BIODIVERSITY I

1. **Define biodiversity**

2. **Put the words of the definition in correct order**

Biological	**organisms**	**among**	**living**	**which**	**ecological**
variety	**and**	**variability**	**and**	**they**	**complexes**
is	**the**	**diversity**	**the**	**in**	**occur**

3. **Complete the text with the suitable terms.**

A pond ecosystem may consist of a pond _____ (*A place where plants, animals and micro-organisms live.)*, inhabited by _____ (*Members of a single species living in a habitat.*) of aquatic plants, waterside plants, micro-organisms. The organisms together make up a _____(*A group of people, animals and and/or plants that live together in one place)* of living things.

http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway/environment/0_ecology_organisms1.shtml

4. **Biodiversity can be divided into three hierarchical categories. What are they? Label the descriptions.**

_____ ***diversity*** refers to the **variation of genes within species**. This covers distinct populations of the same species (such as the thousands of traditional rice varieties in India) or genetic variation within a populations (high among Indian rhinos, and very low among cheetahs)...

_____ ***diversity*** refers to the variety of species **within a region**. Such **diversity can be measured** in many ways, and scientists have not **settled on** a single best method. The number of species in a region -- its species "richness" -- is one often- used measure, but a more precise **measurement**, "**taxonomic diversity**", also considers the relationship of species to each other. For example, an island with two species of birds and one species of lizard has a greater taxonomic diversity than an island with three species of birds but no lizards...

_____ ***diversity*** is harder to measure than species or genetic diversity because the "boundaries" of communities -- associations of species -- and ecosystems are elusive. Nevertheless, as long as a consistent s**et of criteria** is used to define communities and ecosystems, their numbers and **distribution** can be measured..."

Adapted from: World Resources Institute, World Conservation Union, and United Nations Environment Programme, "Global Biodiversity Strategy," 1992:

BIODIVERSITY II

1. **Have you heard about**

   Wangari Maathai

   The Green Belt Movement

   The Billion Tree Campaign (1 billion – 3 billion – 7 billion)

   UNEP

2. **Complete the gaps with the expressions defined in the brackets**

Wangari Maathai is

- an _____ (*someone who works to protect the environment from destruction or pollution,*
- a civil society and women's rights _____ (someone who *takes action in support of or opposition to a cause)*,
- and a _____ (*member of a parliament*).
- She is also the 2004 Nobel Peace Prize _____.

3. **Watch the video and complete the information you get**
   http://greenbeltmovement.org/w.php?id=93

4. **The following text contains more information. However, you should make logical connections first. Put the fragments of the text where they belong.**

Billion Tree Campaign

The Plant for the Planet: Billion Tree Campaign is _____ facilitated by the United Nations Environment Programme. People, communities, businesses, industry, civil society organizations and governments are encouraged to enter tree planting pledges on-line . The campaign strongly encourages _____ and trees that are **appropriate to the local environmen**.

_____, more than 7.4 billion trees had been planted **under this campaign – far in excess of** the year-end target of 7 billion – by participants in 170 countries. With this success continuing into 2010, the Billion Tree Campaign will _____ **raising awareness of** the importance of biodiversity for our well-being. Trees play a crucial role as **fundamental components** of the biodiversity that forms the foundation of the living networks and systems that provide us all with health, wealth, food, fuel and vital ecosystem services our lives depend on. They help **provide breathable air**, **drinkable water**, **fertile soils** and a **stable climate**. The billions of trees planted by the collective efforts of participants of the Billion Tree Campaign from all parts of society will contribute to biodiversity across the planet.

A. **the planting of indigenous trees**
B. make a substantial contribution to the 2010 International Year of Biodiversity
C. a **worldwide** tree planting **initiative**
D. By the end of 2009

http://www.unep.org/billiontreecampaign/

pledge – závazek (make a pledge)
in excess of – přesahující

5. **Translate the following expressions into English**

Czech	**English**
světová kampaň	
zasadit strom	
původní stromy	
místní prostředí	
zvýšit povědomí	
voda vhodná k pití	
úrodná půda	
stálé klima	
vážný dopad na životní prostředí	
oxid uhličitý	
zachytit uhlík	
výkonný ředitel	

BIODIVERSITY III

Biodiversity under Attack

1. **The title of the article is "Biological Diversity under Attack". Brainstorm a list of key words that may appear in the text.**

2. **Underline the key words in the main ideas of the passage in question. Then list as many synonyms as possible. (see Main Idea Check)**

3. **Identify the paragraphs by scanning the text. Write the correct paragraph number beside its main idea.**

> Scanning technique:
>
> 1. decide what information is needed
> 2. draw up a list of possible key words (including synonyms) which may occur in the text referring to question topic
> 3. scan for instances of key words
> 4. read carefully those sentences and/or paragraphs where the keywords occur and decide if the information is relevant
> 5. repeat steps 3) and 4) until all relevant information is available

5. **Answer the questions on the article (see A Closer Look)**

This section is based on *Pakenham, J. Making Connections, CUP, 1998*

Biological Diversity under Attack

1. To date, biologists have described fewer than 1 million of the earth's natural species. There is no certainty about how many species exist, although scientific estimates range from a conservative 3 million to 30 million. However, despite disagreement about the total number of species, there is general consensus among scientists that at least half of the world's species live in the rain forests of the earth's tropical regions. To appreciate the immense biodiversity in these forests, consider the following figures: There are approximately thirty-two native species of trees in the United Kingdom today. However, in each of two small plots of rain forest in Peru (roughly one-millionth the area of the United Kingdom), a U.S. researcher identified approximately three hundred tree species.

2. For some years, however, the moist forests of the earth's tropical regions have been the scene of massive destruction as humans cut down or burn the trees to provide hardwood or land for agriculture and settlement. By 1990, for example, the total deforestation in Brazil's Amazon region amounted to 41.5 million hectares, the equivalent of an area as large as Sweden. Elsewhere in the 1980s, Malaysia destroyed an estimated 2.7 million hectares of its tropical forests at an annual rate of 1.3 percent. During the same decade, Indonesia lost 10 million hectares of rain forests an area larger than Portugal or the state of Indiana. Today the tropical rain forests of Southeast Asia and South America continue to retreat at a rate in excess of ninety thousand square kilometers a year.

3. For tropical species, such massive deforestation means equally massive habitat destruction, which in turn is causing the extinction of species on a scale unprecedented in human history. A 1989 study, which assumed a conservative total of 2 million species living exclusively in the tropical rain forests, estimated that between four thousand and six thousand species a year are currently being driven to extinction. Even these conservative estimates, the study points out, represent a rate of extinction approximately ten thousand times greater than the extinction rate that existed prior to the appearance of humans on the earth. Other studies suggest that the extinction rate could rise to between seven thousand and twenty-seven thousand species a year.

4. For a number of reasons, the threatened species of the rain forests are an immense and irreplaceable resource. First, because of their genetic diversity, they are a source of genetic material that can be utilized to support or replace domesticated varieties that become susceptible to pests or disease. For example, the wild American oil palm has a natural resistance to spear rot, a disease that is destroying the domesticated African oil palm. Researchers are using genes from the American plant to develop resistance to the disease in its African cousin.

5. Second, tropical species are a potentially vast source of tree and plant species that could be domesticated for human use. Twenty-four crop species have been domesticated in the Amazon region alone, and countless numbers remain. *Caryocar villosum* is a tree that produces fruit valued highly by Amazonian peoples. The *Copaifera* tree species produce substances that can substitute for diesel fuel.

6. As a potential source of medicinal drugs, tropical species are irreplaceable. Wilson cites the example of *Catharanthus roseus,* a small plant native to Madagascar. It produces two substances, vinblastine and vincristine, which are extremely effective in the treatment of two forms of cancer. The income from these two substances exceeds $100 million a year. None of the five other species of *Catharanthus* has been carefully studied. One of the five is close to extinction because its habitat is threatened by deforestation.

7. What can be done to preserve the biological diversity of the tropical rain forests, with its wealth of scientific information and its unrealized potential as a source of material benefits? The prospects are poor that the extinctions can be completely halted.[ls] However, many experts are cautiously optimistic that today's rate of extinction can be slowed if we address both the immediate and the root causes of the crisis.

8. Establishing forest reserves-areas where all economic exploitation of the forest is forbidden – will protect tropical species by preserving their habitats. Conservation measures such as these are necessary in the fight against deforestation, the immediate cause of biodiversity loss; by themselves, however, they are insufficient responses to the problem.

9. A second essential step is to address the root cause of the problem-the economic pressures that cause people to destroy the forests for short-term gain. Accomplishing this, however, will be a major challenge for the international community because it will involve tackling the complex and related problems of poverty, overpopulation, and unsustainable development.

10. At the same time, we need to accelerate the pace of scientific research into the species of the tropical rain forests. Such research is our only means of identifying areas that should be given priority in conservation decisions. It will also provide necessary information about the value of as yet unstudied species. This information will help reduce human ignorance about our dependence on the natural world and will clearly be needed if we are eventually to convince people that the biological resources of the rain forests are worth preserving.

Pakenham, J. Making Connections, CUP, 1998

Main Idea Check

A. Here are the main ideas for this passage. Write the correct paragraph number beside its main idea.

B. This paragraph gives an example of a tropical plant that is of great medicinal value to humans and another plant of potential value that is threatened by extinction.

C. Economic development is necessary if the loss of the world's biodiversity is to be halted.

D. The rapid loss of tropical species can be slowed if we address all its causes.

E. To preserve tropical biodiversity, we also need to speed up research into the species that have not yet been studied.

F. Tropical forests are rapidly being destroyed by humans.

G. The wild species of the tropical forests are an underused and very valuable source of crop plants for humans.

H. The destruction of tropical forests is causing the rapid extinction of the natural species that are native there.

I. Conservation is a necessary component of a solution to the biodiversity crisis.

J. The loss of species diversity is immensely significant because it also means a permanent loss of genetic resources.

K. More than half of all the world's natural species have their home in the earth's tropical forests.

A Closer Look

1. For what reason or reasons are the tropical forests being destroyed?
a. to make land available for agriculture
b. to provide places for people to live
c. in response to the demand for hardwood

2. How fast are tropical species now becoming extinct?
a. at a rate similar to the rate that existed before the appearance of humans on the earth
b. at a pace much faster than the rate that existed before the emergence of humans
c. at a rate of exactly six thousand species per year

3. In what way or ways does the writer justify the claim that wild species In tropical forests are extremely valuable resources for humans?
a. by illustrating their potential as domesticated species
b. by illustrating their potential as suppliers of genetic material
c. by illustrating their potential medicinal value
d. by illustrating their potential role in maintaining the ecological balance of the forests

4. Identify the examples in the passage that support your answer or answers to question 4.

5. What factor or factors does the writer mention as contributing to the biodiversity crisis?
a. sustainable economic development
b. poverty
c. overpopulation
d. lack of appreciation of the value of biological resources

Source: Pakenham, J. Making Connections, CUP, 1998

BIODIVERSITY IV
Papua New Guinea

1. **Listen to the BBC piece of news (February 2006) and try to identify the topic. Listen again and note down whatever you can catch. The file is available in "osnova" (species-Papua2-06MP3)**

2. **The title and the first paragraph of the article have been removed. In three minutes try to identify the key topic.**

3. **Compare with your 'listening notes'.**

4. **Listen again and complete your notes.**

5. **Now check what you have grasped – see reverse side of this page - and formulate the key idea in your own words (writing).**

6. **Scan the whole article and find answers to the following questions.**

   Who has made the discovery?

   Where did it take place?

   How much time did the research team spend in that area?

   How did they get there?

   Had the local people been to that place before?

   Why is the discovery so important?

7. **Translate the underlined parts.**

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Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.
INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Papua New Guinea Title:

The introductory paragraph (key sentence):

"It's as close to the Garden of Eden as you're going to find on Earth," said Bruce Beehler, co-leader of the group.

The team recorded new butterflies, frogs, and a series of remarkable plants that included five new palms and a giant rhododendron flower.

The survey also found a honeyeater bird that was previously unknown to science.

The research group - from the US, Indonesia and Australia - trekked through an area in the mist-shrouded Foja Mountains, located just north of the vast Mamberamo Basin of north-western (Indonesian) New Guinea.

The researchers spent nearly a month in the locality, detailing the wildlife and plantlife from the lower hills to near the summit of the Foja range, which reaches more than 2,000m in elevation.

"It's beautiful, untouched, unpopulated forest; there's no evidence of human impact or presence up in these mountains," Mr Beehler told the BBC News website.

"We were dropped in by helicopter. There's not a trail anywhere; it was really hard to get around."

He said that even two local indigenous groups, the Kwerba and Papasena people, customary landowners of the forest who accompanied the scientists, were astonished at the area's isolation.

"The men from the local villages came with us and they made it clear that no one they knew had been anywhere near this area - not even their ancestors," Mr Beehler said.

Unafraid of humans

One of the team's most remarkable discoveries was a honeyeater bird with a bright orange patch on its face - the first new bird species to be sighted on the island of New Guinea in more than 60 years.

The researchers also solved a major ornithological mystery - the location of the homeland of Berlepsch's six-wired bird of paradise.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/4688000.stm
Published: 2006/02/07 05:51:41 GMT © BBC MMVI

excess	/ɪk'ses, 'ekses/
extinction	/ɪk'stɪŋkʃən/
unprecedented	/ʌn'presɪdentɪd/
susceptible	/sə'septɪbəl/
resistance	/rɪ'zɪstəns/
domesticated	/də'mestɪ'keɪtɪd/
medicinal	/mɪ'dɪsənəl/
irreplaceable	/ˌɪrɪ'pleɪsəbəlʔlt ˌ/
diversity	/daɪ'vɜːsɪti, dɪ- $ -ɜːr-/
preserve	/prɪ'zɜːv $ -ɜːrv/
halt	/hɔːlt $ hɒːlt/
cautious	/'kɔːʃəs $ 'kɒː-/
address	/ə'dres $ ə'dres, 'ædres/
reserve	/rɪ'zɜːv $ -ɜːrv/
exploitation	/ˌeksplɔɪ'teɪʃən/
insufficient	/ˌɪnsə'fɪʃəntʔlt ˌ/
effective	/ɪ'fektɪv/
exceeds	/ɪk'siːd/

Sources:
http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway/environment/0_ecology_organisms1.shtml
http://en.wikipedia.org
http://biodiversity.ca.gov/Biodiversity/biodiv_def2.html