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| **MODULE 2** |  **CYCLICAL NATURE** |
| **PART 6** | **The effects of exploitation of natural resources** |
| **Lesson 1-2** | **The effects of exploitation of natural resources. Why is it critical to manage the natural resources efficiently?** |

**SUMMARY**

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# 1. COURSE TIME, TARGET AND TOPIC

* **Age of target students: 15+**
* **Teaching time: 2 hour**
* **Disciplines: Geography, Human Sciences, Maths, Science, Technology**
* **Title: The effects of unplanned settlement, industrialization, transportation and other actions**

# 2. COURSE OBJECTIVES

## Competences promoted in this lesson:

* **1.Communication in foreign languages competency    - CLIL -**
* **2.Mathematical competency and basic competencies in science/technology – STEAM -**
* **3.Social and citizenship-related competencies**

## Objectives:

**Developing students’ Systems–thinking competence; anticipatory ( future thinking)competence;  interpersonal competence - collaboration competence- ; critical thinking competence; integrated problem solving competence**

## Lesson objectives:

* **The students comprehend the effects of exploitation of natural resources**
* **The students discuss the effects of exploitation of natural resources**

# 3. LEARNING – TEACHING PROCESSES

There are 5 activities in this lesson:

1. **ICE BREAKER: Let’s play Apple – Banana- Orange**
2. **ENGAGE:** **Listen to the songs and fill in the blanks**
3. **EXPLORE: Look at the images. Ask and Answer**
4. **EXPLAIN: Do the pre-test. Read the text and answer the post-test.**
5. **EXTEND: Prepare a fact sheet draft with statistics and numbers on forest resources of France, Turkey, Czeckia, Lithuania, Austria, Iceland and Poland.**

# 4. EVALUATION

**Students are asked to list the different uses of plants. They are asked to fill in the blanks and watching the video, they are asked to consider; ‘ If we remove the natural resources from this video, what is left?’**

**Natural Resources are riches that are influenced by certain conditions in their formation. A\_\_\_\_, w\_\_\_\_\_\_\_, s\_\_\_\_\_\_\_\_, p\_\_\_\_\_\_\_\_\_, a\_\_\_\_\_\_\_\_\_ and m\_\_\_\_\_\_\_\_ make up the Earth's natural resources.**

# 5. DOCUMENTS

### ENGAGE

**Ice Breaker :** Students are invited to play **Apple – Banana- Orange.**

**INSTRUCTIONS:** Form a circle and put your hands on the shoulders of the person in front.

Jump forward at the same time (don’t break the circle) when I say APPLE

Jump backward at the same time (don’t break the circle) when I say ORANGE

Jump back turning 180 degree and put your hands over the shoulders of the person behind when I say BANANA

**Students are asked to study the worksheet 1**

**Worksheet 1 developed by Hanife Karakaya**

I perhaps owe having become a painter to \_\_\_\_

**I . Listen and fill in the blanks with the correct words in the box. The words are in Turkish but do not worry, trust your EARS.**

 **soğan- karanfil – domates – biber – patlıcan - karayemişa - çami - kınayı**

**1."\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_" 1,32**

**"\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_"**

**Bir anda bütün dünyam karardı, Bu sesle sokaklar yankılandı**

**"\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_"**

**2.Haberin var mı taş duvar? Demir kapı, kör pencere, Yastığım, ranzam, zincirim, 1,20**

**Uğruna ölümlere gidip geldiğim, Zulamdaki mahzun resim,**

**Görüşmecim, yeşil \_\_\_\_\_\_\_\_\_\_ göndermiş,**

**\_\_\_\_\_\_\_\_\_\_ kokuyor cıgaram**

**Dağlarına bahar gelmiş memleketimin...**

**3. İçim buruk biraz arkadaşlar, Ayrılıyorum sizden 2.06-3.30**

**Dolaşırken mekan mekan, Beni ararsınız evden**

**\_\_\_\_\_\_\_\_\_\_\_ yakmışlar geline, Hazırlanmış gidiyor evine**

**Başında al yazması var, Ağlıyor bakmayın yüzüne**

4. **Hayde gidelum hayde, Hayde gidelum hayde,Hayde gidelum hayde 2.22**

**Dağa \_\_\_\_\_\_\_\_\_\_\_\_, Dağa \_\_\_\_\_\_\_\_\_\_\_\_, Dağa \_\_\_\_\_\_\_\_\_\_\_\_,**

**Elun nişanlısına, Elun nişanlısına,Elun nişanlisina**

**Ben nasil deyim hayde, Ben nasil deyim hayde,Ben nasil deyim hayde**

**Çiktum \_\_\_\_\_\_ budadum, Çiktum\_\_\_\_\_\_\_ budadum, Çiktum \_\_\_\_\_\_ budadum**

**Endurdum yarisina,Endurdum yarisina,Endurdum yarisina**

**Böyle sevdamu olur, Böyle sevdamu olur, Böyle sevdamu olur**

**Girsin yerin dibuna, Girsin yerin dibuna, Girsin yerin dibuna**



### EXPLORE

**1.Look at the photos. What do you think they have in common ?**

**2. Can you connect those photos with the key words in Activity 1? How are they connected?**

**3. What is the natural resource we focus on? What are the different uses of that natural resource?**

**The List of the Different Uses of the Natural Resource of \_\_\_\_\_\_\_\_**

**1.**

**2.**

**3.**

**4.**

### EXPLAIN

**Students are asked some questions (=they are given a pre-test). They are asked to read a text including the answers to the questions and asked to take notes to explain the answers to some end-text questions.**

**Students are asked to comment on ‘What would happen if there were not enough plants on Earth?’**

**INSTRUCTION : Answer the questions and read the text. Take notes and discuss your notes in groups to explain your answers to the end-text questions.**

**I . Answer the questions**

**1.Plants have special round, flat organelles called c\_\_\_\_\_\_\_\_\_\_. They are arranged in stacks called g\_\_\_\_\_\_\_\_**

**2. What gives leafy green plants their green color is c\_\_\_\_\_\_\_\_\_\_ in those stacks.**

**3. The chlorophyll is activated by \_\_\_\_\_\_\_\_\_\_creating an energy that splits molecules of water, separating them out into \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_.**

**4. Plants combine \_\_\_\_\_\_\_\_\_\_ from the water with \_\_\_\_\_\_\_\_\_\_\_ we breathe out. \_\_\_\_\_\_\_\_\_\_ is released into the air.**

**5. That process by which plants use sunlight, water, and carbon dioxide to create \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ in the form of sugar is called p\_\_\_\_\_\_\_\_\_\_\_\_.**

**Now read the text and complete your missing answers ( if any )**

[Plants Are Producers | 5th Grade Reading Comprehension Worksheet (k12reader.com)](https://www.k12reader.com/worksheet/plants-are-producers/view/)

**Plants Are Producers .**

**People are consumers. We have to spend large parts of our days fi nding, buying, cooking and eating our food. Did you ever think it might be nice to be able to make your own food like plants do? Plants are producers and perform a process called photosynthesis using light from the sun, water and carbon dioxide. Carbon dioxide is the gas we exhale when we breathe. The end result of this chemical reaction is sugar for the plant to “eat.” The plant releases water and oxygen, a gas all animals need to breathe, into the air.**

**So how do plants do it, and why can’t we? Plants have special structures called chloroplasts that animals don’t have. Chloroplasts are round, fl at organelles that are arranged in stacks called grana. These stacks are fi lled with chlorophyll. Chlorophyll is what gives leafy green plants their green color. Their main job is to absorb light from the sun. Chloroplasts can absorb every color except green. Light activates the chlorophyll. It creates an energy that splits molecules of water, separating them out into hydrogen and oxygen. Chemical reactions take place. Hydrogen from the water combines with carbon from the carbon dioxide we breathe out. Oxygen is released into the air.**

**People and plants make perfect partners. Plants rely on the carbon dioxide that we breathe out, and we rely on the oxygen that they “breathe” out. This is one good reason for protecting plant life on Earth. Algae fi elds near the poles produce a constant supply of oxygen for us. So do the many plants of Earth’s rainforests. We need plants in order to survive.**

**Conservation projects around the globe are aimed at protecting our natural resources, including numerous species of plants. Our quality of life and the very quality of the air we breathe depends upon our green plant partners.**

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**II. Explain the end-text questions please.**

**-Explain why plants are called producers ? What would happen if not enough plants on Earth?**

**-Explain the relationship between people and plants. Why are we good partners?**

###  EXTEND

Students are asked to prepare a fact sheet draft with statistics and numbers on forest resources of France, Turkey, Czeckia, Lithuania, Austria, Iceland and Poland. They are told to create their sheet in six parts within social, political, economical and ecological perspectives.

1.Part: **Forest Features** mentioning the location, area, tree/plant species …etc (its ecological value)

2.Part: **Forest History** mentioning the residents of the forest ( which societies and language groups is it home to? ( = its social function)

3. Part: **Forest Sources and Uses** mentioning what is made of its sources ( = its economic value)

4. Part: **Forest Further Uses** mentioning its effects on disasters by answering if it decreases **the impacts of natural disasters ( =its added value)**

The students are given the link of a newspaper with the news of disasters and the link of a research report about the effects of forests on disasters to increase students’ awareness and get ideas to support their fact sheet. They are also suggested to visit some other online/ sources to include statistics and numbers in their fact sheet.

The news on Disasters: <https://www.theguardian.com/world/natural-disasters>

The Research Report on Forests and Disasters: https://www.jstor.org/stable/resrep29725.9?seq=1

5. Part: **Forest Management** mentioning the goals and practices of forest management as well as management standards and rules ( the policies and regulations in forest management )

6. Part: **Forest Sources’ Uniqueness** mentioning the importance of forest sources and the recommendations for forest conservation.

[The Importance of Forests | How to protect Forests - YouTube](https://www.youtube.com/watch?v=_dWJVHIE9S8)

Students are given a list of the benefits of forests and asked to revise their own fact sheet draft to see how much they have included these benefits and finalised their draft into its new version to be delivered.

Note: 1.Forests address climate change Forests are also the source of renewable biofuels.

 2. Forests are habitat of plant and animal species at risk.

 3. Forests deliver ecosystem services; they support soil nutrient cycle, purify air and water, mitigate disasters

 4. Forests provide renewable products and support circular economy that minimizes the use of non-renewable resources.

 5. Forests sustain communities and economies with opportunities for careers and local initiatives.

 6. Forests are places to discover and understand our connection with the natural world and build environmental skills and values

 7. Forests have social and cultural benefits for spiritual renewal.

 8. Forests have healing effects ; they lower the rates of asthma and respiratory illnesses purifying the urban air.

 9. Forets lower the temperature of urban heat islands with shade and by transpiring the moisture into the air.

 10. Forests are the source of new medicines and traditional plant-based medicines.

**INSTRUCTION :** Prepare a fact sheet draft with statistics and numbers on forest resources of France, Turkey, Czeckia, Lithuania, Austria, Iceland and Poland. Create your sheet in six parts within social, political, economical and ecological perspectives. While creating your fact sheet, visit scan and skim the contents of the websites supplied.

Study the list of benefits of forests supplied. Revise your draft and support it with that list if is better. Finalise your draft using grammarly and citation generator (or their alternative tools ) to organise your fact sheet correctly and ethically right. Please note that your fact sheet will be put into the ‘Policy Recommendations Book’ and delivered to the policy makers.

**- FACT SHEET PREPARATION -**

**I.Prepare a fact sheet draft with statistics and numbers on forest resources of France, Turkey, Czeckia, Lithuania, Austria, Iceland and Poland. Create your sheet in six parts within social, political, economical and ecological perspectives. While creating your fact sheet, visit scan and skim the contents of the websites supplied and study the list of benefits of forests supplied.**

-The news on Disasters:

<https://www.theguardian.com/world/natural-disasters>

-The Research Report on Forests and Disasters:

<https://www.jstor.org/stable/resrep29725.9?seq=1>

-The Importance of forests:

[The Importance of Forests | How to protect Forests - YouTube](https://www.youtube.com/watch?v=_dWJVHIE9S8)

-The List of the Benefits of the Forests :

1.Forests address climate change Forests are also the source of renewable biofuels.

2. Forests are habitat of plant and animal species at risk.

 3. Forests deliver ecosystem services; they support soil nutrient cycle, purify air and water, mitigate disasters

 4. Forests provide renewable products and support circular economy that minimizes the use of non-renewable resources.

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10. Forests are the source of new medicines and traditional plant-based medicines.

**II.Revise your draft and support it with that list if is better. Finalise your draft using grammarly and citation generator (or their alternative tools ) to organise your fact sheet correctly and ethically right. Please note that your fact sheet will be put into the ‘Policy Recommendations Book’ and delivered to the policy makers.**

**FACT SHEET - THE FORESTS OF \_\_\_\_\_\_\_ -**

1.Part: **Forest Features** mentioning the location, area, tree/plant species …etc (its ecological value)

2.Part: **Forest History** mentioning the residents of the forest ( which societies and language groups is it home to? ( = its social function)

3. Part: **Forest Sources and Uses** mentioning what is made of its sources ( = its economic value)

4. Part: **Forest Further Uses** mentioning its effects on disasters by answering if it decreases **the impacts of natural disasters ( =its added value)**

5. Part: **Forest Management** mentioning the goals and practices of forest management as well as management standards and rules ( the policies and regulations in forest management )

6. Part: **Forest Sources’ Uniqueness** mentioning the importance of forest sources and the recommendations for forest conservation

### EVALUATE

Students are asked to list the different uses of plants.

**INSTRUCTION :** List the different uses of plants.

**Suggested Answers : Students should refer to their list of different uses of plants. Make sure that they will include plants for**

**Food:** vegetables, fruit, meat, eggs, dairy, etc.

**Oxygen:** plants make this through photosynthesis

**Industry:** Clothing ( cotton jeans, flax, and rayon fabric), Paper, Furniture, Cosmetics ( plant dyes, plant oil fragrances, nut shell exfoliants in facial wash, etc), Shelter( lumber from trees and straw bales for homes)

**Medicine:** herbal teas, cancer treatment medicines developed from bark of the Yew tree, active ingredient in aspirin was developed from the bark of willow trees, etc.

**Disasters:** landslide, erosion, flood, drought

**Beliefs:** Sacred plants in folklore, native plants

**Energy sources:** biofuel, firewood, etc.

**Art – Leisure :** Lİterature, drawing, music…etc

**Ending the Lesson :** Students are asked to fill in the blanks. They are watched a video and asked If we remove the natural resources from this video, what is left?

Natural Resources are riches that are influenced by certain conditions in their formation. A\_\_\_\_, w\_\_\_\_\_\_\_, s\_\_\_\_\_\_\_\_, p\_\_\_\_\_\_\_\_\_, a\_\_\_\_\_\_\_\_\_ and m\_\_\_\_\_\_\_\_ make up the Earth's natural resources.

<https://www.youtube.com/watch?v=-Y0-qyIBjvI>

**INSTRUCTION :** Fill in the blanks and watch the video. Answer the question of: If we remove the natural resources from this video, what is left?

Students are watched a video and given a quote. <https://www.youtube.com/watch?v=5tgNtIUOL4E>

I perhaps owe having become a painter to flowers

 Claude Monet