't got any idea. How many?

Kate: Scientists think, there are over 350 000 but nobody knows for sure. And do you know the difference between plants and animals?

Peter: Certainly. They look absolutely different.

Kate: Now I see you don't. Plants make their own food; animals do not make food. They eat plants or other animals that eat plants. Isn't it interesting?

Peter: It is, and very simple. Now I understand the difference between them.

Kate: Let's read this encyclopedia tomorrow. I'm going to help you with your English, you know.

Peter: Thank you, Kate.

7. Прочитайте и переведите слова и словосочетания.

Organic nature; on the Earth, one third of the Earth; to live without plants; the cycle of nature; natural process; the sun gives energy; living things; to accumulate sunlight; to use sunlight; to give off oxygen, to give off oxygen during the natural process; to breathe in the oxygen; to breathe out carbon dioxide; water and minerals; after plants and animals die; a hectare of pine forest; 20 000 square kilometers; enough oxygen for the population; to play a very important part; conservation and protection of nature.

8. Прочитайте и переведите текст.

Plants and Nature

Plants and animals are organic nature. On the Earth plants make one third. Animals and man will not live without plants, because the cycle of nature links them. This natural process gives men and animals oxygen and food. The Sun gives energy for this process. Plants are special living things: they accumulate and make organic matter from inorganic in their leaves. Plants use sunlight and make their food; they give off oxygen into the air during this process. Man and animals breathe in oxygen and breathe out carbon dioxide, which plants combine with sun energy, water and minerals from the soil and in this way make their food. After plants and animals die, rotting process will give back minerals to the soil, where plants will again use them.

Plants also play a very important part in conservation and protection of soil, water and animals. They protect soil from the wind and keep water in the soil.

Trees give off a lot of oxygen into the air. For example, a hectare of pine forest gives oxygen for ten people. It is necessary to have 1000 square kilometers of forest for ten million people.

If there are many parks and trees in a city and many forests around it, then its population will have enough oxygen to breathe.

8. Составьте аннотацию текста.

1. Переведите следующие слова:

Conduct, needles, sawngoods, branch, temperate, plant, strength, cause, breathe, breathing, leaf, leaves, root, bark, annual, gravity, specific, species, outer, coarse, covering, vary, weight, conifers, deciduous.

2. Запомните следующие слова и словосочетания:

shrub – кустарник

plant – растение

remarkable – выдающийся

woody – лесистый

stem – ствол

root – корень

crown – крона

to breathe – дышать

breathing – дыхание

leaf (leaves) – лист/листья

bark – кора

branch – ветвь

temperate – умеренный

rapid – быстрый

to cause – вызывать

annual ring – годовой слой (в древесине)

to conduct – проводить, пропускать (воду, воздух)

strength – сила, крепость

specific gravity – удельный вес

dense – плотный, прочный

softwoods (conifers) – хвойные породы

hardwoods (deciduous trees) – лиственные породы

needles – иголки, хвоя

soft sawngoods – пиломатериалы хвойных пород

***

species of trees and shrubs – породы деревьев и кустарников

members of the plant world – представители растительного мира

the outer covering – внешнее покрытие

to count the age of a tree – подсчитывать возраст дерева

the heavy flow of sap – обильный поток сока

coarse open grain – древесина с грубой текстурой

to vary in weight – отличаться по весу

to be divided into groups – делиться на группы

to look like – выглядеть как, походить на, быть похожим на

due to the high physical and mechanical properties – вследствие высоких физических и механических нагрузок

to shed leaves – сбрасывать листву

3. Переведите следующие предложения, обращая внимания на предлоги.

since – с тех пор как, так как, хотя

above – над, свыше, выше

according to – в соответствии с, согласно

through – через, сквозь, по

due to – благодаря

in spite of – несмотря на

besides – кроме

beside – рядом с, около, по сравнению

between – между

by means of – посредством

during – в течение

among – среди, между

behind – позади, за, после

round – вокруг, по

over – над, через, свыше

1. Some other students *besides* Peter will go there.
2. She walked *round* the garden.
3. The house was *beside* the forest.
4. The growth of trees occurs *by means* of cell division.
5. In the temperate zone trees grow actively *during* the warmer months.
6. Some plants grow best in cool climate *due to* higher supply of water.
7. Every student knows the difference *between* the species.
8. Man's wants have greatly changed *since* the beginning of the century.
9. I like to roam *through* the forest.
10. *According* to the programme we learn a lot of special subjects.
11. *In spite* of bad weather we went to the country.

4. Выберите подходящие по смыслу прилагательные из пункта В к существительным в пункте А.

A. Trees, forest, bushes, root, stem, crown, poplar, pine, plant, world, branch, twig, wood, species, leaves, zone.

B. Green, evergreen, coniferous, deciduous, deep, tall, uneven, spring, autumn, summer, winter, single, woody, plant, long, short, small, wide, narrow, temperate.

5. Измените следующие предложение по образцу:

Model: A forest which is planted. – A planted forest.

1. The air which is polluted.
2. A tree which is pruned.
3. Shrubs which were transplanted.
4. Species which are known.

5. Bushes which are grown.
6. A cedar which is cut.
7. Cones which are harvested.

6. Найдите антонимы из колонки B к колонке A.

A	B
1. softwood	1. at the end
2. active	2. slow
3. warm	3. small
4. to stop	4. inactive
5. at the beginning	5. cold
6. rapid	6. low
7. high	7. to begin
8. large	8. hardwood

7. Найдите синонимы из колонки B к колонке A.

A	B
1. trunk	1. fall
2. kind	2. fast
3. softwood	3. stem
4. hardwood	4. notable
5. autumn	5. coniferous
6. remarkable	6. deciduous
7. strength	7. maybe
8. rapid	8. force
9. perhaps	9. species

8. Соедините слова в колонках в соответствии с их переводом.

1. woody	1. крона
2. stem	2. хвоя
3. bark	3. плотный
4. needles	4. корень

5. temperate	5. умеренный
6. annual ring	6. удельный вес
7. crown	7. кора
8. root	8. хвойные породы
9. to conduct	9. дышать
10.dense	10. листв. породы
11.specific gravity	11. годовое кольцо
12. softwoods	12. древесный
13. hardwoods	13. проводить
14. to breathe	14. ствол

9. Разделите следующие породы деревьев на хвойные и лиственные:

Pine, oak, lime, maple, cedar, poplar, fir, ash, aspen, larch, willow, birch, spruce, beech, alder.

10. Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь.

Structure and Kinds of Trees

More than 1500 species of trees and shrubs grow on the territory of our country. Of all the world's plants trees are perhaps the most remarkable. Trees are woody plants growing usually with a single stem. They are the largest members of the plant world.

Trees consist of 3 main parts: the root, the stem, the crown. The part of a tree which is in the soil is a root, the part coming up from the root is the trunk and the part covered with leaves is the crown.

Like all other plants and like animals trees breathe. The breathing is done through the leaves and the bark. The bark is the outer covering of the trunk and the branches.

In the temperate zone trees grow actively during the warmer months and stop growing during the cold months. At the beginning of the growing season the growth is rapid and slows down to autumn. The variation between spring and summer wood causes the annual rings by which we may count the age of a tree. The spring wood

must conduct the heavy flow of sap and has coarse open grain while the summer wood is dense and darker with more strength. Wood varies in weight and specific gravity.

Trees are divided into 2 main groups: soft wood trees and hard wood trees. Conifers have been preferred to broad-leaved trees as they are much quicker in yielding crops. Coniferous species such as pine, cedar, spruce, larch and fir dominate in our forests. They are evergreen trees. Their leaves look like needles. Only larch like all deciduous trees sheds its needles every autumn. Soft sawngoods are used in some branches of industry due to the high physical and mechanical properties of wood.

Hard species are oak, birch, beech, lime, maple, willow, aspen, ash, poplar. All these trees have broad leaves and shed them every autumn. The oak and the beech are the most valuable among the deciduous trees.

11. Сделайте в предложениях правильный порядок слов:

1. Grow on the territory of our country trees and shrubs more than 1500 species of.
2. Through the leaves and the bark is done the breathing.
3. Between spring and autumn wood the annual rings the variation causes.
4. The heavy flow of sap must the spring wood conduct.
5. With more strength the summer wood darker and is dense.
6. Into two main groups divided are the kinds of trees.
7. Are used soft sawngoods to high physical and due mechanical properties?
8. Hard species broad leaves have and autumn every them shed.
9. The most valuable the deciduous trees among are the oak and the beech.

12. Ответьте на вопросы по тексту.

1. How many species of trees and shrubs grow on the territory of our country?
2. What plants are trees?
3. What parts do trees consist of?
4. What is the root (the trunk, the crown, the bark)?
5. How is the breathing of trees done?
6. How do trees grow in the temperate zone?
7. What causes the annual rings of trees?

8. What can you say about the spring wood (the summer wood)?

9. What does wood vary in?

10. What groups are the kinds of trees divided into?

11. Why have conifers been preferred to deciduous trees?

12. What conifers (hardwoods) do you know?

12. What species are the most valuable among the deciduous trees?

13. Переведите следующие предложения на английский язык.

1. В нашей стране произрастает более 1500 пород деревьев и кустарников.

2. Деревья являются крупнейшими представителями растительного мира.

3. Деревья состоят из 3-х основных частей: корня, ствола, кроны.

4. Кора – это внешнее покрытие ствола и ветвей.

5. Деревья дышат через листья и кору.

6. Рост деревьев замедляется к осени.

7. Мы можем посчитать возраст дерева по годичным кольцам.

8. Существуют две основные группы деревьев: хвойные и лиственные.

9. В наших лесах преобладают хвойные породы.

10. Среди лиственных пород самыми ценными являются дуб и бук.

1. Запомните следующие слова:

lungs - легкие

stomach - желудок

to evaporate - испарять

to trap - поглощать

arrangement - расположение

winged seed – крылатка (вид плода)

cone - шишка

acorn -желудь

nut - орех

pod fruit - стручок

fleshy fruit- мясистый плод

2. Прочитайте и переведите текст.

What is a tree?

The oldest living in the world is a tree. Trees have played a central role in the life of man. Without trees the ecology of the earth could be unbalanced, the amount of oxygen would decrease and the natural food and plant chain would be broken. Trees also provide beauty, shade, protection and comfort for man and animals.

A tree is a woody plant with a trunk and a crown at the top. It differs from the shrub by its height and a single trunk. The roots of a tree take water from the soil, pass it through the trunk to the leaves, where it evaporates in the air.

The three fundamental components of a tree system are its roots, trunk and leaves. Roots spread radially from a tree trunk, but rarely to a depth greater than four feet. Trunk of a tree transports the minerals absorbed by the roots to the leaves where they are converted into food. The leaf is the lungs and stomach of a tree. It tramps sunlight and through chlorophyll manufactures food from the minerals absorbed by the root. For a tree to flourish it needs light, soil and water. Water affects the form, growth and structure of a tree.

The size, shape arrangement and color of the leaves are different on different kinds of trees. The flowers of some trees are large and showy, while the flowers of other trees are so small that many people never see them and believe that these trees do not produce flowers. Some trees are deciduous, that is they drop their leaves in the fall, and some are evergreen. The trees that drop their leaves in the fall are known as hardwoods, while the evergreens are known as softwoods. The fruit is different on different kinds of trees, there being winged seeds, cones, acorns and nuts, pod fruits and fleshy fruits.

3. Прочитайте и переведите следующие слова на русский язык:

ecology, amount, to decrease, oxygen, chain, to provide, shade, trunk, top, to differ, to evaporate, radially, rarely, lungs, stomach, to trap, arrangement, deciduous.

4. Переведите следующие слова и словосочетания на английский язык:

центральная роль

экология земли

древесное растение

испарять

легкие

желудок

расположение

поглощать

лиственный

хвойный

вечнозеленый

5. Ответьте на вопросы по тексту.

1. Why do trees play a central role in the life of a man?
2. What is the difference between trees and shrubs?
3. What is the function of root (trunk, leaves)?
4. In what way do trees differ from each other?
5. What is the difference between deciduous and softwood trees?

6. Переведите следующие слова на русский язык и распределите их по двум колонкам (название деревьев и название цветов).

A. Names of trees;

B. Names of flowers**.**

Oaks, rose, willow, daffodil, forget-me-not, elm, violet, lilac, daisy, orchid, buttercup, bluebell, fir, carnation, pine, poppy, dandelion, lily, birch, maple.

7. Вставьте нужное по смыслу слово:

A. bud, roots, thorns, pollen, leaves, petals

1. A tree's … go a long way under ground. 2. A flower that is just about the open is called a … . 3.There are a lot of yellow and red … on the ground in autumn. 4. … is fine powder, produced by flowers, which is by the wind or by insects to other

flowers, making them produce seeds. 5. Take care not to prick yourself. That plant has sharp … .6. Each of these flowers has seven … .

B. harvest, gathered, thriving, fertilize, plant, blossoms, pick.

1. Our apple tree … in April. 2. The garden is … after the rain. 3. Let's … some flowers , they look so beautiful. 4. Farmers … their crops in spring and … them in autumn. 5. If you want to have really good berries, you must regularly … the bushes. 6. Most crops in the UK are … in autumn.

1. Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь.

How a Tree Grows

cone - конус

cambium - камбий

to mature - созреть

to account for – объяснять чем-либо

scaly - чешуйчатый

wood ray – сердцевинный луч

A tree grows in three directions: trunk and branches grow upward, roots grow downward, and all grow laterally, that is in diameter. As with all living things, trees are made up of cells, and growth occurs by means of cell division. Vertical growth is of little interest, because the most part of the wood in the tree trunk is formed by lateral growth. Growth in diameter, also called secondary growth, takes place in a very narrow zone, between the wood of a tree trunk and the bark. This area, called cambium, is only a few cells thick, but it produces all the different types of cells in both the wood and the bark. The cambium itself consists of a layer only one cell thick, but as the cells divide and mature, there is a region on each side of the cambium which contains living cells in various stages of development.

When a wood cell is mature, it is technically dead, for it contains no nucleus or protoplasm. Thus, even the wood of a living tree is made up mainly of dead cells, although certain kinds of cells in the sapwood remain alive longer than others.

During a normal growing season, the cambium produces millions of cells, and a layer of a new wood is formed. Since the cambium is a cover surrounding the tree trunk, the layer of wood produced each year is in the same form, and when the tree is only a year or two old, the layer of wood is a cone as high as the tree. During each successive growing, another cone-shaped layer of wood is added around underneath. Thus, in order to find the age of a tree by the time-honored method of counting growth rings, one must cut the tree very near the ground or the first year or two is missed.

During each growing season, a layer of bark is also added, but it is added to the inside of the bark. It would seem, then, that since a tree enlarges in diameter each year, and the outer layers of bark must stretch. But what actually happens is that the outer layers of the bark become dry and, instead of stretching, they crack. This accounts for the scaly appearance of the bark of most trees.

On a cross-sectional surface we can see the growth of rings. These are the concentric layers of wood added each season to the diameter of the trunk. The rings are usually quite distinct because in the temperate climate, the wood formed in the spring when growth is more rapid is called early wood or springwood, and is characterized by cells which are larger and thin-walled, making a rather porous layer of wood. Slower growth later in the growing season produces latewood or summerwood, which has smaller thick-walled cells, forming relatively more dense wood.

Besides, on the surface of hardwoods, fine lines can be seen radiating from the centre of the tree outward. These are wood rays, made up of cells oriented horizontally in the tree instead of vertically, as the majority of the cells are. The horizontal orientation of ray cells helps to conduct food materials laterally in the tree.

2. Переведите нижеследующие слова и словосочетания на русский язык.

Grow upward/ downward/ laterally; cell division; a few cells thick; to mature; various stages of development; growing season; to produce millions of cells; a cover surrounding the tree trunk; successive growing; cone-shaped layer of wood; the outer layers of bark; scaly appearance; concentric layers; springwood; summerwood; the surface of hardwoods; horizontal orientation of ray cells.

3. Вставьте недостающие слова по смыслу.

Directions, are made up, growth, cambium, thick

1. A tree grows in three ….
2. Trees … of cells.
3. Growth in diameter, also called secondary … .
4. The area of secondary growth, called …, is only a few cells thick.
5. The cambium itself is only one cell … .

4. Ответьте на вопросы по тексту.

1. In what directions does a tree grow?
2. Why is vertical growth of a tree of little interest?
3. What is cambium?
4. Is it really that the wood of a living tree is made up mainly of dead cells?
5. What is the time-honored method of counting growth rings?
6. What does explain the scaly appearance of the bark of most trees?
7. Why are the rings on a cross-sectional surface usually quite distinct?
8. What kinds of wood do you know now?

5. Перескажите текст, используя речевые обороты:

I am going (I want, I would like) to retell a (funny, humorous…) story…

The title of it is…

This text is about…(is about how)…

The story shows…

At the beginning of the story the author describes…

The story is set (develops) in the forest (in the street, at home)…

It takes place in winter (in the evening, at night, during some days)…

We first meet the main character when…

As I said before…

In the next paragraph…

The general (main) idea expressed is…

I find this text interesting (informative) because…

6. Сопоставьте слова и их определения:

a) Springwood b) Hardwoods c) A trunk d) Summerwood e) A tree f) Softwoods	1. … the tallest form of plant floral diversity that is generally perennial, woody and branched among other plant varieties. 2. … is the main wooden axis of a tree. 3. … is wood from angiosperm trees. 4. … is wood from gymnosperm trees such as conifers. 5. … is the harder less porous portion of an annual ring of wood that develops late in the growing season. 6. … is the first formed woody portion of the annual growth ring of a shrub or tree.

7. Согласитесь или не согласитесь с утверждением. Используйте соответствующие фразы.

Несогласие:

I don’t agree! – Я не согласен!

I don't think so. – Я так не думаю.

I think otherwise. – Я думаю иначе.

Absolutely not! – Ни в коем случае!

That’s not right! – Это неправильно!

I’m sorry but… – Мне очень жаль, но…

Rubbish! / Nonsense! – Чушь! / Чепуха!

I totally disagree! – Я совершенно не согласен!

I don’t think you’re right. – Я не думаю, что ты прав.

(I'm afraid) I don't agree. – (Я боюсь) Я не согласен.

Согласие:

Of course / Sure – конечно.

Definitely – Определенно.

Absolutely – Безусловно.

Exactly so – Именно так.

I agree with the statement – Я согласен с утверждением!

Quite so – Вполне верно Most likely – Скорее всего.

1. A tree grows in four directions.
2. A trunk and branches grow downward.
3. Roots grow downward.
4. As with all living things, trees are made up of cells, and growth occurs by means of cell division.
5. Growth in diameter, also called primary growth, takes place in a very narrow zone, between the wood of a tree trunk and the bark.
6. The area between the wood of a tree trunk and the bark is called cambium.
7. Cambium is five centimeters thick.
8. When a wood cell is mature, it is technically alive, for it contains no nucleus or protoplasm.
9. During a normal growing season, the cambium produces a couple of cells, and a layer of a new wood is formed.
10. Since the cambium is a cover surrounding the tree trunk, the layer of wood produced each year is in the same form, and when the tree is only a year or two old, the layer of wood is a cone as high as the tree.
11. The rings are usually quite weak because in the temperate climate.
12. The wood formed in the spring when growth is more rapid is summerwood.
13. Springwood is characterized by cells which are larger and thin-walled, making a rather porous layer of wood.
14. Slower growth later in the growing season produces springrwood.

1. Переведите следующие слова:

nearly, valuable, velocity, decay, foliage, intercept, moisture, row, protection, cover, precipitation, absorb, transpire, especially, heavy, beneficial, soot, pollution, recreation, seek, dust, disease, noise, raw, resources, biosphere, utmost, exercise, purify, erosion, material, shelter, belt, freshen, conservation, level.

2.Запомните слова и словосочетания.

to occupy – занимать

nearly – около, приблизительно

natural – природный

valuable – ценный

larch – лиственница

sawngoods – пиломатериалы

construction – строительство

decay – разрушение

resistance – сопротивление

to slow down – уменьшать

velocity – скорость

stand – лесонасаждение, древостой

dense – густой

foliage – листва

environment – окружающая среда

total – общий, весь, полый

wood – древесина

timber – пиломатериал, строевой лес

to consist of – состоять

row – ряд

to plant – сажать

lack – недостаток

cover – покрытие

heavy – зд. густой

to protect – защищать

protection – защита

protective – защитный

to intercept – задерживать

precipitation – осадки

amount – количество

moisture – влага

moist – влажный

soil – почва

to absorb – поглощать

to transpire – испарять, просачиваться

coniferous – хвойный

especially – особенно

beneficial – полезный, целительный

to filter – очищать

dust – пыль

soot – сажа

to pollute – загрязнять

polluted – загрязненный

pollution – загрязнение

recreation – отдых

toenjoy – наслаждаться

to seek – искать, жаждать

inspiration – вдохновение

pest – насекомое

disease – болезнь

control – контроль

geographic environment and biosphere – географическая среда и биосфера

natural resources – природные ресурсы

raw material – сырье

to influence the conditions – влиять на условия

to play an important role – играть важную роль

shelter belts – защитные зоны

to reduce the wind rush – уменьшать силу ветра

to protect water resources – защищать водные ресурсы

to purify and freshen the air – очищать и освежать воздух

to produce oxygen – вырабатывать кислород

protective forest planting – лесозащитная посадка

to raise crop yields – повышать урожайность культур

to prevent soil erosion – защищать почву от эрозии

to reduce the noise level – уменьшать уровень шума

to exercise control – осуществлять контроль

to pay attention to – обращать внимание на

forest conservation– сохранение леса

to do one's utmost – сделать все возможное

3. Соедините слова в колонках в соответствии с их переводом:

1. environment	1. полезный
2. total	2. задерживать
3. precipitation	3. испарять
4. construction	4. строительство
5. foliage	5. осадки
6. to intercept	6. загрязнение
7. to absorb	7. вдохновение
8. beneficial	8. листва
9. to transpire	9. поглощать
10. pollution	10. недостаток
11.inspiration	11. древостой

12.lack	12. окружающая среда
13. stand	13.задерживать

4. Прочитайте и переведите текст.

Forest Importance

Forests are important components of geographic environment and biosphere. They occupy nearly a third of the earth's total land area.

Forests are very important natural resources. They give us wood and valuable raw materials. Larch sawngoods are the best timber for construction where strength and resistance to decay are required.

Forests influence the conditions for human life. They play an important role in changing the climate of the region as they exercise moderating influence on air temperature. Forest trees slow down the wind velocity. Dense stands with heavy foliage have the greatest effect on it. Shelter belts consisting of several rows oa trees are often planted in regions where lack of natural forest cover can't reduce the wind rush.

Forests protect water resources because they tend to intercept precipitation. The denser the stand the more moisture the soil can absorb and in a forest the air is moister than in the open because of the large amount of water transpired by trees. The air of coniferous forest is especially beneficial to our health.

Forests purify and freshen the air in cities as they filter dust and soot out the polluted air and produce oxygen which is so necessary for every living being.

Protective forest planting is of great importance on agricultural land because it helps to raise crop yields and prevent soil erosion; it reduces the noise level approximately two times more than open agricultural lands do.

And the most important influence of the forest is the source of recreation. People enjoy the beauty of the forest, seek health and inspiration there.

But it is necessary to exercise control over the use of natural resources. Much attention must be paid to forest conservation and protection of forest from fire, pests and diseases.

We wish to do our utmost to be constructive and helpful in promoting forestry protection.

5. Ответьте на вопросы к тексту.

1. Are forests important components of geographic environment and biosphere?
2. What area do forests occupy?
3. What do forests give us?
4. Larch sawngoods are the best timber for construction, aren't they?
5. Do forests play an important role in changing the climate?
6. What stands have the greatest effect on the wind velocity?
7. Forests protect water resources, don't they?
8. Do forests purify and freshen the air?
9. Why is protective forest planting of great importance on agricultural land?
10. Is it important to conserve and protect forests?
11. Do you wish to be helpful in promoting forestry protection?
12. Are forests national wealth?

6. Переведите предложения на английский язык.

1. Леса – очень важные природные ресурсы.
2. Леса дают нам древесину и ценное сырье.
3. Леса играют важную роль в изменении климата, оказывая влияние на температуру воздуха.
4. Деревья снижают скорость ветра.
5. Леса сохраняют водные источники.
6. Воздух в лесу более влажный, чем на открытом пространстве.
7. Воздух хвойных лесов полезен.
8. Деревья очищают воздух, поглощая пыль и сажу из загрязненного воздуха.
9. Леса понижают уровень шума почти в два раза.
10. Лесозащитная посадка способствует /помогает/ повышению урожайности.
11. Необходимо осуществлять контроль над использованием природных ресурсов.
12. Важно защищать леса от пожаров, вредителей и болезней.

7. Задайте специальный вопрос к предложениям.

1. Forests influence the conditions for human life. (what)
2. The air in a forest is moister than in the open because of the large amount of water transpired by trees. (why, where)
3. Forests protect water resources because they tend to intercept precipitation. (why)
4. Forests occupy nearly a third of the earth's total land area. (what area)
5. Larch sawngoods are the best timber for construction. (what sawngoods)
6. People enjoy the beauty of the forest. (who)

8. Измените предложения по образцу, используя фразу "because of".

Model: He was absent because he was ill. – He was absent because of his illness.

1. The air in the forest is moister because there is a large amount of water transpired by trees.
2. Protective forest planting is important on agricultural land because it prevents soil erosion.
3. It is necessary to protect natural resources because they are very important in our life.
4. Larch sawngoods are the best timber for construction because they are resistant to decay.
5. Forests are very important because they make the climate milder.

9. Прочитайте и переведите текст.

What a Forest is?

sufficient - достаточный

canopy – навес, полог

understory - подярус

sapling – саженец, поросль, побег

even-aged - одновозрастной

uneven-aged - разновозрастной

A collection of trees becomes a forest only when it has sufficient density and covers a large enough area to develop local climatic and ecological conditions that

are different from those outside. There are must be some changes in temperature, moisture, light and wind as well as in the character of upper soil layer. With these changes comes a different vegetation under the trees and different animal life in the forest. In technical language a specialist says that a forest "biocenoze" (life community) has been set up. Originally "forest" meant simply wild or uncultivated land. Today the term "forest" is sometimes applied to an economic unit of operating area. A forest of trees of similar age and composition is called "a stand" . Every stand has a more o less regular upper layer of green crowns, called "the forest canopy" under which there may be an open space except for the stems of the forest trees or more or less occupied with lower canopies. They are called understory and are typical of tropical forests but may be in the forests of temperate zone too.

Very often a single understory consists of saplings which are coming in to replace the falling stand of veterans above. Where the forest is open or thin there may be ground cover of grass. The nature of this cover is very different. In dense forest the ground under the trees – the forest floor - may have no living vegetation and be covered with dead lives and branches.

The species composition of the forest is one of the most important features. The stand may be composed of a single species making a pure forest or several species are associated to form a mixed forest. Perfectly pure forests over large areas occur not often however. It was observed that species do not do well when planted in pure stands, especially upon usual forest soils. The reason is that they make very heavy demands upon soil plant food (nutrients). Such pure stands may do well in youth, but as they become older, their growth become very slow and the trees die.

Stands are classified according to age classes of which they are composed. Even-aged stand is one in which all the trees are of one age. Uneven-aged stand, on the other hand, theoretically has trees of every age, from seedlings to old veterans.

10.Согласитесь или опровергните предложения к тексту. Используйте соответствующие фразы.

Несогласие:

I don't agree! – Я не согласен!

I don't think so. – Я так не думаю.

I think otherwise. – Я думаю иначе.

Absolutely not! – Ни в коем случае!

That’s not right! – Это неправильно!

I’m sorry but… – Мне очень жаль, но…

Rubbish! / Nonsense! – Чушь! / Чепуха!

I totally disagree! – Я совершенно не согласен!

I don’t think you’re right. – Я не думаю, что ты прав.

(I'm afraid) I don't agree. – (Я боюсь) Я не согласен.

Согласие:

Of course / Sure – конечно.

Definitely – Определенно.

Absolutely – Безусловно.

Exactly so – Именно так.

I agree with the statement – Я согласен с утверждением!

Quite so – Вполне верно Most likely – Скорее всего.

1. Any collection of trees may become a forest.

2. Changes in temperature, moisture, light and wind do not influence the forest vegetation and animal life.

3. The term “forest” always meant and now means “simply wild and uncultivated land”.

4. Understories are typical of tropical forests.

5. The stand may be composed only of single species.

6. Species do not do well when planted on pure stands because they make very heavy demands upon soil plant food.

7. Stands are classified according to age classes of which they are composed.

12. Вставьте английский эквивалент в предложениях.

1. (Совокупность) of trees becomes a forest only when it has sufficient (плотность) and covers (достаточно обширную территорию) to develop local climatic and ecological conditions that (отличаются) from those outside.
2. Specialists say that a forest (биоциноз, жизненное сообщество) has been set up.
3. Originally “forest” meant simply wild and uncultivated (землю).
4. Where the forest is open or thin there may be (наземный травяной покров).
5. The stand may be composed of a single species making a (чистый) forest or several species are associated to form (смешанный) forest.
6. Such pure stands may do well (в молодом возрасте), but as they become older, their growth (замедляется) and tress (умирают).

13. Дайте определение следующим терминам:

forest, biocenoze, stand, forest canopy, understory, the forest floor, pure forest, mixed forest, even-aged stand, uneven- aged stand.

1. Прочитайте и переведите следующие слова:

interaction, approach, requirements, destruction, regenerate, exhaust, essential, qualitative, human, waste, harmful, ecology, biosphere, threat, oxygen, erosion, environment, resource, concept, measure.

2. Запомните следующие слова и словосочетания:

essential- необходимый

qualitative- качественный

ability- способность

to destroy- разрушать

distruction- разрушение

management- управление

to lose (lost)- терять

to regenerate- восстанавливать

unfit- непригодный

to exhaust- истощать, исчерпывать

to avoid- избегать

to enrich- обогащать

harmful- вредный, пагубный

waste- лишний, ненужный

approach- подход

interaction with nature- взаимосвязь с природой

problems facing mankind- проблемы, стоящие перед человечеством

human activity- человеческая деятельность

requirements of man- потребности человека

waste products- отходы

3. Прочитайте и переведите синонимы.

contaminated = polluted

environment = medium

concept = idea

damage = harm

unfit = unsuitable

preservation = conservation

to destruct = to ruin

main = chief

development = progress

4. Прочитайте и переведите текст.

Man and his Environment

Ecology is the science of relations between organisms and the resources of the environment. Man's interaction with nature is one of the most important and complex problems.

Man is interested in nature preservation because he, like every other living organism, depends on what the biosphere provides: water, oxygen, food. Human activity is

a real threat to the environment. To conserve the environment it is necessary to find such ways of development which will protect the living resources essential for men. If there are qualitative changes in the biosphere, it will no longer correspond to the biological requirements of man, whose ability to adapt is very limited.

While using natural resources we should be careful not to destroy the balance of the biosphere. Everything in nature is interrelated. If soil and vegetation are not in balance as a result of poor soil management the soil is lost, it is regenerated if there is enough vegetation. The pollution of water destructs the river's flora and fauna. One liter of oil makes one million liters of fresh water unfit for drinking. Chemicals which are effective for pest and weed control may produce undesirable effect: too high doses may contaminate food and feed. Forests are disappearing and deserts are advancing at the same speed. Replanting must take place in order not to exhaust forests, to avoid soil erosion, to save water resources and to enrich wildlife. Pollutants weaken the capacity of nature for self regulation.

Now when the pollution of the environment is too high, the problem of nature conservation is of great importance. There are two main aspects of the problem: first – all natural resources are to be used more economically as they are not unlimited, and second – measures are to be taken to prevent harmful effect of waste products. The protection of the environment is the duty of every man. Our great scientist Vladimir Vernadsky was the first to realize the necessity for quite a new approach to the biosphere. It is his concept of the biosphere that we accept today: it is important to know what we can demand from nature and what is beyond our reach.

5. Переделайте предложения по образцу, используя эмфатические конструкции.

A. Model: The biosphere influences man's life. – It is the biosphere that influences man's life.

B. Model: She stopped the car. – It was she who stopped the car.

1. He started the discussion of the problem of nature protection.
2. She saved the situation.

3. Chemicals produce undesirable effect.

4. I found them in the forest.

5. The pollution of water destructed the river's flora and fauna.

6. Pollutants weakened the capacity of nature for self regulations.

7. Vladimir Vernadsky realized the necessity for a quite new approach to the biosphere.

8. His concept of the biosphere we accept today.

9. Human activity is becoming a real threat to the environment.

10. Wood continues to provide most of the furniture for our homes.

6. Согласитесь или опровергните следующие предложения. Используйте соответствующие фразы.

Несогласие:

I don't agree! – Я не согласен!

I don't think so. – Я так не думаю.

I think otherwise. – Я думаю иначе.

Absolutely not! – Ни в коем случае!

That's not right! – Это неправильно!

I'm sorry but… – Мне очень жаль, но…

Rubbish! / Nonsense! – Чушь! / Чепуха!

I totally disagree! – Я совершенно не согласен!

I don't think you're right. – Я не думаю, что ты прав.

(I'm afraid) I don't agree. – (Я боюсь) Я не согласен.

Согласие:

Of course / Sure – конечно.

Definitely – Определенно.

Absolutely – Безусловно.

Exactly so – Именно так.

I agree with the statement – Я согласен с утверждением!

Quite so – Вполне верно Most likely – Скорее всего.

1. Man’s interaction with nature is one of the most complex problems.

2. Man doesn’t depend on the biosphere.

3. Human activity is a real threat to the environment.

4. Changes in the biosphere will correspond to the biological requirements of man.

5. Man’s ability to adapt is very limited.

6. There is no necessity to be careful while using natural resources.

7. Soil is regenerated if there is enough vegetation.

8. One liter of oil is not dangerous for water.

9. Chemicals can’t contaminate food and feed.

10. Replanting must take place in order not to exhaust forests.

11. It is necessary to take measures to prevent harmful effect of waste products.

12. The protection of the environment is not our duty.

7. Задайте специальный вопрос к предложениям.

1. Man’s life depends on the biosphere. (What).

2. While using natural resources we should be careful. (When).

3. Soil is regenerated if there is enough vegetation.(When).

4. Replanting must take place in order to conserve forests.(Why).

5. Pollutants destroy the balance of the biosphere. (What).

6. Transport is a major of environmental pollution because every car consumes many tons of air. (Why).

7. An ecologist should be familiar with the basic problems of physics, chemistry, biology, geology and other sciences. (What ... with).

8. A polluted river loses its oxygen. (What).

8. Составьте предложения из следующих слов и словосочетаний.

1. Be careful, we, the balance of the biosphere, should, not to destroy.

2. Is, in, interrelated, everything, nature.

3. The soil, it, if, lost, with, is, balance, in, vegetation, not, is.

4. Big, a problem, pollution, because, water, is, very, polluted, are, rivers, industrial waste, with, food, doses.

5. High, chemicals, of, too, contaminate, may, and, feed.

6. In order to, must, replanting, forest, preserve, take place.

9. Переведите предложения на английский язык.

1. Экология – наука о связи организмов и источников их окружения.
2. Связь человека с природой – одна из самых важных проблем.
3. Человек зависит от биосферы, которая обеспечивает водой, кислородом, пищей.
4. Но деятельность человека является угрозой окружающей среде.
5. Нам не следует нарушать баланс биосферы, используя природные ресурсы.
6. В природе все взаимосвязано.
7. Полютанты /загрязнители/ ослабляют способность природы к саморегуляции.
8. Природные ресурсы не безграничны и их следует использовать экономично.
9. Важно принять меры, чтобы предотвратить вредный эффект отходов.
10. Охрана окружающей среды – долг каждого гражданина.

10. Ответьте на вопросы по тексту.

1. What is ecology?
2. Whose concept of the biosphere do we accept today?
3. What is man’s interaction with nature?
4. What is it necessary to do to conserve the environment?
5. Everything in nature is interrelated, isn’t it?
6. What is the result of
    a) poor soil management;
    b) the pollution of water;
    c) the usage of too high doses of chemicals?
7. Why is it important to protect forests?
8. What is the action of pollutants?
9. Why do pollutants weaken the capacity of nature for self regulation?
10. What are the main aspects of nature protection?
11. What is the main concept of the biosphere?

11. Приготовьте доклад на следующие темы:

1. Man’s interaction with nature.

2. Main aspects of nature conservation.

12. Прочитайте диалоги и воспроизведите их.

A.

1: Good morning. My name is Brown. I do research in the field of smog problems. What is your field?

2: I study industrial noise pollution.

1: I think there are a lot of problems of common interest for us to discuss.

B.

1: Are you going to be an environmentalist?

2: Yes, I am. I would like to deal professionally with such problems as water, air and noise pollution.

1: What science make the basis of ecology?

2: An ecologist should be familiar with the basic problems of physics, chemistry, biology and other sciences.

1: I think he should also know mathematics and computer sciences perfectly well.

1. Прочитайте и переведите текст.

Environmental Protection

The environmental protection is one of the most important problems for everyone because we all live in this world. Since ancient times Nature has served Man, being the source of his life. For thousands of years people lived in harmony with environment. But with the development of civilization man's interference in nature begins to increase.

There are many forms of pollution in our world today, for example the pollution of air and the world ocean, nuclear waste, chemical waste. Air pollution is one of the most important examples and a result of many factors. Every year world industry pollutes the atmosphere with dust and other harmful substances. The discharge of dust and gases into the atmosphere returns to the Earth in the form of "acid rains" and

affects crops, the quality of forests, the amount of fish. As the result of the environmental pollution some rare species of animals, birds, fish disappear forever, a number of rivers and lakes dry up.

Another serious problem concerns rainforests. Before 1900, rainforests covered 24 per cent of the world surface. Today they cover 7 per cent. The reason of this is simple. They have been cut down to provide land, paper, wood, medicines, minerals, fuel. But it is not only trees which are disappearing. Every rainforest also contains millions of animals, insects and flowers. They are destroyed too. And by the year 2030 they will disappear completely if we continue such treatment of nature. To solve this problem the governments in rainforests' countries should protect certain areas and plant new forests.

Nuclear energy is the next vital problem. In April, 1986 an accident happened at the Chernobyl nuclear power station, situated on the territory of the Ukraine.

If we think of the harm, that the Chernobyl nuclear power station explosion has done and will do the people it may be considered the biggest disaster of the 20th century. About 18 per cent of the territory of Belarus were polluted with radioactive substances. A great damage has been done to the republic's agriculture, forests and people's health.

After the Chernobyl disaster many people think that nuclear power isn't safe. We have to look alternative sources of energy, such as: wind energy (Britain's first wind farm opened in Scotland in 1988) and solar energy.

Animals are part of the environment too. Millions of them are killed or treated cruelly by men. There are five main groups: a) animals used for scientific research (e.g. rabbits), b) animals killed for sport (e.g. foxes), c) animals killed for their fur or skin (e.g. crocodiles), d) animals in danger because their environment is in danger (e.g. gorillas), e) animals kept in cruel conditions on farms (e.g. cows, etc).

The international organization Greenpeace is doing much to preserve the environment. Greenpeace has already helped to stop whale hunting. Now they want to stop fur-hunting too. Like many other organizations they believe in animals' rights.

It is important that anyone should be aware of the problem, that we should continue to find alternatives to the products that harm the environment and that every individual should do what he can to protect nature not only for the sake of the present but also for the future generations.

2. Ответьте на вопросы.

1. Has man's interference in nature increased with the development of civilization? What does it lead to?
2. What forms of the environment pollution do you know?
3. What are the main reasons and results of air pollution?
4. Are the rainforests in danger nowadays? Why?
5. What do you know about the Chernobyl ecological disaster?
6. What are the consequences of this tragedy?
7. Do you know any alternative sources of energy?
8. What are the main groups of animals to be protected?

3. Переведите предложения и определите часть речи подчеркнутых слов (глагол или существительное).

1. Serious measures should be taken against waste of fresh water.
2. Don't waste the time!
3. A great damage has been done to the republic's agriculture.
4. Several houses were damaged by the hurricane.
5. Plants are nature resources which man always use and uses now.
6. We planted trees and bushes in our new garden.
7. The disappearance of forest areas harms the environment.
8. If we think of the harm that the Chernobyl nuclear power station explosion has done it may be considered the greatest disaster of the 20th century.
9. There are many forms of pollution in our world today.
10. Information about the problems of pollution in many countries formed the basis of the report.

4. Вставьте в пропуске необходимые по смыслу следующие слова: *animals, pollute, environment, waste, pollution, substance, ecological, danger.*

1. We are doing enough to protect … from pollution.
2. The huge amounts of chemical fertilizers and pesticides used on these farms … the water.
3. People should be more concerned about the continuing … of the environment.
4. The Japanese recycle more than half of their industrial … .
5. Harmful … are found in many rivers.
6. The destruction of the rainforests is an … disaster that threatens the future life on the Earth.
7. About 60 000 different species of plants are in … today.
8. Today the giant panda is one of the rarest … in the world.

5. Найдите определения к следующим словам: *wildlife, to pollute, fauna, flora, atmosphere, ecology, civilization, energy.*

1. – the mixture of gases that surrounds some planets, such as the Earth;
2. – to make (air, water, earth, etc.) dirty or harmful to people, animals and plants, especially by adding harmful substances;
3. – the relationship between the air, land, water, animals, plants, etc., or a scientific study of this;
4. – the power from something such as electricity or oil, which can do work, such as providing light and heat;
5. – animals and plants that grow independently of people, usual in natural conditions;
6. – a human society with its highly developed organizations, or the culture and the life of a society or country at a particular period of time;
7. – all the plants of the particular place;
8. – all the animals that live in a particular area.

6. Существует несколько способов решения экологических проблем. Попытайтесь объяснить насколько они полезны.

1. The factories and plants must be removed from cities.

2. Green zones must be created.
3. The greenery must be protected and increased.
4. Pollution control system should be introduced.
5. Purifying systems for cleaning harmful substances must be widely used.

1. Прочитайте и переведите слова.

injure, resistant, disturb, succumb, defoliator, vitality, seedling, nursery, maturity, susceptible, vigorous, multiplicity, assess, ultimate, multiply, majority, deteriorating, attack, borer.

2.Запомните слова и словосочетания.

to suffer – страдать

to disturb – разрушать

seed – семя, зерно

continually – постоянно,

to injure – повредить

injury – повреждение, порча

seedling – сеянец, рассада

nursery – питомник

defoliators – насекомые, повреждающие листья или хвою деревьев

maturity – зрелость

resistant – сопротивляющийся, стойкий, прочный

to succumb – быть побежденным, умереть

bark-beetle – короед, лубоед

vitality – жизнеспособность, жизненность

susceptible – восприимчивый, чувствительный

vigorous – сильный, энергичный

to breed – размножаться

ambrosia beetle – древесинник

freshly – свежо, недавно

to season – сушить

multiplicity – разнообразие

to assess – оценивать

ultimate – конечный

intelligently – разумно

abundance – изобилие

ability –способность

to multiply – увеличивать/ся, размножать/ся

to be healthy – быть здоровым

the majority of insects – большинство насекомых

to have a direct affect upon – оказывать прямое влияние на

the sapling age – возраст молодого дерева

mature forest – зрелый лес

to become subject to the attack – подвергаться атаке/насекомых

wood deteriorating insects – насекомые, повреждающие древесину

round-headed borer – дровосек круглоголовый

flat-headed borer – златка плоскоголовая

to apply the necessary remedies –применять необходимые меры

3. Найдите эквиваленты.

1. to disturb	1. питомник
2. injury	2. насекомые-вредители
3. seedling	3. изобилие
4. nursery	4. стойкий
5. resistant	5. жизнеспособность
6. vitality	6. разумно
7. multiplicity	7. сильный
8. to assess	8. восприимчивый
9. ultimate	9. сеянец
10. abundance	10. повреждение

11. intelligently	11. беспокоить
12. defoliators	12. конечный
13. susceptible	13. разнообразие
14. vigorous	14. оценивать
15. ability	15. способность

4. Образуйте существительные из следующих глаголов и переведите их:

to disturb –

to injure -

to nurse -

to mature-

to resist -

to breed -

to multiply-

5. Прочитайте и переведите текст.

Forest Entomology

Everything in nature appears to be interrelated. Any trees and other plants are part of the natural environment. When trees suffer this interrelation is disturbed.

Science helps the trees to be healthy. Forest entomology is the branch of biological science which deals with insects in forest and forest products. The majority of insects have a direct effect upon the trees themselves or upon the products derived from the trees. Insects are one of the greatest agents of destruction in our forests.

Forest entomology is connected with the problem of the evolution of species in association with each other rather than separately.

During every stage in the growth of wood, from the seed to the finished product, important insect problems are continually presenting. In the nursery the seedling of transplants may be injured by different defoliators. The period between the sapling age and commercial maturity is considered to be the most resistant to insect attack. But even in this period trees may succumb to the attack of defoliators or bark-beetles, because with approaching maturity the vitality of the trees is reduced and they be-

come susceptible to insect injure. Insects that can not kill young trees breed successfully in the trees of the mature forest.

When the trees die or are cut they become subject to the attack of many kinds of wood-deteriorating insects. Bark beetles, ambrosia beetles, round-headed borers and flat-headed borers attack and injure dying or freshly cut wood. As the wood seasons or decays it becomes subject to the attack of numerous other insects.

With such a multiplicity of insect species the forester is faced by many entomological problems. Specialists are interested in the prevention of damage to forests by insects. It is important that the forester should be the man with broad knowledge of entomology and forestry. He is to know what goes on in the forest, to assess the importance of insects activity and to determine the nature of each pest. He investigates its life and habits, the obvious relationships between insect numbers and environmental factors, the possibilities of control.

The actual abundance of forest insects depends upon their ability to multiply and to live in spite of various destructive forces in their environment.

The ultimate aim of forest entomology is to make possible the regulation of insect activities in forest and forest products and to apply the necessary remedies intelligently.

6. Найдите эквиваленты.

1. иметь дело (с)	1. the vitality of trees
2. продукция, полученная из древесины	2. the ability to multiply
3.представители разрушения	3. to become susceptible (to)
4. повреждаться различными листогрызущими	4. the period resistant to insect attack
5. несмотря на различные разрушительные силы	5. the agents of destruction
6. период, устойчивый к повреждению /атаке/ насекомыми	6. the products derived from the wood (trees)
7. жизнедеятельность деревьев	7. to deal with

8. становиться чувствительными	8. vigorous young trees
9. многообразие видов	9. in spite of various destructive forces
10. определить природу каждого насекомого	10. a multiplicity of insect species
11. способность размножаться	11. to be injured by different defoliators
12. сильные молодые деревья	12. to determine the nature of each pest

7. Закончите предложения.

1. Forest entomology is the branch of biological sciences which ...
2. Insects are one of the greatest agents of ...
3. In the nursery the seedling or transplants may be injured by ...
4. The period between the sapling age and commercial maturity is considered to be …
5. Insects that can not kill vigorous young trees breed ...
6. Bark beetles, ambrosia beetles, round-headed borers and flat-headed borers ...
7. With such a multiplicity of insect species the forester ...
8. Specialists are interested in ...
9. He investigates its life and habits ...
10. The ultimate aim of forest entomology is to make possible the regulation of ...

8. Переведите предложения на английский язык.

1. Все в природе взаимосвязано.
2. Лесная энтомология – это наука, которая имеет дело с насекомыми в лесах и лесной продукцией.
3. Известно, что насекомые являются одним из многочисленных представителей, разрушающих наши леса.
4. В течение каждой стадии роста древесины постоянно присутствует проблема повреждения насекомыми.
5. Считают, что период развития молодого деревца в зрелое, является самым устойчивым к повреждению насекомыми.

6. Когда деревья умирают, они становятся объектом для многих видов насекомых.

7. Лесная энтомология связана с проблемой эволюции насекомых.

8. Когда древесина созревает или разрушается, она подвергается нашествию/атаке многочисленных насекомых.

9. Специалисты заинтересованы в защите леса от насекомых.

10. Специалист лесного хозяйства должен знать, что происходит в лесу; он исследует жизнь и привычки насекомых.

11. Основная цель лесной энтомологии – возможность регулирования деятельности насекомых и разумного применения необходимых препаратов.

9. Ответьте на вопросы по тексту.

1. What does forest entomology deal with?
2. What problem is forest entomology connected with?
3. What is the aim of forest entomology?
4. Insects are one of the greatest agents of destruction in our forest, aren't they?
5. During what period are insect problems presenting?
6. When do the trees become subject to the attack of insects?
7. Why may the trees succumb to the attack of insects?
8. May the seedling be injured by defoliators?
9. What period is considered to be the most resistant to insect attack?
10. What does the actual abundance of forest insects depend on?
11. Forester is faced by many entomological problems, isn't he?
12. Why is it necessary for forester to be knowledgeable?

1. **Прочитайте и переведите текст.**

Plant Diseases

by disease in plants is meant – под заболеваниями растений подразумевается

liable to disease – подвержены болезни

storage losses – потери при хранении

brought about – вызвано

derangement - нарушение

functional disturbances – функциональные нарушения

root – корень

tuber – клубень

bulb – луковица

fungus (fungi) грибок, плесень

most to be feared – наиболее опасные (которых больше всего следует опасаться)

By disease in plants is meant some disturbance in the normal life-processes which affects either a particular organ or the entire plant, and which sometimes leads to premature death. Cultivated plants are usually more liable to diseases than wild plants.

The losses caused by plant disease are sometimes enormous, and cultivation of certain crops in some countries had been abandoned in the past owing to the ravages of disease.

Storage losses through disease may be severe. Disease in plants may be brought about either through attack by some kind of parasite or by some autonomous, functional derangement.

Abnormal moister conditions, peculiarities of soil, extremes of temperature, and many other factors cause functional disturbances.

Many different groups of organisms attack plants parasitically. Nematode worms of microscopic size often invade plants, and living parasitically therein, cause serious diseases in roots, tubers, bulbs, stems, and leaves.

Highly infectious diseases of the virus type are now recognized to be among the most serious that affect plants; they are often transmitted by insects.

The fungi include an immense number of forms parasitic on plants which are often extremely injurious.

The disease most to be feared are those which are epidemic in character, i.e. those which develop almost simultaneously and universally throughout a crop.

2. Ответьте на вопросы по тексту.

1. What is meant by plant diseases?
2. Why had cultivation of certain crops in some countries been abandoned in the past?
3. What can cause plant diseases?
4. What plant diseases are most to be feared?

3. Прокомментируйте следующие утверждения.

1. Plant diseases affect either a particular organ or the entire plant.
2. The losses caused by plant diseases are sometimes enormous.
3. Disease in plants may be caused either by some kind of parasite or by some functional derangement.
4. Many different groups of organisms attack plants parasitically.
5. Infectious diseases of the virus type are the most serious diseases that affect plants.

4. Прочитайте и переведите текст.

Control of Plant diseases

concentrate their efforts on the prevention of disease rather than its cure – делают все возможное, чтобы предотвратить болезнь вместо того, чтобы лечить её

the elimination of host plants – уничтожение растений-хозяев

rust fungi – грибки ржавчины

copper sulphate - медный купорос (сульфат меди)

lime - известь

sulphur - сера

rot – гниль, гниение

blight – болезнь растений

mildew - милдью, ложная мучнистая роса

germ – зародыш, семя, микроорганизм

Plant diseases establish in such a manner that they are often developed before they can be detected. By the time the disease is evident it is rarely possible to cure it.

The plant pathologists, therefore, concentrate their efforts on the prevention of disease rather than its cure.

The use of disease-resistant varieties is one of the most effective means of reducing disease in cultivated plants. It is also very important to destroy the sources of infection. Fire is the most effective way in this case.

The elimination of host plants play an important part in the control of some diseases caused by rust fungi.

Efficient drainage of the soil helps in checking diseases which attack the tissues at ground level.

Fungicides now play a very important part in the control of plant diseases.

They are often applied in liquid or powder form. Spray mixtures are used for the control of some diseases especially those that attack orchards. Copper sulphate, lime, sulphur and Bordeaux mixture are used to control some of the rots, blights and mildew diseases. Carbon disulphide and chloropicrin are used for treating soil against nematodes. By planting at particular times some crops can be grown and mature before the disease.

5. Ответьте на вопросы по тексту.

1. What do the plant pathologists concentrate their efforts on?
2. What is the most effective means of reducing disease in cultivated plants?
3. What is the best way in destroying the sources of infection?
4. What plays an important part in the control of some diseases caused by rust fungi?
5. What are spray mixtures used for?
6. What is used to control some of the rots, blights and mildew diseases?

6. Согласитесь или не согласитесь с утверждением.

Используйте соответствующие фразы.

Несогласие:

I don’t agree! – Я не согласен!

I don't think so. – Я так не думаю.

I think otherwise. – Я думаю иначе.

Absolutely not! – Ни в коем случае!

That’s not right! – Это неправильно!

I’m sorry but… – Мне очень жаль, но…

Rubbish! / Nonsense! – Чушь! / Чепуха!

I totally disagree! – Я совершенно не согласен!

I don’t think you’re right. – Я не думаю, что ты прав.

(I'm afraid) I don't agree. – (Я боюсь) Я не согласен.

Согласие:

Of course / Sure – конечно.

Definitely – Определенно.

Absolutely – Безусловно.

Exactly so – Именно так.

I agree with the statement – Я согласен с утверждением!

Quite so – Вполне верно Most likely – Скорее всего**.**

1. Plant diseases establish in such a manner that they are often well developed before they can be detected.
2. It is always possible to cure a disease.
3. The use of disease-resistant varieties isn’t an effective means of reducing disease in cultivated plants.
4. It is also very important to destroy the sources of infection.
5. Fungicides are applied only in liquid form.
6. Copper sulphate is used for treating soil against nematode.
7. Some crops can be grown and mature before the disease germs become active provided (при условии) they are planted at a particular time.

7. Закончите предложения по тексту.

1. By the time the disease is evident …
2. The plant pathologists concentrate their efforts on …
3. Fire is the most effective way in …

4. Efficient drainage of the soil helps in …

5. Fungicides play an important part in …

6. Spray mixtures are used for …

7. Copper sulphate, lime, sulphur and Bordeau mixture are used to …

8. Составьте предложения.

1. Bacteria, as, insects, of, act, carriers.

2. Oxygen, want, why, living, things, do, all?

3. Influence, man, disease, of, health, domestic, the animals, and pathogens.

4. Plants, pests, cultivated, damage.

5. Is, size, microscopic, the, cells, the, of.

6. Fission, bacteria, by, multiply, simple.

9. Докажите, что:

- control of pests and disease pathogens must become the greatest task for all scientists, technical engineers and farmers responsible for the production of agricultural products;
- disease pathogens influence the health of man and domestic animals;
- bacteria destroy and kill plants;
- cultivated plants are more liable to disease than wild plants;
- it's better to prevent a disease rather than to cure it.

10. Напишите 5-7 вопросов для обсуждения к теме "Plant Diseases".

11. Подготовьте доклад на тему "Plant Protection" по следующему плану:

- the importance of plant protection in agriculture
- disease pathogens
- plant diseases
- control of plant diseases

12. Прочитайте слова и переведите их без словаря:

multifunctional, ecosystem, substrate, suboptimal, vector (n), nematode (n), pathogen (n), to infect, to disperse, monochamus (adj), ratio (n).

13. Определите часть речи в следующих словах:

reusable, functional, functioning, underevolution, irreplaceable, decomposition, decomposing, mutualistic, advantageous.

14. Прочитайте и переведите текст.

Role of Xylophagous Insects in Forest Ecosystem

xylophagous insects – насекомые, питающиеся древесиной

xylohpagous larva (larvae) – личинки насекомых, питающихся древесиной

saproxylic species – обитатели отмершей древесины

ceratocystic ulmi (fungus)

scolytus scolitus – elm bark beetle

monochamus species - моногамный (однобрачный)

arthropod – членистоногие

longhorn beetle – дровосек

springtail – ногохвостка

mite – клещ

wood wasp – оса древесная

fungi (fungus ,pl) – грибы, плесень

Xylophagous insects play a multifunctional and very important role in forest ecosystems.

Some xylophagous insects develop either in dead trees and shrubs or in dead parts of still living woody plants. These are called saproxylic. A couple of decades ago they were not considered to play a significant functional role in the functioning of forest ecosystems. Now it is a well known fact that this earlier opinion was fundamentally wrong. The saproxylic species play an important and irreplaceable role in the decomposition of dead woody plants. The first steps of this decomposition process are taken by the saproxylic species settling on the freshly dead trees (some species of longhorn beetles for example). Without their contribution the nutrient cycling of the forests would become slower and nutrients accumulated in the woody plants

would get back to the soils as reusable substrate much later. Only these species are to start cutting up the sometimes very hard and resistant wood tissues. Other organisms would not be able to do this and to open tunnels into the heartwood through which other decomposing organisms, such as fungi, can get inside.

Not estimates are available for how much wood tissue is needed for the full development of a xylophagous larva, such as a large longhorn larva. Considering the fact that the N (nitrogen) content of dead (and dry) wood is very low (usually under 1%) and the N content of the larvae is very high, it is easy to conclude that the larva must consume a quantity of woody tissue many times higher its own body weight. In the case of larvae feeding in living tissues which are richer in N, this ratio is expected to be somewhat lower.

After these insects are taken the first steps in decomposition of wood, the chewed-up wood and their frass becomes available for other macro-, and microscopic organisms. The saproxylic insects take part not only in the first part of the decomposition process, but also in all successive stages. There are some species (flower beetles belonging to the dung beetle family for example) which feed in very decomposed wood. These species help to mix the wood compost into the soil. Further decomposition from this point becomes the duty of small arthropods such as springtails and mites and even smaller microscopic organisms.

The xylophagous species developing in living woody plant usually consume a minor part of the wood plant and do not cause any significant harm. It is necessary to prove that a tiny shoot boring creature, for example, attacking a low percentage of the shoots of a large oak tree, will cause only a negligible physiological erect. Of course the xylophagous insects – just like any other parasitic organisms – when massively abundant – can have serious impact on the health of the foodplant, occasionally even causing mortality. In general massive outbreaks of xylophagous insects really occur in healthy forests under natural conditions. Massive outbreaks of xylophagous insects (mainly outbreaks of bark beetles) most frequently occur in plantation-like, poor and even-aged stands planted on poor, suboptimal sites. It is also evident that these out-

breaks – in addition to the unusual silvicultural conditions – are also helped by the long periods of drought, and in some cases by environmental pollution.

Many xylophagous insects are known to be vectors of serious pathogens of woody plants. In many cases these pathogens have far more serious impacts on the foodplant than the insect's feeding itself. Probably the best known example of it is the fungus Ceratocystis ulmi (causing Dutch elm disease) transported by the elm bark beetles (Scolytus scolytus for example). It is already known that this relationship is a mutualistic one, which is advantageous for both the fungus and the bark beetle. The bark beetle larvae need dying trees for their development (a healthy tree's self defense probably could prevent their full development) and this is provided by the fungus killing the tree. The fungus gets " a free ride" in return from the dispersing bark beetle, essential for it to infect new food plants. Functionally similar relationship are known between wood wasps and fungi, and between some longhorn beetles (Monochamus spp.) and nematodes living in trees. These relationships are undoubtedly fascinating even if they sometimes lead to significant damage of human efforts.

The xylophagous insects, particularly their larvae, serve as a food source for many other species of animals. Some of these predators are highly specialized and can exclusively feed on xylophagous insects.

15. **Закончите следующие предложения:**

1. Some xylophagous insects which develop either in dead trees and shrubs or in dead parts of still living woody plants are called … .
2. The saproxylic species play an important and irreplaceable role in the … of dead woody plants .
3. Only these species are able to start cutting up the sometimes … … and … wood tissues.
4. … … would not be able to do this and to open tunnels into the heartwood through which … … … can get inside.
5. The N (nitrogen) content of dead (and dry) wood is … … and the N content of the larvae is … …, it is easy to conclude that larvae must consume … of woody tissue many times … its own body weight.

6. Some species which feed in very decomposed wood help … the wood compost into the soil.

7. The xylophagous insects developing in living woody plants usually do not cause … … … .

8. When massively abundant the xylophagous insects can have … … on the health of the foodplant.

9. Massive outbreaks of bark beetles most frequently occur in … …, … … stands.

10. Another causes of it are …, … … .

11. The bark beetle larvae need … … for their development and this is provided by the … killing the tree.

12. The fungus gets a … … in return from its dispersing bark beetle essential for it to infect new … .

13. Xylophagous insects serve as a … … for many others species of animals.

16. Ответьте на вопросы по тексту.

1. Where do some xylophagous insects develop?
2. Why do they play a significant role in the functioning of forest ecosystem?
3. What is the first step of the decomposition process?
4. What is their contribution in accumulation of nutrients in the woody plants?
5. What is the essence of this process?
6. Do the saproxylic insects take part in all stages of decomposition process?
7. In what cases do xylophagous species developing in living woody plants cause a significant harm to trees?
8. When do massive outbreaks of xylophagous insects occur most frequently?
9. Are many xylophagous insects known to be vectors of serious pathogens of woody plants?
10. Why do we say that the relationship between bark beetles and fungus are mutualistic and advantageous for both? Prove it.

17. Приготовьте доклад на следующие темы:

a) The aim of forest entomology.

b) The role of insects in forest ecosystem.

1. **Догадайтесь о значении следующих интернациональных слов**.

plantation, landscape, ecosystem, biosphere, genetics, topography, erosion, recreation, stabilization, minimization, control, technology.

2. **Сопоставьте русский и английские эквиваленты**.

1. Aspen	a. дуб
2. Beech	b. кедр
3. Poplar	c. сосна
4. Willow	d. ива
5. Maple	e. осина
6. Birch	f. тополь
7. fir-tree	g. клен
8. cedar	h. ель
9. palm	i. берёза
10.oak	j. бук
11.pine	k. пальма

3. **Подготовьте рассказ на нижеследующие темы**.

- your knowledge about forestry;
- your knowledge about the profession of a forester;
- forestry as an art or as a science;
- the related sciences.

4. **Прочитайте и переведите текст**.

Выразите основную идею каждого абзаца.

Forestry

1. Forestry is an art, science and practice of studying and managing forests, tree plantations, and related natural resources. Silviculture, a related science, involves the growing and tending of trees and forests.

2. Forest ecosystems have come to be seen as the most important component of the biosphere, and forestry has emerged as a vital field of applied science, art and

technology. Modern forestry generally concerns itself with: assisting forests to provide timber as raw material for woodproducts, preservation of wildlife habitat, natural water quality management, outdoor recreation, landscape and community protection, employment, aesthetically appealing landscapes, biodiversity management, watershed management, erosion control, and preserving forests as 'sinks' for atmosphericcarbon dioxide.

3. A professional practitioner of forestry is known as a forester. Foresters engage in a broad range of activities including timber harvesting, ecological restoration and management of protected areas. Urban foresters work within town and city environments to manage the trees in urban green space. Some work in tree nurseries growing seedlings for woodland creation or regeneration projects. Others are involved with tree genetics or developing new building systems as forest engineers. The profession has expanded to include a wide diversity of jobs, typically requiring an honors degree or college bachelor's degree up to the PhD level for highly specialized areas of work.

4. Today a strong body of research exists regarding the management of forest ecosystems and genetic improvement of tree species and varieties. Forestry also includes the development of better methods for the planting, protecting, thinning, controlled burning, felling, extracting, and processing of timber. One of the applications of modern forestry is reforestation, in which trees are planted and tended in a given area.

5. In topographically severe forested terrain, proper forestry is important for the prevention or minimization of serious soil erosion or even landslides. In areas with a high potential for landslides, forests can stabilize soils and prevent property damage or loss, human injury, or loss of life.

6. Other duties of foresters may include preventing and combating insect infestation, disease, forest and grassland wildfire; weed control, fertilization, measuring and modeling the growth of trees (forest mensuration). In many regions the forest industry is of major ecological, economic, and social importance.

5**. В каких абзацах высказаны нижеследующие идеи**:

1) the qualification of modern foresters;

2) a broad range of concerns of modern forestry;

3) forests as an important component of the biosphere;

4) soil erosion and landslides.

6. Согласитесь или не согласитесь с нижеследующими утверждениями.

1. Forestry concerns itself only with providing timber as raw material.

2. Silviculture is a related science.

3. To provide preservation of wildlife habitat is one of the goals of forestry.

4.The qualification of modern foresters is not very high.

5.Forest engineers work in tree nurseries.

6.Forestry can't prevent serious soil erosion and landslides.

7.One of the applications of modern forestry is reforestation.

7. Ответьте на вопросы по тексту.

1. What is forestry?

2. What science is related to forestry?

3. What range of concerns does the modern forestry embrace?

4. What is the practitioner of forestry?

5. What are urban foresters busy with?

6. Why has forestry emerged as a vital field of science, applied art and technology?

7. What are other applications of modern forestry?

8. Is forest industry important today?

8. Перескажите текст, используя нижеследующий план.

1. **Заголовок статьи текста (The head-line).**

- The text is head-lined ... – Текст озаглавлен …

- The head-line of the text under discussion is ... – Заголовок обсуждаемого текста

- The title of the text is ... – Название текста

2. **Автор текста (The author of the text).**

- The author of the text is ... – Автором текста является …

- The author of the text is unknown ... – автор текста неизвестен …

- The text is written by ... – Текст написан (тем-то) …

3. **Главная идея текста (The main idea of the text).**

- The main idea of the text is ... – Главной идеей текста является …

- The text is about... Текст рассказывает о …

- The text touches upon... – Текст затрагивает вопрос о …

- The purpose of the text is to give the reader some information on ...

- Цель текста – дать читателю некоторую информацию о …

4. **Содержание текста (The contents of the text).**

- The text could be divided into two (three, four) logical parts.

- Текст можно разделить на две (три, четыре) логические части.

- The author writes (states, thinks, emphasizes, informs) that ...

– Автор пишет (утверждает, думает, подчеркивает, информирует), что..

- According to the text... – В соответствии с текстом …

- Further the author says that ... – В дальнейшем автор пишет, что …

- In conclusion ... – В заключение …

- The author comes to the conclusion that ... – Автор делает вывод, что …

5. **Ваше мнение относительно прочитанного (Your opinion of the text)**.

- I found the article (the text) interesting (important, informative, problematic, dull, too hard to understand) ...

- По-моему, текст интересен (важен, информативен, проблематичен, скучен, слишком сложен для понимания) …

1. **Прочитайте и выучите нижеследующие слова.**

Moss – мох;

shrub – кустарник;

wood – лес, древесина;

lumber – бревно, пиленый лес, пиломатериалы;

plywood – фанера;

forestland – лесной массив;

wildlife – дикая природа;

remains – остатки, останки;

fungi – грибы;

insect – насекомое;

stretch – участок, пространство, протяженность;

break down – разлагать, распадаться;

clear-cutting – сплошная рубка;

renewable – возобновляемый;

environmental value – ценность для окружающей среды;

gum – смола, живица;

complicate – усложнять;

soak up – впитывать;

underestimate – недооценивать;

enrich – обогащать;

relationships – отношения;

continuous – продолжительный, непрерывный;

source – источник;

cover – покрывать;

in turn – в свою очередь;

determine – определять;

make up – составлять;

although – хотя;

clear – очищать, вырубать;

soil – почва,

trip-mining – открытая добыча угля,

science of forestry – наука о лесном хозяйстве;

count on – рассчитывать;

environment – окружающая среда;

enjoyment – радость, удовольствие;

mitigate – смягчить, уменьшить,

oleoresin – канифоль;

steady – постоянный, устойчивый, стабильный.

2. **Прочитайте и переведите текст, выпишите незнакомые слова в тетрадь.**

Forests Importance

Forest – is a large area of land covered with trees. But a forest is much more than just trees. It also includes smaller plants, such as mosses, shrubs, and wildflowers. In addition, many kinds of birds, insects, and other animals make their home in the forest. Millions upon millions of living things that can only be seen under a microscope also live in the forest.

Climate, soil, and water determine the kinds of plants and animals that can live in a forest. The living things and their environment together make up the forest ecosystem. An ecosystem consists of all the living and nonliving things in a particular area and the relationships among them.

The forest ecosystem is highly complicated. The trees and other green plants use sunlight to make their own food from the air and from water and minerals in the soil. The plants themselves serve as food for certain animals. These animals, in turn, are eaten by other animals. After plants and animals die, their remains are broken down by bacteria and other organisms, such as fungi. This process returns minerals to the soil, where they can again be used by plants to make food.

Although individual members of the ecosystem die, the forest itself lives on. If the forest is wisely managed, it provides us with a continuous source of wood and many other products.

Before people began to clear the forests for farms and towns, great stretches of forestland covered about 60 per cent of the earth's land area. Today, forests occupy about 30 per cent of the land. The forests differ greatly from one part of the world to another.

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Forests have always had great importance to people. Prehistoric people got their food mainly by hunting and by gathering wild plants. Many of these people lived in the forests and were a natural part of it. With the development of civilization, people settled in towns. But they still went to the forest to get timber and to hunt.

Today, people depend on forests more than ever, especially for their economic value, environmental value and enjoyment value. The science of forestry is concerned with increasing and preserving these values by careful management of forestland.

Economic value. Forests supply many products. Wood from forest trees provides lumber and plywood. It is used in making furniture, tool handles and thousands of other products. Various manufacturing processes change wood into such products as paper, plastics, fibers, etc. Different gums, oils and waxes used in manufacture also come from trees. In many parts of the world wood serves as the chief fuel for cooking and heating. And in some primitive societies forest plants and animals make up a large part of people's diet.

Unlike most other natural resources, forest resources are renewable. As long as there are forests people can count on a steady supply of forest products.

Environmental value. Forests help to conserve and enrich the environment in several ways. For example, forest soil soaks up large amounts of rainfall. It thus prevents the rapid runoff of water that can cause erosion and flooding. In addition, rain is filtered as it passes through the soil and becomes ground water. This ground water flows through the ground and provides a clean, fresh source of water for streams, lakes and wells.

Forest plants, like all green plants, help to renew the atmosphere. As the trees and other green plants make food, they give off oxygen and remove carbon dioxide from the air. Forests also provide a home for many plants and animals that can live nowhere else. Without forests many kinds of wildlife could not exist.

Enjoyment value. The natural beauty and peace of the forest offer a special source of enjoyment. In many countries huge forestlands have been set aside for people's enjoyment. Many people use these forests for such activities as camping, hiking and hunting. Others visit them simply to enjoy the scenery and relax in the quiet beauty.

The importance of forests cannot be underestimated. We de- pend on forests for our survival, from the air we breathe to the wood we use. Besides providing habitats for animals and livelihoods for humans, forests also offer watershed protection, prevent soil erosion and mitigate climate change. Yet, despite our dependence on forests, we are still allowing them to disappear.

3. Закончите утверждения.

1. Forest also includes …
   a) cities, rivers, lakes, etc.
   b) smaller plants, such as mosses, shrubs, and wildflowers.
   c) insects, animals, berries, mushrooms.
2. … determine the kinds of plants and animals that can live in a forest.
   a) Trees, wildflowers, mushrooms …
   b) Climate, soil, and water …
   c) Rivers, geographical position, weather …
3. An ecosystem consists of …

a) all the living and nonliving things in a particular area and the relationships among them.

b) birds, insects, plants, trees in a particular area.

c) people, flora and fauna and the relationships among them.

4. Sunlight is used to …

a) promote the growth of plants in the forests.

b) feed the plants and animals.

c) make the food from the air and from water and minerals in the soil.

5. The plants themselves serve as …

a) food for certain animals.

b) source of energy for people.

c) food for other plants.

6. The remains of plants and animals are …

a) decomposed by people and animals.

b) broken down by bacteria and other organisms, such as fungi.

c) used by people in different activities.

7. If the forest is wisely managed …

a) it provides us with a continuous source of wood and many other products.

b) flora and fauna vigorously develop.

c) animals and plants are exterminated.

8. The forests differ greatly …

a) in different regions of the Republic.

b) from one part of the world to another.

c) within one area.

9. People depend on forests for their …

a) economic value, environmental value, and enjoyment value.

b) such activities as camping, hiking and hunting.

c) fungi, flora, and fauna.

10. Wood from forest trees provides …

a) a clean, fresh source of water for streams, lakes and wells.

b) lumber and plywood.

c) habitats for animals and livelihoods for humans.

4. Сопоставьте слова и их определения.

1. soil	a) any member of the kingdom of the living things (as mushrooms, molds, and rusts) that have no chlorophyll, must live in or on plants, animals, or decaying material, and were formerly considered plants;
2. wildflower	b) to find out or come to a decision about by investigation, reasoning, or calculation;
3. ecosystem	c) to free from what obstructs or unneeded;
4. moss	d) to take or hold possession or control of;
5. determine	e) to extend in length;
6. occupy	f) a woody plant that has several stems and is smaller than most trees;
7. fungi, pl. (fungus, sg.)	g) the flower of a wild or uncultivated plant or the plant bearing it;
8. stretch	h) the complex of a community of organisms and its environment functioning as an ecological unit;
9. shrub	i) the upper layer of earth that may be dug or plowed and in which plants grow;
10. clear	j) a small flowerless green plant which lacks true roots, growing in low carpets or rounded cushions in damp habitats.

5. Завершите каждое предложение, используя слово, словообразовательно связанное со словом, указанным в квадратных скобках.

1. In many parts of the world wood (service) as the chief fuel for cooking and heating.

2. Millions of (live) things that can only be seen under a microscope also live in the forest.

3. Climate and water (determination) the kinds of plants and animals that can live in a forest.

4. An ecosystem consists of all the living and nonliving things in a particular area and the (relate) among them.

5. The plants themselves (service) as food for certain animals.

6. After plants and animals die, their remains are (breakable) down by bacteria.

7. Forest provides us with a (continuation) source of wood and many other products.

8. Forests (occupation) about 30 per cent of the land.

9. The forests (different) greatly from one part of the world to another.

10. Wood is used in (make) furniture, tool handles and thousands of other products.

11. The natural beauty and peace of the forest offer a special source of (enjoy).

12. The importance of forests cannot (underestimation).

6. **Прочитайте текст еще раз. Согласитесь или не согласитесь с утверждениями**.

1. Forest – is a large area of land covered with trees only.
2. Many kinds of birds, insects, and other animals make their home in the forest.
3. Geographical position determines the kinds of plants and animals that can live in a forest.
4. An ecosystem implies a complex ecological unit in a particular area.
5. The trees and other green plants use wind and rain to make their own food from the air and from water and in the soil.
6. If the forest is wisely managed, it provides us with a continuous source of wood and many other products.
7. Some individual members of the ecosystem die, other members of the ecosystem are exterminated, but the forest itself lives on.
8. Today, forests occupy about 60 per cent of the land.
9. The forests are similar in different parts of the world.
10. The plants themselves serve as food for certain animals.
11. With the development of civilization, people settled in forests.

12. As long as there are forests people can count on a steady supply of furniture products.

13. As the trees and other green plants make food, they give off oxygen and remove carbon dioxide from the air.

7. **Составьте утвердительные или вопросительные предложения**.

1. of, include, does, kinds, forest, birds, What, and, a, insects?
2. complicated, forest, Is, highly, ecosystem?
3. the, as, plants, animals, themselves, food for, serve, Do, certain?
4. use, and, sunlight, What, trees, soil, the, air, water, minerals, the, from, for, in, do?
5. much, do, today, How, forests, occupy, land?
6. of, plants, broken down,When, bacteria, are, the, by, remains, animals, and?
7. birds, insects, animals, Where, make, do, and, their, many, other, home?

8. **Прочитайте текст. Выпишите незнакомые слова. Озаглавьте текст по смыслу**.

The rapid development of science and technology, the appearance of new, varied materials (including polymers) have not reduced the industrial use of timber. Timber, the most widespread construction material, has become a universal material of tremendous importance. Large quantities of timber are still used in various industrial areas. Wood is widely used in finishing, the interiors of homes, vessels, furniture, sports gear, and musical instruments. Timber is the raw material for pulp out of which paper, paperboard, synthetic fabric are made. One should not forget about such kind of forest utilization as getting oleoresin and processing non-standard wood. Forest-chemical production is widely used now: tars, turpentine, wood charcoal, coniferous extract, coniferous vitamin meal, etc.

The significance of forests is not restricted to timber use. They are an important geographical and ecological factor. They protect the soil and water resources better than the most excellent artificial measures.

Forest prevents soil erosion, retain surface water, making them clean and still. In this respect, watershed forests are a kind of reservoir for useful moisture. The fact that forests regulate the flow of rivers, prevent their pollution, prevent floods, reduce them in size, makes them extremely valuable.

The forest is powerful accumulator of the solar energy, it has a considerable influence on the formation of the climate, gas exchange in the atmosphere, and therefore it creates the living conditions for the people. Photosynthesis is the start of this circulation.

The forest, being the greatest biological composition in the world, assisting in air purification against dust and enriching it with oxygen, is an important regulator for gas balance in nature. It is necessary to provide people with optimal rate in the amount of 400 kg per capita annually. One big tree while consuming carbon dioxide, is producing as much oxygen as one person needs a day for respiration. Under the conditions of the industrial city the energy of photosynthesis is ten times decreased being affected by air pollution. It means that one person needs 10 trees instead of one.

9. **Перескажите текст, используя нижеследующий план**.

1. **Заголовок статьи текста (The head-line).**

- The text is head-lined ... – Текст озаглавлен …

- The head-line of the text under discussion is ... – Заголовок обсуждаемого текста

- The title of the text is ... – Название текста

2. **Автор текста (The author of the text).**

- The author of the text is ... – Автором текста является …

- The author of the text is unknown ... – автор текста неизвестен …

- The text is written by ... – Текст написан (тем-то) …

3. **Главная идея текста (The main idea of the text).**

- The main idea of the text is ... – Главной идеей текста является …

- The text is about... Текст рассказывает о …

- The text touches upon... – Текст затрагивает вопрос о …

- The purpose of the text is to give the reader some information on ...

- Цель текста – дать читателю некоторую информацию о …

4. **Содержание текста (The contents of the text).**

- The text could be divided into two (three, four) logical parts.

- Текст можно разделить на две (три, четыре) логические части.

- The author writes (states, thinks, emphasizes, informs) that ...

– Автор пишет (утверждает, думает, подчеркивает, информирует), что..

- According to the text... – В соответствии с текстом …

- Further the author says that ... – В дальнейшем автор пишет, что …

- In conclusion ... – В заключение …

- The author comes to the conclusion that ... – Автор делает вывод, что …

5. **Ваше мнение относительно прочитанного (Your opinion of the text)**.

- I found the article (the text) interesting (important, informative, problematic, dull, too hard to understand) ...

- По-моему, текст интересен (важен, информативен, проблематичен, скучен, слишком сложен для понимания) …

1. **Прочитайте и запомните нижеследующие слова**.

Logging operation – лесозаготовительные работы;

felling – рубка, валка леса;

processing – обработка, переработка;

branching – обрубка сучьев;

bucking – раскряжевка;

skidding – трелевка леса, перемещение деревьев, хлыстов или сортиментов от места валки до лесопогрузочного пункта;

stump – пень;

trunk – ствол;

loading – погрузка;

hauling – транспортировка, буксировка, перевозка;

feller-buncher – машина для валки леса и формирования пачек хлыстов;

harvester – харвестер, лесозаготовительная машина для валки и обработки деревьев;

lodge – зависать (о дереве при валке), упираться в препятствие (о трелюемом грузе);

wedge – клин, зубец;

undercut – подпил, подруб, недорез;

crawler tractor – гусеничный трактор;

skidder – трелевочная машина, лесотаска с механической лебедкой, скиддер;

landing – место погрузки / выгрузки (бревен);

brancher – сучкорезная машина;

load – грузить, нагружать;

timber – древесина, бревна, лесоматериал;

lumber – пиломатериалы, бревна, пиленый лес;

wedge-shaped section – клиновидная, заостренная часть, срез;

swampy road – болотистая, топкая дорога;

tree-length log – древесный хлыст;

yield – размер выработки, количество добытого или произведенного продукта;

busy sort – ценный сорт.

2. **Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь.**

Every logging operation consists of the following phases:

felling – the trees are cut down;

processing (branching and bucking) – trees are cut into logs and limbs are removed (processing can occur at different phases, depending on the harvest system used);

skidding – logs are moved from the stump to the landing;

loading – logs are loaded for transport to the mill;

hauling – transport to the mill (usually by truck).

The process of cutting down a tree is called *felling*. It is the first step in converting trees into lumber, paper and other products. Trees are felled either manually with a chainsaw or mechanically with a feller-buncher or harvester. The men who do it are called fellers or cutters. The task of the feller or felling crew in the woods is to fell a tree so that it will not lodge against another, will not break because of the uneven ground and will lie so that it can be trimmed of branches, cut into logs and skidded to the landing with the least difficulty. The lean of the tree and the side that has the heaviest part of the crown will determine to some extent which way it must fall. Driving wedges in the saw cut will sometimes change this: and a skillfully placed undercut will provide a very accurate dropping of the tree. An undercut is made by removing a wedge-shaped section of the trunk. The back-cut will then be made and the tree will fall in the direction of the undercut. A narrow strip of wood left between the undercut and the back-cut will prevent the tree from rotating on the stump as it falls.

The tree must be cut at the lowest point in order to reduce the height of the stump. Care must be taken to avoid damage to young trees in selecting the place to drop the tree.

Skidding. Skidding means bringing trees from the felling site to landings. Depending on the timber and operating conditions skidding may be done with horses, crawler tractors or skidders.

Tractors have great advantage over other methods of skidding and hauling and reduce their cost. They have greater speed and power than animals and skid larger, longer and heavier timber. Tractors provide more trips per day with a higher average load. Distances, swampy roads, fallen timber offer little difficulty to tractors. They have greater flexibility in skidding logs for varying distances. Tractors do less damage to young trees on logging areas than cable skidders.

Tractors are used for performing so many different operations in lumber industry that a tractor may be classed as one of the most flexible and valuable pieces of logging equipment.

The resistance of the load, when skidding full trees, depends upon the character of the tree, the ground surface as well as on the method of skidding. Spruce and fir lend

themselves particularly well to the full-tree method, usually better than pine. Good results have also been obtained with birch, poplar and a number of other species.

Landing. Landings are places to which logs are skidded from felling sites before being loaded and transported to the mill or other destinations. They are situated at some point between minor and major transportation. At landings logs are unloaded from one transportation medium and loaded onto another or major transportation medium. The frequency of landings depends on the type and density of timber and the areas that are topographically tributary to them. Thus, only a few logs may be assembled on one landing, whereas several million may be skidded to another type.

Branching and Bucking. Branching means clearing a tree from branches. Special equipment is required for mechanical branching of timber. It may be a hand tool, powered by a motor, a light circular saw or a spade-shaped blade with a hammer action.

For branching an electric brancher was designed. The brancher is light. The disc of the saw is 7 1/6 inches in diameter with a kerf of 1/3 inches. The brancher can cut off twigs of up to nearly 5 inches in diameter. If branches are very thick a small chain saw blade can easily be fitted instead of the disc saw blade. The current for the brancher is provided by a portable power station through a light insulated power cable.

Bucking means cutting a fallen tree into logs. The standard length of lumber determines the length of logs. Bucking of tree-length logs is done mainly on landings. Rational bucking of tree-length logs gives the possibility of complete utilization of felled trees and increases the yield of valuable busy sorts of wood, particularly high-quality grades.

3. **Закончите утверждения**.

1. The process of cutting down a tree is called ...
   a) bucking.
   b) felling.
   c) brunching.
2. Landings are places ...

a) to which logs are skidded from felling sites before being loaded and transported to the mill or other destinations.

b) required for mechanical branching of timber.

c) used for performing so many different operations in lumber industry.

3. Trees are felled ...

a) either manually with a chainsaw or mechanically with a feller-buncher or harvester.

b) with the special equipment required for mechanical branching of timber.

c) at some point between minor and major transportation.

4. Tractors have ...

a) greater flexibility in skidding logs for varying distances.

b) great advantage over other methods of skidding and hauling and reduce their cost.

c) been used in converting trees into lumber, paper and other products.

5. If branches are very thick ...

a) the saw with the disk 7 1/6 inches in diameter with a kerf of 1/3 inches is used.

b) a hand tool, powered by a motor, a light circular saw or a spade-shaped blade with a hammer action can be used.

c) a small chain saw blade can easily be fitted instead of the disc saw blade.

6. Every logging operation consists of the following phases: …

a) converting trees into lumber and producing paper and other products.

b) felling, branching, bucking, skidding, loading, hauling.

c) cutting, transporting, clearing, and landing.

7. Bucking means …

a) cutting a fallen tree into logs.

b) complete utilization of felled trees and increases the yield of valuable busy sorts of wood, particularly high-quality grades.

c) brining trees from the felling site to landings.

8. Tractors have greater speed and power than …

a) a light circular saw or a spade-shaped blade with a hammer action.

b) animals and skid larger, longer and heavier timber.

c) an electric brancher.

9. The tree must be cut ...

a) at the lowest point in order to reduce the height of the stump.

b) to avoid damage to young trees in selecting the place to drop the tree.

c) with a light circular saw or a spade-shaped blade with a hammer action.

10. The standard length of lumber determines ...

a) the type and density of timber.

b) the yield of valuable busy sorts of wood, particularly high-quality grades.

c) the length of logs.

4. **Сопоставьте слова и их определения**.

1. Chainsaw	a) a river or stream flowing into a larger river or lake;
2. Twig	b) the purpose for which something is predetermined;
3. Frequency	c) to bring together (as in a particular place or for a particular purpose);
4. Flexibility	d) to specify the value, position or form of an object;
5. Damage	e) portable power saw that has teeth linked together to form an endless chain;
6. Tributary	f) the number of times that a periodic function repeats the same sequence of values during a unit variation of the independent variable;
7. Assemble	g) the width of cut made by a saw or cutting torch;
8. Destination	h) a small shoot or branch usually without leaves;
9. Kerf	i) a ready capability to adapt to new, different, or
10. Determine	

changing requirements;

j) loss or harm resulting from injury to person, property, or reputation.

5. **Завершите каждое предложение, используя слово, словообразовательно связанное со словом, указанным в квадратных скобках**.

1. Processing can (occurrence) at different phases, depending on the harvest system used.
2. The standard length of lumber (determination) the length of logs.
3. They are situated at some point between minor and major (transport).
4. Special equipment (requirement) for mechanical branching of timber.
5. Trees are (manual) felled with a chainsaw.
6. Landings are places to which logs are skidded from felling sites before being loaded and (transportation) to the mill or other destinations.
7. Tractors have greater (flexible) in skidding logs for varying distances.
8. Rational bucking increases the yield of (value) busy sorts of wood.
9. The tree must be cut at the lowest point in order to (reduction) the height of the stump.
10. The men who are engaged in the process of felling are called (fell) or (cut).

6. **Прочитайте текст еще раз. Согласитесь или не согласитесь с утверждениями**.

1. The process of cutting down a tree is called bucking.
2. Branching means clearing a tree from branches.
3. The task of the feller or felling crew in the woods is to cut off twigs of up to nearly 5 inches in diameter.
4. Spruce and fir lend themselves particularly well to the full-tree method, usually better than pine.
5. The frequency of landings depends on the possibility of complete utilization of felled trees.
6. For branching an electric brancher was designed.

7. The tree must be cut at the lowest point in order to increase the yield of valuable busy sorts of wood.

8. An undercut is made by removing a wedge-shaped section of the trunk.

9. Distances, swampy roads, fallen timber offer significant difficulty to tractors.

10. A narrow strip of wood left between the undercut and the back-cut is left on the stump as it falls.

7. **Прочитайте текст. Выпишите незнакомые слова. Озаглавьте текст по смыслу**.

Although cutting down a tree isn't difficult to do, the process can be dangerous. Before you fire up the chainsaw, make sure that you've got the right tools for the job and the proper safety gear. Dress accordingly, with work pants (made of denim or another tough fabric) and a long-sleeved shirt to protect your arms and legs from flying debris. Always use protective glasses and ear plugs. Steel-capped boots and non-slip gloves are also recommended. It's also a good idea to consider a work helmet to protect your head from falling branches, especially if you're working in a thickly wooded area.

Once you've got your safety gear on and you've inspected your chainsaw to make sure it's in good working order, you are ready to get started felling a tree. Before you fire up the chainsaw, you'll need to determine the best direction for the tree to topple and land after you cut it. This is called the fall path. Visualize the fall path in all directions and identify points that are free of other trees. The clearer your fall path, the less likely the tree you are cutting will get logged against other trees or rocks as it comes down. A clear path also reduces the chance of the falling tree kicking up debris that could strike and injure you.

Always observe the lean of a tree. It is generally easier and safer to fell a tree in the direction that it is already leaning. Fell in a direction that minimizes the chance that the tree will roll or slide. To make removal easier, fell the tree so the butt faces the road (or path of removal). If you are clearing several trees, make sure the fall path is consistent with the felling pattern of the other trees. This also makes for efficient limbing and removal.

8. **Перескажите текст, используя нижеследующий план**.

1. **Заголовок статьи текста (The head-line).**

- The text is head-lined ... – Текст озаглавлен …

- The head-line of the text under discussion is ... – Заголовок обсуждаемого текста

- The title of the text is ... – Название текста

2. **Автор текста (The author of the text).**

- The author of the text is ... – Автором текста является …

- The author of the text is unknown ... – автор текста неизвестен …

- The text is written by ... – Текст написан (тем-то) …

3. **Главная идея текста (The main idea of the text).**

- The main idea of the text is ... – Главной идеей текста является …

- The text is about... Текст рассказывает о …

- The text touches upon... – Текст затрагивает вопрос о …

- The purpose of the text is to give the reader some information on ...

- Цель текста – дать читателю некоторую информацию о …

4. **Содержание текста (The contents of the text).**

- The text could be divided into two (three, four) logical parts.

- Текст можно разделить на две (три, четыре) логические части.

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- I found the article (the text) interesting (important, informative, problematic, dull, too hard to understand) ...

- По-моему, текст интересен (важен, информативен, проблематичен, скучен, слишком сложен для понимания) …

1. **Прочитайте и запомните нижеследующие слова**.

Vehicle – транспортное средство, машина;

railway car – железнодорожный вагон;

tractor-drawn wagon – буксир на тракторной тяге;

sawmill – лесопилка, пилорама;

scattered stand of timber – разряженный древостой;

power loader – погрузочная машина;

forwarder – форвардер, самозагружающийся трактор для трелевки лесоматериалов;

cut-to-length logging operation – операция по разрезанию бревен на мерные длины;

clear cutting – сплошная рубка;

expensive – дорогой;

stream – ручей, небольшая речка;

boom – бон (заграждение в виде бревен), запань (заграждение на реке для собирания сплавляемого леса);

dam – дамба, плотина;

floatable – плавучий, пригодный для сплава;

driving – молевой лесосплав;

floating – плотовой лесосплав;

lumber company – лесозаго- товительная компания;

hardwood – древесина, лесоматериалы твердолиственных пород;

softwood – хвойный лес, древесина мягких пород;

harvester – харвестер, лесозаготовительная машина, лесозаготовительный комбайн.

2. **Прочитайте и переведите текст, выпишите незнакомые слова в тетрадь**.

Logs Transportation

After the logs have been assembled at landings, they are generally loaded on vehicles: railway cars, motor trucks, tractor-drawn wagons and so on. They are then hauled directly to the sawmill or to landings along a stream or to further methods of transportation.

Log transportation methods depend upon the kind and size of trees, climate, topography, volume of log supply. Log transportation methods must be constantly analyzed to find the cheapest possible method of bringing logs from the woods to the mill.

In the 19th century log transportation by stream driving and floating prevailed. In winter the transportation of logs to the mill was done by horses.

At the beginning of the 20th century power skidding and railroad logging began to develop. Tractors and motor trucks came into use for logging purposes.

Trucks are now the most common means of hauling logs from the landing in the forest to the mill. The efficiency of the truck or tractor-trailer type of log transportation depends largely on its ability to penetrate the forest more easily than can locomotives. Trucks are also better suited for use in scattered stands of timber or where logs are picked up here and there as in certain cutting systems.

Truck loading is accomplished by numerous methods, the type depending on the log size, truck size and so on. Hand loading is very costly and inefficient. Several types of power loaders are in use today. They are used not only to load but also to skid logs for short distances.

Among logging equipment harvesters and forwarders have a special place. A harvester is a type of heavy forestry vehicle employed in cut-to-length logging operations for felling, branching and bucking trees. Harvesters are employed effectively for clear cutting operations. A forest harvester is typically employed together with a forwarder – a forestry vehicle that carries big felled logs from the stump to a landing. A forwarder carries logs clear of the ground, which reduces soil impact but tends to lim-

it the size of the logs it can move. Forwarders are commonly classified according to their load carrying capabilities. They can carry from 250 kg to 20 tons.

Water transportation. The utilization of natural waterways is the oldest and generally the least expensive form of log transportation. The streams and rivers in nearly all forested districts serve to bring logs from the woods to the mill or market. On many of these streams permanent improvements have been made such as booms, dams and the like – that are used year after year. The cost of log transportation is greatly minimized where stream improvements are made. Log transportation by water is generally the cheapest form when available.

There are several types of water transportation: driving, floating and the combination of driving and floating. Driving means the process of logs transportation in loose aggregation, it is possible on small streams. Floating means the process of logs transportation by floats, it is possible on large streams. The efficiency of driving and floating depends on many factors: the size and depth of the stream, the character of the banks, the rate of the flow and the improvements of the stream.

Floating and driving are adapted only to floatable species and to relatively small short logs. Some mistakes have been made in attempting to use streams non-adapted for log transportation. They have resulted in failures and great expense to the lumber companies. Attempts to drive combined hardwoods and softwoods resulted in considerable loss of logs since most of the hardwood did not float.

3. **Закончите утверждения**.

1. After the logs have been assembled at landings …

a) they are generally loaded on cars, motor trucks, tractor-drawn wagons.

b) they are hauled directly to the sawmill or to landings along a stream or to further methods of transportation.

c) they have been transported by water as the cheapest form when available.

2. Log transportation methods depend upon ...

a) the kind and size of trees, climate, topography, volume of log supply.

b) the cheapest possible method of bringing logs from the woods to the mill.

c) stream driving and floating available.

3. The efficiency of the truck or tractor-trailer type of log transportation depends largely on …

a) the size and depth of the stream, the character of the banks.

b) a forestry vehicle that carries big felled logs from the stump to a landing.

c) its ability to penetrate the forest more easily than can locomotives.

4. Trucks are also better suited for use …

a) in loading and skidding operations for transporting logs on short distances.

b) in scattered stands of timber or where logs are picked up here and there as in certain cutting systems.

c) to floatable species and to relatively small short logs.

4. A harvester is a type of heavy forestry vehicle …

a) that resulted in failures and great expense to the lumber companies.

b) that minimizes the cost of log transportation.

c) employed in cut-to-length logging operations for felling, branching and bucking trees.

5. Forwarders …

a) carry logs clear of the ground, which reduces soil impact but tends to limit the size of the logs it can move.

b) are commonly classified according to their load carrying capabilities.

c) can carry from 250 kg to 20 tons.

6. The streams and rivers in nearly all forested districts serve …

a) to bring logs from the woods to the mill or market.

b) to improve streams such as booms, dams and the like.

c) to maximize the cost of log transportation where stream improvements are made.

7. Log transportation by water is generally the cheapest form …

a) when available.

b) that is adapted only to floatable species and to relatively small short logs.

c) of logs transportation in loose aggregation.

8. The efficiency of driving and floating depends on …

a) the size and depth of the stream, the character of the banks, the rate of the flow and the improvements of the stream.

b) floatable species and relatively small short logs.

c) attempting to use streams non-adapted for log transportation.

9. Truck loading is accomplished by …

a) numerous methods, the type depending on the log size, truck size and so on.

b) by hand loading that is very costly and inefficient.

c) skidding logs by power loaders for short distances.

10. Floating and driving are adapted to …

a) floatable species and to relatively small short logs.

b) using streams non-adapted for log transportation.

c) combining hardwoods and softwoods that results in considerable loss of logs since most of the hardwood does not float.

4. **Сопоставьте слова и их определения**.

1. Haul	a) to transfer from one place to another;
2. Aggregation	b) large in extent or degree;
3. Utilization	c) to cause (something) to move by pulling or drawing;
4. Stump	
5. Skidding	d) the part of a plant and especially a tree remaining attached to the root after the trunk is cut;
6. Assemble	
7. Bucking	
8. Carry	e) the process of turning to a practical use;
9. Failure	f) the collecting of units or parts into a mass or whole; the condition of being so collected;
10. Considerable	

g) a state of inability to perform a normal function;
h) to bring together; to fit together the parts of;
i) sawing a felled tree into logs;
j) hauling (logs or something similar) by dragging; sliding without rotating.

5. **Завершите каждое предложение, используя слово, словообразовательно связанное со словом, указанным в квадратных скобках**.

1. Log transportation methods (dependence) upon the kind and size of trees.
2. On many of the streams permanent (improve) have been made such as booms, dams, etc.
3. The (efficient) of driving and floating depends on many factors.
4. In winter the (transport) of logs to the mill was done by horses.
5. A forest harvester is (typical) employed together with a forwarder.
6. Floating and driving are adapted only to (float) species.
7. Tractors and motor trucks came into use for (log) purposes.
8. The efficiency of the truck depends largely on its (able) to penetrate the forest.
9. Several types of power (load) are in use today.
10. (Harvest) are employed effectively for clear cutting operations.

6. **Прочитайте текст еще раз. Согласитесь или не согласитесь с утверждениями**.

1. The logs are generally loaded on railway carriages, motor racing cars, etc.
2. Truck loading is accomplished by hand loading, power loading, etc.
3. Driving combined hardwoods and softwoods resulted in considerable loss of logs.
4. Floating and driving are adapted to any species available.
5. There are several types of water transportation: driving, floating and the combination of driving and floating.

6. The utilization of natural waterways has been known for several decades.

7. Among logging equipment harvesters and forwarders have occupied the least important place.

8. On many of these streams permanent improvements such as booms, dams are made every year.

9. Trucks are used to pick up logs. 10. The cost of log transportation is greatly minimized where stream improvements are made.

7. **Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь**.

Log Transport by Tractor and Trailer

The timber load on a tractor-trailer unit is so distributed that the front wheels of the tractor have to support only the weight of the motor and of the driver's cabin. The total weight of the load is carried by the two rear axles of the tractor, thus permitting loading of all axles to capacity, which is up to two tons per wheel.

Such heavy loads are admitted only on first class highways, for travel speeds of up to 80 kilometers per hour, and never on lower-class forest roads. The total weight of the heaviest tractor-trailer types does not exceed 30 tons, carrying a pay load of about 22 tons. The eight wheels of the tandem axles of the tractor with trailer could, theoretically, also support two tons each, thus increasing the load capacity from 26 to 36 tons; or 16 tons on two tandem axles. The smaller the spacing between the tandem axles, the greater the stress on the road for a given load and speed.

Tractors and trailers are built today to any required size and loading capacity. The driving power for tractors and for trucks is usually provided by diesel motors but some vehicles are still using petrol.

8. **Ответьте на вопросы по тексту**.

1) Where are the heavy loads admitted?

2) What load do the front wheels of the tractor-trailer support?

3) The total weight of the load is carried by the two rear axles of the tractor, isn't it?

4) Are heavy loads admitted on first class highways or on low-class roads?

5) What is the total weight of the heaviest tractor-trailer type?

6) What can you say about the load capacity of a tractor-trailer unit?

7) What influences the stress of the tractor-trailer unit on the road?

8) In which is this stress greater?

8. **Перескажите текст, используя нижеследующий план**.

1. **Заголовок статьи текста (The head-line).**

- The text is head-lined ... – Текст озаглавлен …
- The head-line of the text under discussion is ... – Заголовок обсуждаемого текста
- The title of the text is ... – Название текста

2. **Автор текста (The author of the text).**

- The author of the text is ... – Автором текста является …
- The author of the text is unknown ... – автор текста неизвестен …
- The text is written by ... – Текст написан (тем-то) …

3. **Главная идея текста (The main idea of the text).**

- The main idea of the text is ... – Главной идеей текста является …
- The text is about... Текст рассказывает о …
- The text touches upon... – Текст затрагивает вопрос о …
- The purpose of the text is to give the reader some information on ...
- Цель текста – дать читателю некоторую информацию о …

4**. Содержание текста (The contents of the text).**

- The text could be divided into two (three, four) logical parts.
- Текст можно разделить на две (три, четыре) логические части.
- The author writes (states, thinks, emphasizes, informs) that ...

– Автор пишет (утверждает, думает, подчеркивает, информирует), что..

- According to the text... – В соответствии с текстом …
- Further the author says that ... – В дальнейшем автор пишет, что …
- In conclusion ... – В заключение …
- The author comes to the conclusion that ... – Автор делает вывод, что …

5**. Ваше мнение относительно прочитанного (Your opinion of the text).**

- I found the article (the text) interesting (important, informative, problematic, dull, too hard to understand) ...

- По-моему, текст интересен (важен, информативен, проблематичен, ску-чен, слишком сложен для понимания) …

1. **Прочитайте и запомните нижеследующие слова**.

embed – вставлять, встраивать, внедрять;

attain – достигать, приобретать;

coloring – окраска, расцветка;

cell cavity – клеточное углубление, полость;

impregnate – пропитывать, насыщать;

tanning materials – дубильные вещества;

grain pattern – структура волокна, зернистая структура;

mellow gloss – мягкий блеск;

derivative – производное;

heterogeneous – гетерогенный, неоднородный;

hygroscopic – гигроскопичный;

anisotropic material – анизотропный, неравномерный материал;

hardness – твердость, прочность, жесткость;

strength property – прочностная характеристика;

specific gravity – удельная плотность, вес;

ratio – соотношение;

moisture – влажность, влага, сырость;

shrinkage – усадка, коробление;

swelling – набухание, утолщение;

attendant – сопутствующий, сопровождающий;

dimension – измерение;

fiber-saturation point – предел насыщения клеточных стенок, точка насыщения волокна;

imbibed water – связанная вода;

strength – сила, крепость, прочность.

2. **Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь.**

Appearance and Properties of Wood

Wood is a hard substance that forms branches and trunks of trees and can be used as a building material, for making things or as a fuel. Wood is a porous and fibrous organic material, a natural composite of cellulose fibers that are strong in tension and embedded in a matrix of lignin that resists compression.

The color and appearance of wood is influenced by a variety of physical and chemical properties. Especially the chemical composition and the surface structure play a major role. Wood attains its coloring from substances which are contained in cell cavities or which impregnate their walls: pigments, tanning materials, resins and their oxidation products. The color of wood depends on the climate, its species, age and conditions of growth of the tree.

The decorative appearance of many timbers is due to the texture, or figure, or colour of the wood, and often to a combination of two, if not all three of these characteristics. Warm colors, varied grain patterns, and mellow gloss are attractive surface features of wood, and have impacts on the psychological and physiological states of observers. Wood is an exceptional material that has benefits beyond just aesthetic and structural properties, and possibly beyond our imagination. It has an ability to create relaxing, healthy environments for people to live in.

Wood has been used for thousands of years for fuel, as a construction material, for making tools and weapons, furniture and paper, for the production of purified cellulose and its derivatives. Wood is a heterogeneous, hygroscopic, cellular, and anisotropic material. Wood is strong for its weight, it is little affected by temperature changes, it is easily worked into various shapes and easily fastened together by nail or screw. Some woods are ornamental without finish, while all woods are readily paint-

ed or varnished. On the other hand wood is limited in hardness and strength and varies in its strength properties.

The single most revealing property of wood as an indicator of wood quality is specific gravity, as both pulp yield and lumber strength are determined by it. Specific gravity is the ratio of the mass of a substance to the mass of an equal volume of water; density is the ratio of a mass of a quantity of a substance to the volume of that quantity and is expressed in mass per unit substance, e.g., grams per milliliter (g/cm3 or g/ml). Upon drying, wood shrinks and its density increases. Minimum values are associated with green (water-saturated) wood and are referred to as basic specific gravity. Within an individual tree, the variation in wood density is often as great as or even greater than that between different trees.

The chemical composition of wood varies from species to species, but is approximately 50% carbon, 42% oxygen, 6% hydrogen, 1% nitrogen, and 1% other elements (mainly calcium, potassium, sodium, magnesium, iron, and manganese) by weight. Wood also contains sulfur, phosphorous, chlorine, silicon and other elements in small quantity.

One of the most important physical properties of wood is its ability to absorb moisture quite easily. This property is sometimes useful, but very often it is detrimental because it causes shrinkage and swelling with the attendant changes in dimensions and affects the mechanical properties of wood.

Because of its hygroscopic nature wood tends to reach equilibrium with its surroundings when it is exposed to the air or submerged in water. When it contacts with the air, wood either gives up some of its moisture or absorbs more, depending upon the relative humidity of the surrounding air. When the relative humidity reaches 100%, wood approaches the fiber-saturation point. When the relative humidity is zero, wood tends to become completely dry.

Water is held in individual cells in two different ways: 1) free water which merely fills the cell cavity, and 2) imbibed water which penetrates the cell walls and is held by the porous structure of the walls.

Aside from water, wood has three main components: cellulose (41–43%), hemicellulose (20% in deciduous trees but near 30% in conifers) and lignin.

3. **Закончите утверждения**.

1. Wood is ...
   a) a porous and fibrous organic material.
   b) a natural composite of cellulose fibers.
   c) a substance that is employed in industry.
2. The color and appearance of wood is influenced by ...
   a) the coloring and tanning properties.
   b) the age of the tree.
   c) a variety of physical and chemical properties.
3. The color of wood depends on ...
   a) the climate, its species, age and conditions of growth of the tree.
   b) the method of log transportation.
   c) the chemical composition of wood.
4. Wood is ...
   a) easily worked into various shapes.
   b) little affected by temperature changes.
   c) easily fastened together by nail or screw.
5. The decorative appearance of many timbers is due to ...
   a) the climate and conditions of growth of the tree.
   b) the texture, or figure, or colour of the wood.
   c) the relative humidity of the surrounding air.
6. Warm colors, varied grain patterns, and mellow gloss ...
   a) are attractive surface features of wood.
   b) have impacts on the psychological and physiological states of observers.
   c) are influenced by the most important physical properties of wood.
7. Wood has been used for thousands of years ...
   a) for fuel, and as a construction material.
   b) for making tools and weapons, furniture and paper.

c) for the production of purified cellulose and its derivatives.

8. Specific gravity ...

a) is the single most revealing property of wood.

b) determines pulp yield and lumber strength.

c) is the ratio of the mass of a substance to the mass of an equal volume of water.

9. Wood shrinks ...

a) and its density decreases.

b) and its density increases.

c) before drying.

10. When wood contacts with the air ...

a) wood gives up some of its moisture.

b) absorbs more moisture.

c) it changes its properties depending upon the relative humidity of the surrounding air.

4. **Сопоставьте слова и их определения**.

1. fuel 2. penetrate 3. deciduous 4. submerge 5. density 6. equilibrium 7. humidity 8. yield 9. detrimental 10. conifer	a) a state in which opposing forces or influences are balanced; b) the degree of compactness of a substance, the quantity per unit volume; c) a moderate degree of wetness especially of the atmosphere; d) to produce as return from an expenditure or investment; e) mostly evergreen trees and shrubs having usually needle-shaped or scale-like leaves and including forms (such as pines) with true cones; f) (tree or shrub) shedding its leaves annually; g) a material used to produce heat or power by burning;

	h) harmful, damaging; i) to pass into or through; to enter by overcoming resistance; j) to cover or to overflow with water.

5. **Завершите каждое предложение, используя слово, словообразовательно связанное со словом, указанным в скобках**.

1. Wood is a (porosity) and fibrous organic material.
2. The color and appearance of wood is influenced by a variety of (physically) and chemical properties.
3. The decorative (appear) of many timbers is due to the texture or color of the wood.
4. Warm colors, varied grain patterns, and mellow gloss are (attraction) surface features of wood.
5. Wood is an (exception) material.
6. The chemical (compose) of wood varies from species to species.
7. This property is (use), but very often it is detrimental.
8. Wood has been used for thousands of years as a (construct) material.
9. When the relative humidity is zero, wood tends to become (complete) dry.
10. Water is held in individual cells in two (differ) ways.

6. **Прочитайте текст еще раз. Согласитесь или не согласитесь с утверждениями**.

1. Cellulose fibers are strong in tension and embedded in a matrix of lignin that resists compression.
2. One of the most important physical properties of wood is its ability to liberate moisture quite easily.
3. Wood is influenced by hardness and strength and varies in its strength properties.
4. Hygroscopic nature of wood is shown when it is exposed to the air or submerged in water.

5. The variation in wood density is often inconsiderable than that between different trees.

6. The chemical composition of wood comprises carbon, oxygen, hydrogen.

7. Age of the tree affects the mechanical properties of wood.

8. When the relative humidity reaches 100%, wood approaches the fiber-saturation point.

9. When the relative humidity is zero, the tree tends to die.

10. Density is the ratio of a mass of a quantity of a substance to the exerted pressure.

7. **Прочитайте текст. Выпишите незнакомые слова. Озаглавьте текст по смыслу**.

Although woods from different trees have different qualities, all woods are essentially the same, physically and chemically. All wood is made up of cells which are called fibers. A non-fibrous material, lignin, holds the fibers together and makes the wood tough and flexible. The cell cavities in seasoned wood are dead air spaces that make the wood light in weight and effective as heat and sound insulation. Woods with very small cell cavities are hard and difficult to work.

Chemical nature of wood. The solid part of wood is chiefly cellulose, which is composed of carbon, hydrogen, and oxygen. About 60% is cellulose, and about 28% is lignin. In addition, other substances, such as minerals, starches, sugars, resins, dyes, oils, and gums, are found in wood. Wood is approximately 50% carbon, 6% hydrogen, and 44% oxygen.

Pores are tubes made up of large cells. They conduct sap from roots to the leaves. Coarse-textured woods such as oak and ash are called open-porous, because the cavities can be clearly seen on the surface of the wood. The fine-textured woods such as maple and cherry are close-porous, because the cavities can be seen only with a magnifier.

Medullary or wood rays are rows of cells that in some woods can be seen running across the end grain from the center of the log to the edge. They serve to transfer foodstuffs in the tree from bark to pitch and to store foodstuffs. In a piece of oak one will find the rays clearly defined; in pines they can be seen only with a magnifier.

Annual rings are made up of cells. Those which are produced in the spring growth of the tree, next to the bark, are generally much larger than those produced late in the season. Together they make up the annual ring. Normally, the rings can be counted in a log to determine the age of the tree. The early growth is called springwood, the late, summerwood.

In the growth of a tree, new cells are produced under a cambium layer, as sapwood. This gradually changes into heartwood, which becomes the wood characteristics of a tree. It is usually darker in colour than sapwood.

The differences in cell structure produce a distinct pattern within the wood itself. This becomes characteristic for each kind, but never identical in any two pieces of the same wood. Distortion of the fibers due to misshapen growth, limbs affects the grain figure. The way a log is sawed also affects the figure. Those woods that have considerable difference between springwood and summerwood are called coarse-grained; when there is little contrast, they are called fine-grained.

The mechanical qualities of wood are those qualities by which it resists changes in size or shape when it is affected by mechanical forces. These properties are: strength of compression, tension, bending, and the qualities of stiffness, toughness, and hardness.

8. **Ответьте на вопросы по тексту**.

1) What is wood made up of?
2) How are the wood cells called?
3) What are they like?
4) What are the properties of lignin?
5) What is the function of dead air spaces in seasoned wood?
6) What kinds of wood are hard and difficult to work?
7) What is cellulose composed of?
8) What are pores and their function?
9) What is the function of wood rays?
10) What do the annual rings make up?
11) What does sapwood gradually change into?

12) What affects the grain figure?

13) What are the mechanical properties of wood?

9. **Перескажите текст, используя нижеследующий план**.

1. **Заголовок статьи текста (The head-line).**

- The text is head-lined ... – Текст озаглавлен …

- The head-line of the text under discussion is ... – Заголовок обсуждаемого текста

- The title of the text is ... – Название текста

2. **Автор текста (The author of the text).**

- The author of the text is ... – Автором текста является …

- The author of the text is unknown ... – автор текста неизвестен …

- The text is written by ... – Текст написан (тем-то) …

3. **Главная идея текста (The main idea of the text).**

- The main idea of the text is ... – Главной идеей текста является …

- The text is about... Текст рассказывает о …

- The text touches upon... – Текст затрагивает вопрос о …

- The purpose of the text is to give the reader some information on ...

- Цель текста – дать читателю некоторую информацию о …

4**. Содержание текста (The contents of the text).**

- The text could be divided into two (three, four) logical parts.

- Текст можно разделить на две (три, четыре) логические части.

- The author writes (states, thinks, emphasizes, informs) that ...

– Автор пишет (утверждает, думает, подчеркивает, информирует), что..

- According to the text... – В соответствии с текстом …

- Further the author says that ... – В дальнейшем автор пишет, что …

- In conclusion ... – В заключение …

- The author comes to the conclusion that ... – Автор делает вывод, что …

5**. Ваше мнение относительно прочитанного (Your opinion of the text).**

- I found the article (the text) interesting (important, informative, problematic, dull, too hard to understand) ...

- По-моему, текст интересен (важен, информативен, проблематичен, скучен, слишком сложен для понимания) …

2. **Прочитайте и запомните нижеследующие слова**.

Adhesive – клей, склеивающее вещество;

overall manufacturing quality – общее качество производства;

air-drying – воздушная сушка;

pre-drying – предварительная сушка, подсушка;

kiln drying – камерная сушка;

stickers – рейки в качестве прокладок при сушке материалов;

foundation – основание;

exposure – выставление наружу, подвергание;

softwood – хвойные породы;

hardwood – твердолиственные породы;

batch process – периодический технологический процесс, обработка порциями;

compartment kiln – сушилка периодического действия;

stationary – неподвижный, стационарный;

be liable to checking and splitting – склонный к растрескиванию и раскалыванию;

seasoning conditions – условия сушки (на открытом воздухе);

pressure gradient – градиент давления;

vent – вентиляционное отверстие, отдушина;

platen – пластина, плита;

warp – деформация, коробление;

bending properties – свойства изгибания, склонности к деформации.

3. **Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь.**

Most lumber must be dried prior to use since drying reduces shrinkage, increases strength, reduces weight, allows wood to be treated and adhesives to be applied, and improves overall manufacturing quality. Lumber is typically dried using some combination of air-drying, accelerated air-drying or pre-drying, and kiln drying, where proper control of the drying process allows the highest quality to be attained. Control usually consists of the timely application of the appropriate temperature, relative humidity and air circulation. Poor control of the drying process leads to defects that can adversely affect the value and quality of the product and higher drying costs.

The methods used to dry wood and to control the process vary based on species, desired moisture content (MC), size of the material, quality aspects, and economics.

Air-drying is the drying of timber by exposing it to the air. The technique of air-drying consists mainly of making a stack of sawn timber (with the layers of boards separated by stickers) on raised foundations, in a clean, cool, dry and shady place. Rate of drying largely depends on climatic conditions, and on the air movement (exposure to the wind). For successful air-drying, a continuous and uniform flow of air throughout the pile of the timber needs to be arranged.

While air-drying is commonly used for large timbers or in combination with kiln drying at some point in the process, most lumber is dried in a kiln. The most common kiln types are convectional steam, vacuum, and solar. The majority of softwood and hardwood lumber is dried in convectional steam-heated kilns. Convectional steam kilns vary between those that are a batch process or progressive or continual process.

The process of kiln drying consists basically of introducing heat. This may be directly, using natural gas and/or electricity or indirectly, through steam-heated heat exchangers, although solar energy is also possible. In the process, deliberate control of temperature, relative humidity and air circulation is provided. For this purpose, the timber is stacked in chambers, called wood drying kilns, which are fitted with equipment for manipulation and control of the temperature and the relative humidity of the air and its circulation rate through the timber stack.

Compartment-type kilns are most commonly used in timber companies. A compartment kiln is filled with a static batch of timber through which air is circulated. In the-

se types of kilns, the timber remains stationary. The drying conditions are successively varied from time to time in such a way that the kilns provide control over the entire charge of timber being dried. This drying method is well suited to the needs of timber companies, which have to dry timbers of varied species and thickness, including species that are liable to checking and splitting.

In progressive kilns lumber gradually moves along the length of the kiln on trucks, starting under seasoning conditions suitable for given wood and passing through changing conditions until the other end of the kiln. In any one part of the kiln the air conditions are maintained constant.

Vacuum kilns can be the fastest to dry and most efficient with energy usage. At a vacuum kiln water boils at a lower temperature and one of the driving forces of moving water vapor is the pressure gradient. In addition to speed a vacuum kiln can also produce an improved quality in the wood.

A solar kiln is a cross between kiln drying and air-drying. These kilns are generally a greenhouse with a high-temperature fan and either vents or a condensing system. Solar kilns are slower due to the weather, but are low cost.

Compression drying is a technique where wood is subject to compression forces from heated platens, with the purpose of increasing moisture loss and reducing warp. Compression drying does not significantly change the specific gravity or bending properties, but can decrease work to maximum load under some conditions.

While the methods to dry wood have not significantly changed over the last decade, there have been many advances in improving the technology and understanding the process. The modification of technology has allowed for the more rapid drying and attainment of better quality for specific species and thicknesses of materials. Efforts to develop new methods to control the drying process to further reduce drying times and improve quality continue.

4. **Закончите утверждения**.

1. A vacuum kiln can produce ...
   a) an improved quality in the wood.
   b) a cross between kiln drying and air-drying.

c) an improved quantity in the wood.

2. Lumber is typically dried using ...

a) some combination of air-drying, accelerated air-drying or pre-drying, and kiln drying.

b) alternatively air-drying or pre-drying, and kiln drying.

c) appropriate temperature, relative humidity and air circulation.

3. Control usually consists of ...

a) the methods suited to the needs of timber companies.

b) the timely application of the appropriate temperature, relative humidity and air circulation.

c) the methods based on species, desired moisture content (MC), size of the material, quality aspects, and economics.

4. In progressive kilns lumber gradually moves ...

a) along the length of the kiln on trucks.

b) through changing conditions until the other end of the kiln.

c) to any one part of the kiln.

5. The principal reasons for air-drying are ...

a) to reduce weight.

b) to reduce cost.

c) to change susceptibility to decay.

6. Compression drying is a technique ...

a) where wood is subject to compression forces from heated platens.

b) which decreases moisture loss and reducing warp.

c) that significantly changes the specific gravity.

7. A compartment kiln is filled ...

a) with a static batch of timber through which air is circulated.

b) with timber that remains stationary.

c) with moving water vapor.

8. Efforts to develop new methods to control the drying process ...

a) to reduce the cost continue.

b) to increase the profit continue.

c) to further reduce drying times and improve quality continue.

9. A solar kiln ...

a) is a cross between kiln drying and air-drying.

b) is generally a greenhouse with a high-temperature fan and either vents or a condensing system.

c) is quicker due to the weather and higher cost.

10. Vacuum kilns can be ...

a) the fastest to dry and most efficient with energy usage.

b) presented as water boilers.

c) speeded up by an improved technology of the wood drying.

5. **Сопоставьте слова и их определения**.

1.	lumber	a) orderly movement through a circuit;
2.	significantly	b) moving in a gas (as air) or a liquid in which the warmer portions rise and the colder portions sink;
3.	accelerate	
4.	moisture	c) a twist or curve that has developed in something originally flat or straight;
5.	warp	
6.	circulation	d) timber sawn into rough planks or otherwise partly prepared;
7.	convectional	
8.	successively	e) an act of putting something to use;
9.	application	f) liquid diffused or condensed in relatively small quantity;
10.	technique	
		g) to move faster; to gain speed;
		h) a body of technical methods (as in a craft or in scientific research); a method of accomplishing a desired aim;
		i) following in order; following each other without interruption;
		j) of a noticeably or measurably large amount.

6. **Завершите каждое предложение, используя слово, словообразовательно связанное со словом, указанным в квадратных скобках**.

1. Plywood consists of an (assemble) of sheets of wood bonded together.

2. Veneering and plywood making are ancient arts which were (practical) in Egypt and Greece.

3. The adhesives (common) used in plywood manufacture are soybean, vegetable protein, etc.

4. In the (construct) field plywood is used in housing.

5. Wood is easily worked into (vary) shapes.

6. (Compress) drying does not significantly change the specific gravity or bending properties.

7. Dry timbers can be of varied species and (thick).

8. The (major) of softwood and hardwood lumber is dried in convectional steam-heated kilns.

9. Wood is (easy) fastened together by nail or screw.

10. Wood does not rust, it (absorption) shock and vibration.

7. **Прочитайте текст еще раз. Согласитесь или не согласитесь с утверждениями**.

1. Lumber is typically dried using kiln drying, where proper control of the drying process allows the highest quality to be attained.

2. Compression drying significantly changes the specific gravity or bending properties.

3. There have been many advances in improving the technology and understanding the process of drying wood.

4. Vacuum kilns are the slowest to dry and least efficient with energy usage.

5. Solar kilns are slower due to the weather, but are low cost.

6. Compartment-type kilns are seldom used in timber companies.

7. The drying conditions are successively varied from time to time in such a way that the kilns provide control over the entire charge of timber being dried.

8. At a vacuum kiln water boils at a high temperature and one of the driving forces of moving water vapor is the pressure gradient.

9. A solar kiln is filled with a static batch of timber through which air is circulated.

10. The compartment-type kilns are generally a greenhouse with a high-temperature fan and either vents or a condensing system.

8. **Прочитайте текст. Выпишите незнакомые слова. Задайте вопросы**.

Wood and Moisture

Perhaps the most important aspect of woodworking deals with the relationship between wood and moisture. A fundamental fact is that wood is hygroscopic. This means that wood, almost like a sponge, will gain or lose moisture from the air based upon the conditions of the surrounding environment.

But not only does wood gain or lose moisture, it will also expand or contract according to the magnitude of such changes; and it is this swelling and shrinking in finished wood products that is responsible for so much mischief and so many malfunctions in woodworking.

When a tree is first felled, it is considered to be in the green state, and contains a very large amount of moisture. This moisture exists in two different forms: as free water that is contained as liquid in the pores or vessels of the wood itself, and as bound water that is trapped within the cell walls.

Once a fresh log or piece of lumber is cut and exposed to the air, it will immediately begin losing free water. At this point, the wood does not contract or otherwise change in dimension since the fibers are still completely saturated with bound water. It is only once all the free water has been lost that the wood will reach what is called the fiber saturation point, or simply FSP.

Below the FSP, the wood will then begin to lose moisture in the form of bound water, and an accompanying reduction in the wood's volume will occur. At this point, the wood is no longer considered to be in the green state, but is now in a state of drying.

Just how much bound moisture is lost during the drying phase will ultimately depend upon the temperature and relative humidity (RH) of the surrounding air. At 100% no bound water will be lost. At 0% RH, all the bound water in the wood will be lost, a condition known as oven-dry – so-called because a kiln or oven is typically required to completely drive out all moisture.

The amount of water in a given piece of wood is expressed as a percentage of the weight of the water as compared to its oven-dry weight. Some species of trees, when they are initially felled, may contain more water by weight than actual wood fiber, resulting in moisture content (MC) over 100%.

9. **Перескажите текст, используя нижеследующий план**.

1. **Заголовок статьи текста (The head-line).**

- The text is head-lined ... – Текст озаглавлен …
- The head-line of the text under discussion is ... – Заголовок обсуждаемого текста
- The title of the text is ... – Название текста

2. **Автор текста (The author of the text).**

- The author of the text is ... – Автором текста является …
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3. **Главная идея текста (The main idea of the text).**

- The main idea of the text is ... – Главной идеей текста является …
- The text is about... Текст рассказывает о …
- The text touches upon... – Текст затрагивает вопрос о …
- The purpose of the text is to give the reader some information on ...
- Цель текста – дать читателю некоторую информацию о …

4**. Содержание текста (The contents of the text).**

- The text could be divided into two (three, four) logical parts.
- Текст можно разделить на две (три, четыре) логические части.
- The author writes (states, thinks, emphasizes, informs) that ...

– Автор пишет (утверждает, думает, подчеркивает, информирует), что..

- According to the text... – В соответствии с текстом …

- Further the author says that ... – В дальнейшем автор пишет, что …

- In conclusion ... – В заключение …

- The author comes to the conclusion that ... – Автор делает вывод, что …

5**. Ваше мнение относительно прочитанного (Your opinion of the text).**

- I found the article (the text) interesting (important, informative, problematic, dull, too hard to understand) ...

- По-моему, текст интересен (важен, информативен, проблематичен, скучен, слишком сложен для понимания) …

1. **Прочитайте и запомните нижеследующие слова**.

abnormality – аномалия, отклонение, неправильность;

irregularity – отклонение от нормы, неправильность формы, несимметричность;

deviation – отклонение (от нормы), отступление, отход;

shrink (shrank, shrunk) – уменьшаться, сокращаться, давать усадку;

expand – увеличиваться в объеме, расширяться;

machining – механическая обработка;

seasoning – высушивание древесины на воздухе, естественная сушка;

pitch pocket – смоляной карман;

damaged – поврежденный, испорченный;

pin knot – сучок игольчатый;

denote – обозначать, означать, указывать на;

annual ring – годичное кольцо, годичный слой древесины;

longitudinal shrinkage – продольная усадка;

stiffness – жесткость, прочность;

decay – гниение, разложение;

attack – поражать, разрушать, воздействовать;

lack – недостаток, нехватка, отсутствие;

shock resistance – ударопрочность;

resin – смола, канифоль, камедь;

conversion – переработка, преобразование;

bark pocket – карман с корой в древесине;

cross grain – поперечный косослой;

imperfection – дефект, изъян, недостаток;

protrude – торчать, выступать, выдаваться;

longitudinal axis – продольная ось;

reaction wood – древесина кренёвая;

compression wood – крень, древесина кренёвая;

shake – морозобоина, трещина;

wind stress – напряжение от ветровой нагрузки;

disintegration – разложение, разрушение;

dissolution – распад, разложение, гниение;

wood tissue – древесная ткань;

stain – синева (порок древесины), пятно, красящее вещество, морилка;

sound – здоровый, прочный, крепкий;

unsound – нездоровый, ненадежный, дефектный;

firm – твердый, прочный, крепкий;

fungus (fungi) – гриб, плесень;

pine – сосна, spruce – ель,

fir – пихта;

larch – лиственница;

nesting place – гнездовье;

larva (larvae) – личинка, гусеница.

2. **Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь.**

Natural Defects in Wood

No tree is perfect. During its lifetime a tree is subjected to many natural forces that cause defects in wood. A defect is simply an abnormality or irregularity found in wood. There are many different types of defects arising from many different causes. There are innate defects caused by the natural characteristic of wood to shrink or expand in response to moisture in the air. And there are artificial and mechanical defects caused by incorrect sawing or machining (conversion), improper drying (seasoning), or improper handling and storage.

Defects may be responsible for reducing wood's economic value, lowering its strength, durability and usefulness, spoiling its appearance, and in some cases, causing its decay.

The most common defects are the following: knots, bark pockets, pitch pockets, cross grain, reaction wood, defects caused by insects, shake, decay and stains.

Knots are the most common defects caused due to natural forces. During the growth of a tree, branches close to the ground or lower branches die. Bases of those branches remain in the tree as the trees grow. These bases may create imperfection known as knots. There are two types of knots: dead and live. Dead knots are remains of damaged branches, after drying out they become loose and fall out. Live knots are sound and firm. Live knots are usually not a problem as they remain firmly attached to the timber. If small, they are not great of a defect. Knots decrease the strength of wood and thus lower its value for structural uses. Knots vary in size. Pin knots are less than 6.5 mm in diameter. Small knots are from 6.5 to 20 mm in diameter. Medium knots are from 20 to 40 mm in diameter. Large knots are above 40 mm in diameter.

Bark pockets are formed when a small piece of the bark protrudes into the lumber. This area is generally considered unsound.

Pitch pocket or resin pocket is a cavity formed between the annual rings, it contains free resin. This defect is confined to softwoods such as pines, spruces, firs and larches.

Cross grain is the term which denotes the deviation of wood fibers from a direction parallel to the longitudinal axis of a piece of wood. Subtypes include diagonal, spiral and irregular grain.

Reaction or compression wood is wood that forms in place of normal wood as a response to gravity. This abnormal growth frequently occurs on the underside of leaning trees and limbs of softwoods. It is denser and harder than other wood, is characterized by wide eccentric annual rings, and is more or less dark reddish to brown in color. Generally compression wood has high longitudinal shrinkage and low stiffness.

Defects caused by insects. There are a number of insects that eat wood. Many other insects use wood as a nesting place for their larvae which results in holes and tunnels in the wood. The damage they cause ranges from minor to catastrophic because they weaken the strength of the wood and can turn wood into powder.

Shake is separation of wood along the grain primarily between or within annual rings. This separation makes the wood undesirable when appearance is important. Usually this defect is caused by frost or wind stress, but it can also occur on impact at the time of felling or because of shrinkage in the log before conversion.

Decay in wood is the process of decaying, disintegration, dissolution of wood tissues. Wood does not decay simply because it is wet, but because it has been attacked by fungi under rather special conditions of moisture and temperature. In order to prevent decay it is necessary to know the nature of the fungi that attack wood and the conditions necessary for their growth. Wood with moisture content less than approximately 20% will not decay owing to lack of sufficient moisture for fungi development. Wood under water will not decay because the air supply is lacking. Decay affects shock resistance at a very early stage.

Stains are discoloration that penetrates the wood fiber. They are caused by a variety of conditions and can be any color other than the natural color of the wood. A number of wood destroying fungi can cause stains or discoloration. Some stains may indicate that decay or bacteria are present.

3. **Закончите утверждения**.

1. Knots decrease … and thus lower its value for structural uses.
   a) the tree attractiveness...
   b) the beauty of lumber...
   c) the strength of wood...
2. Cross grain is the term which denotes the deviation of wood fibers from a direction parallel to … .
   a) the longitudinal axis of a piece of wood...
   b) the transverse axis of a piece of wood...
   c) both longitudinal and transverse axes of a piece of wood...
3. Shake is … primarily between or within annual rings.
   a) the process of disintegration...
   b) the process of discoloration...
   c) separation of wood along the grain...
4. There are … caused by the natural characteristics of wood.
   a) acquired imperfections...
   b) innate defects...
   c) artificial errors...
5. Many insects use wood as … which results in holes and tunnels in the wood.
   a) a nesting place for their larvae...
   b) food...
   c) a hiding place...
6. Reaction wood frequently occurs … of leaning trees and limbs of softwoods.
   a) on the underside...
   b) on the upper side...
   c) on the lateral side...
7. Compression wood is characterized by wide eccentric annual rings, and is more or less … .
   a) dark reddish to black in color...

b) dark reddish to brown in color...

c) light reddish to brown in color...

8. Pitch pocket or resin pocket is a cavity formed between the annual rings, … .

a) it contains compression wood...

b) it contains a piece of bark...

c) it contains free resin...

4. **Сопоставьте слова и их определения**.

1.	shrink	a) a round hard place in a piece of wood
2.	expand	where a branch grew;
3.	decay	b) the process of changing into a different,
4.	lumber	less attractive color;
5.	knot	c) to become larger in size and fill more space;
6.	annual ring	d) fibre obtained from wood and used
7.	resin	especially in the manufacture of paper;
8.	wood fibre	e) the gradual destruction of something as
9.	discoloration	a result of a natural process of change;
10.	bark	f) to become smaller in amount, value or range;
		g) forest timber cut and prepared for transportation and sale;
		h) the hard substance that covers a tree;
		i) a ring in the cross section of the woody plant stem produced by one year’s growth;
		j) a transparent sticky substance produced by some plants and trees.

5. **Завершите каждое предложение, используя слово, словообразовательно связанное со словом, указанным в скобках**.

1. It is (importance) to note that decay organisms require moisture to live and grow.

2. The (present) of active decay implies access to a source of moisture.

3. (Moisture) wood will always decay, unless the wood is preservative-treated or is of a very durable species.

4. (Discolor) of wood may be caused by decay.

5. Wide eccentric annual rings are one of the (character) of compression wood.

6. Usually reaction wood has high longitudinal (shrink) and low (stiff).

7. Defects in wood may (occurrence) as a result of the drying process.

8. Slope of grain may be a (naturally) phenomenon wherein the grain is at some angle to the tree axis.

9. Slope of grain has a negative (effective) upon wood (strong) properties.

10. The strength-reducing effects of fungal attack are quite (signify) even before (visibility) evidence.

6. **Прочитайте текст еще раз. Согласитесь или не согласитесь с утверждениями**.

1. Defects may be responsible for spoiling appearance of wood.

2. There are many different types of defects arising from only one cause.

3. There are no artificial defects caused by improper storage.

4. Slope of grain has a negative effect upon wood strength properties.

5. Spiral grain is a subtype of cross grain.

6. Small knots are from 8.5 to 30 mm in diameter.

7. Wood under water will not decay because the air supply is lacking.

8. Pitch pocket is a defect confined to softwoods such as birches and oaks.

9. Fibers of sound knots are intergrown with the surrounding wood.

10. Stains are caused by a variety of conditions and can be any color other than the natural color of the wood.

7. **Прочитайте текст. Выпишите незнакомые слова. Озаглавьте текст по смыслу**.

Reaction wood in a woody plant is wood that forms in place of normal wood as a response to gravity, where the cambial cells are oriented other than vertically. It is typically found on branches and leaning stems. It is an example of self-optimization.

Progressive bending and cracking would occur in parts of the tree undergoing predominantly tensile or compressive stresses were it not for the localized production of reaction wood, which differs from ordinary wood in its mechanical properties. Reaction wood may be laid down in wider than normal annual increments, so that the cross section is often asymmetric or elliptical. The structure of cells and vessels is also different, resulting in additional strength. The effect of reaction wood is to help maintain the angle of the bent or leaning part by resisting further downward bending or failure.

There are two different types of reaction wood, which represent two different approaches to the same problem by woody plants:

1) In angiosperms reaction wood is called tension wood. Tension wood forms on the side of the part of the plant that is under tension, pulling it towards the affecting force (upwards, in the case of a branch). It has a higher proportion of cellulose than normal wood. Tension wood may have as high as 60% cellulose.

2) In gymnosperms it is called compression wood. Compression wood forms on the side of the plant that is under compression, thereby lengthening/straightening the bend. Compression wood has a higher proportion of lignin than normal wood. Compression wood has only about 30% cellulose compared to 42% in normal softwood. Its lignin content can be as high as 40%.

As a rule, reaction wood is undesirable in any structural application, primarily as its mechanical properties are different from normal wood. It alters the uniform structural properties of timber. Reaction wood also responds to moisture differently from normal wood.

8. **Перескажите текст, используя нижеследующий план**.

1. **Заголовок статьи текста (The head-line).**

- The text is head-lined ... – Текст озаглавлен …
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- По-моему, текст интересен (важен, информативен, проблематичен, скучен, слишком сложен для понимания) …

1. **Прочитайте и запомните нижеследующие слова**.

finish – отделка, полировка, покрытие;

sanding – шлифовка, очистка;

lacquer – лак, глазурь;

varnish – лак, глянец;

enamel – эмаль, финифть, глазурь;

drying oil – олифа;

pigment – краситель, пигмент;

colorant – краситель, красящее вещество, пигмент;

coating – покрытие, оболочка, нанесение покрытия;

undercoat – грунтовка, грунтовочное покрытие;

thinner – растворитель, разбавитель;

solvent – растворитель;

setting – затвердевание, застывание;

cure – отверждать, схватываться;

spraying – распыление, напыление, пульверизация;

durability – долговечность, прочность, износоустойчивость;

wood stain – протрава для древесины;

volatile – летучий, быстро испаряющийся;

water-repellent – водоотталкивающий, водонепроницаемый;

brush-applied – нанесенный кистью;

preserve – сохранять, сберегать;

damage – вред, повреждение, ущерб;

prerequisite – необходимое условие, предпосылка;

dipping in – макание, погружение в (жидкость);

wood protection agent – средство (химическое вещество) для защиты древесины;

pressure impregnation – пропитка под давлением;

vacuum impregnation – вакуумная пропитка;

wetting – смачивание, замачивание;

saline solution – солевой раствор;

charring – обжиг, обжигание;

cabinet maker – краснодеревщик, столяр;

beeswax – пчелиный воск;

shellac – шеллак (естественная смола, природный лак);

linseed oil – льняное масло, льняная олифа;

melting point – точка плавления, температура плавления;

rubbing – натирание, полировка;

dull luster – матовый блеск, тусклый глянец;

glossy finish – глянцевая поверхность, блестящая полировка;

shine – глянец, блеск, лоск;

nitrocellulose – нитроцеллюлоза;

plasticizer – пластификатор, смягчитель;

low maintenance – низкие эксплуатационные расходы;

dissolved – растворенный;

suspended – взвешенный, суспендзионный;

grain pattern – структура волокна (древесины);

wear – изнашивание, истирание;

pest – вредитель, паразит;

sandpaper – наждачная бумага, шкурка;

sander – шлифовальный станок, пескоструйный аппарат.

2. **Прочитайте и переведите текст. Выпишите незнакомые слова в тетрадь.**

Wood Protection and Finishes

The purpose of protecting wood is to preserve the good properties of wood and wood products and, at the same time, to prevent damage by decay, fungi, pests, etc. A prerequisite for the long-term durability of wood is, among other things, to keep its moisture content constantly below 20%. If wood must be kept in conditions such that its protection is not possible merely by structural means, chemical protection can also be used. Such methods include spraying, coating with or dipping in a wood protection agent, or pressure and vacuum impregnation. Before chemical methods started to be used, wetting the wood in a saline solution or charring its surface were used as means of protecting it, among other methods.

Sprayed and brush-applied wood protection agents usually only penetrate the surface of the wood to a depth of 1–2 mm, so their wood-protecting effect is minor,

unless the agent is reapplied often enough. With the dipping method, the chemical agents can reach a depth of about 5 mm under the surface of the wood. New wood protection agents and coatings are being constantly developed, and their range is quite large. Most wood protection agents contain pentachlorophenol, lacquers and water-repellent substances. Wood impregnation aims to protect the wood against biological destruction and pests.

Finishing is the final step of the manufacturing process that gives wood surfaces desirable characteristics, including enhanced appearance and increased resistance to moisture and other environmental agents. Finishing can also make wood easier to clean.

In addition, finishing provides a way of giving low-value woods the appearance of ones that are expensive and difficult to obtain.

Sanding is carried out before finishing to remove defects from the wood surface that will affect the appearance and performance of finishes that are subsequently applied to the wood. Sanding is the process of smoothing or polishing a surface with sandpaper or sander. It should not begin until the wood has been cut to the final size.

Once the wood surface is prepared and stained, the finish is applied. It usually consists of several coats of wax, shellac, drying oil, lacquer, varnish, or paint, and each coat is typically followed by sanding.

Finally, the surface is polished. Often, a final coat of wax is applied over the finish to add a degree of protection.

Wax has been used as a finish for centuries. The early cabinet makers used such natural waxes as beeswax, shellac and linseed oil. Wax comes in different forms but the paste form of wax is preferred. There is also a wide range of colors to choose from. Wax is rather soft and will never dry to a hard finish, it has a low melting point and it doesn’t provide adequate protection against mechanical damage or heat. It takes much rubbing to bring out the characteristic dull luster.

Nowadays there are many plastic finishes (synthetic finishing materials) produced by the chemical industry which, when properly applied, make unusually durable surface coatings. Before using any of them it is important to study the manufac-

turer's instructions, because some of the finishes require a catalyst for setting, others are self-curing. They can be sprayed or applied with a brush.

Varnish is a clear solution that is principally applied to wood to give it a glossy finish while forming a protective film around it. Varnish consists of a resin, a drying oil, and a thinner or solvent. Since varnishes have very little color, they can also be applied over a wood stain to enhance the shine of the wood.

Lacquer is a type of solvent-based product that is made by dissolving nitrocellulose together with plasticizers and pigments in a mixture of volatile solvents. Lacquer also contains a solution of shellac in alcohol that creates a synthetic coating, causing it to form a high gloss surface.

Both varnish and lacquer provide shiny and glossy finishes. While lacquers can come in clear or a colored coating, varnishes tend to be completely transparent and are rarely produced in any other color.

Enamel finish is a general term applied to paints that dry to a hard, durable finish. They are an excellent choice for painting pieces that will be used outdoors or in places that are likely to be subjected to lots of wear, such as garden furniture or stairs. Enamel is durable, attractive and low maintenance. It should be applied on smooth surfaces with undercoats. It is not advisable to use enamel over wax surfaces.

A wood stain consists of colorants dissolved or suspended in a solvent (water, alcohol, shellac, lacquer, varnish, etc.). Application of the wood stain changes only the color of the wood not the grain pattern.

A finish benefits wood in two basic ways: protection and decoration.

Protection means protection from moisture, either in a liquid or vapor form (humidity), or protection from scratches, dirt and wear. The thicker the finish, the more moisture-resistant it is.

Whatever the finishing material used, a good finishing job improves any project, while a poor one spoils even the best project.

3. **Закончите утверждения**.

1. Plastic finishes … make unusually durable surface coatings.

a) when properly applied...

b) when approximately used...

c) when easily evaporated...

2. A good … improves any project, while a poor one spoils even the best project.

a) surface coating...

b) layer of paint...

c) finishing job...

3. Application of the wood stain changes only the color of the wood not the …

a) appearance of wood...

b) properties of wood...

c) grain pattern...

4. Before using plastic finishes it is important to study … .

a) a lot of subjects at the University...

b) the manufacturer's instructions...

c) the composition of these plastic finishes...

5. Varnishes tend to be … and are rarely produced in any other color.

a) completely transparent...

b) very dark...

c) unusually glossy...

6. Wax comes in different forms but … is preferred.

a) the liquid form of wax...

b) the paste form of wax...

c) the solid form of wax...

7. Sanding is carried out before finishing … that will affect the appearance and performance of finishes that are subsequently applied to the wood.

a) to remove paint from the wood surface...

b) to smooth the wood surface...

c) to remove defects from the wood surface...

8. Enamels are an excellent choice for painting pieces that are likely to be … .

a) subjected to lots of wear...

b) used in public places...

c) sent to the international exhibitions...

4. **Сопоставьте слова и их определения**.

1.	varnish	a) the first layer of paint that you put on a surface;
2.	wax	b) a liquid used for dissolving a solid substance so that it becomes a part of the liquid;
3.	undercoat	
4.	pigment	c) easily evaporated at normal temperatures;
5.	solvent	d) a clear sticky liquid used for covering wood or other surfaces (It forms a shiny transparent surface that gives protection);
6.	melting point	
7.	volatile	
8.	coating	e) able to stay in good condition for a long time and after being used a lot;
9.	durable	
10.	drying oil	f) an oil that thickens or hardens on exposure to air;
		g) a soft natural or artificial substance, used for making wooden furniture shine and for protecting objects from water;
		h) a thin layer of substance that covers something;
		i) the temperature at which a given solid will melt;
		j) a natural substance that gives color to something.

5. **Завершите каждое предложение, используя слово, словообразовательно связанное со словом, указанным в скобках**.

1. A (freshly) coat of paint gives wood furniture a brand new look.
2. Proper (prepare) is important in getting an (attract) and durable finish.
3. Woodworkers and (profession) painters often recommend an oil-based paint for heavily used furniture because of its long-lasting (durable).
4. Oil-based paint sticks well to (previous) painted surfaces.
5. (Chemistry) solvents are necessary to (cleaner) brushes, tools and surfaces.
6. Varnish dries slowly in (humidity) or (coldness) conditions.
7. Wood is sanded to remove any surface (perfect).
8. Shellac has excellent (insulate) properties.

9. Spray varnish is (wonder) if you have large areas to cover, and is (ridiculous) easy to apply.

10. Acrylic varnishes offer very high (transparent) levels and don't go yellow.

6. **Прочитайте текст еще раз. Согласитесь или не согласитесь с утверждениями**.

1. Finishing is the first step of the manufacturing process.

2. Water-based latex paint creates an easy-to-clean surface that holds up well. 3. A finish benefits wood in three basic ways: protection, promotion and decoration.

4. A wood stain consists of colorants dissolved or suspended in a solvent.

5. Unfinished or bare wood is prepared for paint by sanding with 60- or 80-grit sandpaper, following the direction of the wood grain.

6. Enamel should be applied on smooth surfaces without undercoats.

7. Lacquer contains a solution of shellac in alcohol that creates a synthetic coating, causing it to form a high gloss surface.

8. Brush-applied wood protection agents penetrate the surface of the wood to a depth of 6 mm.

9. Pressure and vacuum impregnation are among the methods of chemical protection of wood.

10. Oil-based paint takes a lot longer to dry and cure than water-based paint.

7. **Прочитайте текст. Выпишите незнакомые слова.**

Seven Tips for Varnishing Wood

1. Vacuum the area to remove dust and dirt, before starting work. A slightly damp mop also works well for removing sanding dust from the surface of the floor.

2. Choose a day when the weather isn't too humid. Varnish will dry slower in humid or cold conditions, and there's more chance of dust and dirt settling on your project before it's fully dry, which means you'll have an imperfect finish. If working indoors, use the heating to get the room temperature somewhere between 20 and 25°C. If the room is too hot, the varnish will dry too fast and messy bubbles might form.

3. Remove any existing varnish or finish with a suitable paint and varnish remover. Sand the wood to remove any surface imperfections, and then use a damp cloth to remove any debris and let the wood dry.

4. The first coat can be thinned if required but this isn't necessary with many of the modern water-based varnishes. Leave it to dry for 24 hours, then sand it with fine sandpaper and wipe down with a damp cloth or vacuum to remove the dust.

5. Apply your first coat of pure varnish, working with the grain, then let it dry completely.

6. Sand gently the surface with very fine sandpaper.

7. Apply as many coats as you need, generally 2–3 coats is the norm, but additional coats can be applied for greater depth of finish, gently sanding in between each coat. Don't sand your last-but-one or final coat, and go with the grain for the final coat for a super-smooth finish.

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ИНОСТРАННЫЙ ЯЗЫК
В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ
(английский)

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