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# GREEN STEPS

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## CLIMATE CHANGE EDUCATION GUIDE FOR TEACHERS

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# PART 1

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# ENGLISH LESSON PLAN



**Topic: Water Shortage**

**Duration: 40 minutes**

**Grade Level: 5th-8th Grades**

## **Objective:**

- Students will learn about the issue of water shortage, its causes, and potential solutions.
- Students will practice reading, speaking, and writing skills in English.

## **Materials:**

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about water shortage
- Vocabulary list related to water shortage
- Quiz sheets

## **Lesson Structure:**

### **1. Introduction (5 minutes)**

- Greet the students and introduce the topic: Water Shortage.
- Briefly explain what water shortage means and why it is an important issue.

### **2. Vocabulary Introduction (5 minutes)**

- Introduce key vocabulary related to water shortage: drought, conservation, scarcity, irrigation, desalination, etc.
- Write the words on the whiteboard and explain their meanings.

### **3. Reading Activity (10 minutes)**

- Distribute a short article or handout about water shortage.
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.

### **4. Video Presentation (5 minutes)**

- Show a short video (3-5 minutes) about water shortage and its impact on the environment and people.
- After the video, ask a few comprehension questions to ensure understanding:
- What causes water shortage?
- How does water shortage affect people and animals?

### **5. Group Discussion (5 minutes)**

- Divide the class into small groups.
- Assign each group a question to discuss:
- What can people do to save water at home?
- How can communities help solve the water shortage problem?
- Why is it important to conserve water?



### **6. Writing Activity (10 minutes)**

- Ask students to write a short paragraph on one of the following topics:
- "Ways to Save Water in Our Daily Lives"
- "The Importance of Water Conservation"
- "How Water Shortage Affects Our World"
- Encourage students to use the vocabulary words introduced earlier.

### **7. Quiz (3 minutes)**

- Give students a short quiz to review what they learned about water shortage.
- Example questions:
- What is one cause of water shortage?
- Name one way to conserve water.
- Why is water important for life?

### **8. Conclusion (2 minutes)**

- Review the key points of the lesson.
- Ask students to share one new thing they learned about water shortage.
- Encourage students to think about how they can help conserve water in their daily lives.

### **Assessment:**

- Participation in discussions and activities.
- Quality of written paragraphs.
- Performance on the quiz.

### **Homework:**

- Ask students to research and bring one additional fact about water shortage to share in the next class.

## NOTES FOR TEACHERS:



### Water shortage:

It is a critical issue affecting both the environment and people. When water is scarce, plants and animals struggle to survive, leading to loss of biodiversity. Agricultural activities are hampered, resulting in food shortages. For people, water scarcity means limited access to clean drinking water, which can lead to health problems and poor sanitation. It also affects daily activities and can lead to conflicts over water resources. Overall, water shortage threatens ecosystems, food security, and human well-being.

### Water shortage can be caused by several factors:

1. **Climate Change:** Altered weather patterns, reduced rainfall, and increased temperatures can lead to droughts and reduced water availability.
2. **Overuse:** Excessive use of water for agriculture, industry, and personal consumption depletes water sources faster than they can be replenished.
3. **Pollution:** Contamination of water sources with chemicals, waste, and pollutants makes water unsafe and reduces the amount of usable water.
4. **Population Growth:** Increasing populations demand more water for drinking, sanitation, and food production, straining available resources.
5. **Deforestation:** Loss of forests disrupts the water cycle, reducing rainfall and increasing runoff, which diminishes water supplies.

### Water shortage is caused by several factors:

1. **Climate Change:** Alters weather patterns, reduces rainfall, and increases droughts.
2. **Overuse:** Excessive water consumption for agriculture, industry, and households depletes resources.
3. **Pollution:** Contaminates water sources, making them unusable.
4. **Population Growth:** Higher demand for water for drinking, sanitation, and food production.
5. **Deforestation:** Disrupts the water cycle, reducing rainfall and increasing runoff, which diminishes water supplies.

# ENGLISH LESSON PLAN



**Duration: 40 minutes**

**Grade Level: 5th-8th Grades**

**Topic: Deforestation**

## **Objective:**

- Students will learn about deforestation, its causes, and its impact on the environment.
- Students will practice their reading, speaking, and writing skills in English.

## **Materials:**

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about deforestation
- Vocabulary list related to deforestation
- Quiz sheets

## **Lesson Structure:**

### **1. Introduction (5 minutes)**

- Greet the students and introduce the topic: Deforestation.
- Briefly explain what deforestation is and why it is a significant issue.

### **2. Vocabulary Introduction (5 minutes)**

- Introduce key vocabulary related to deforestation: deforestation, biodiversity, habitat, ecosystem, reforestation, logging, etc.
- Write the words on the whiteboard and explain their meanings.

### **3. Reading Activity (10 minutes)**

- Distribute a short article or handout about deforestation.
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.

### **4. Video Presentation (5 minutes)**

- Show a short video (3-5 minutes) about deforestation and its impact on the environment.
- After the video, ask a few comprehension questions to ensure understanding:
- What causes deforestation?
- How does deforestation affect animals and plants?





### 5. Group Discussion (5 minutes)

- Divide the class into small groups.
- Assign each group a question to discuss:
- Why is it important to protect forests?
- What can be done to reduce deforestation?
- How does deforestation affect climate change?

### 6. Writing Activity (10 minutes)

- Ask students to write a short paragraph on one of the following topics:
- "Ways to Prevent Deforestation"
- "The Importance of Forests"
- "How Deforestation Affects Our Planet"
- Encourage students to use the vocabulary words introduced earlier.

### 7. Quiz (3 minutes)

- Give students a short quiz to review what they learned about deforestation.

*Example questions:*

- What is one cause of deforestation?
- Name one way to help prevent deforestation.
- Why are forests important?

### 8. Conclusion (2 minutes)

- Review the key points of the lesson.
- Ask students to share one new thing they learned about deforestation.
- Encourage students to think about how they can help protect forests in their daily lives.

#### Assessment:

- Participation in discussions and activities.
- Quality of written paragraphs.
- Performance on the quiz.

#### Homework:

- Ask students to research and bring one additional fact about deforestation to share in the next class.

## NOTES FOR TEACHERS



### Preventing deforestation involves several strategies:

1. **Reforestation and Afforestation:** Planting trees in deforested areas and creating new forests.
2. **Sustainable Forestry:** Managing forests to meet current needs without compromising future resources.
3. **Protected Areas:** Establishing national parks and reserves to safeguard forests.
4. **Agroforestry:** Integrating trees into agricultural practices to improve sustainability.
5. **Legislation and Enforcement:** Implementing and enforcing laws against illegal logging.
6. **Education and Awareness:** Raising awareness about the importance of forests and promoting conservation efforts.

### Key Vocabulary Related to Deforestation:

1. **Deforestation:** The clearing or thinning of forests by humans, resulting in the loss of trees and forested areas.
2. **Biodiversity:** The variety of plant and animal life in a particular habitat or ecosystem. High biodiversity is often a sign of a healthy environment.
3. **Habitat:** The natural environment where a plant or animal lives and grows. Deforestation destroys these habitats, threatening the survival of many species.
4. **Ecosystem:** A community of living organisms interacting with each other and their physical environment. Deforestation disrupts ecosystems, leading to imbalances.
5. **Reforestation:** The process of planting trees in areas where forests have been cut down, to restore the forested area.
6. **Logging:** The cutting down of trees for commercial purposes. While logging can be sustainable, it often leads to deforestation if not managed properly.
7. **Sustainability:** Using resources in a way that meets current needs without compromising the ability of future generations to meet their own needs.
8. **Conservation:** The protection and preservation of natural resources, including forests, to prevent degradation and ensure their longevity.



### **Preventing deforestation involves:**

1. **Reforestation and Afforestation:** Planting trees in deforested areas and creating new forests.
2. **Sustainable Forestry:** Managing forests responsibly to balance economic needs and conservation.
3. **Protected Areas:** Establishing parks and reserves to safeguard forests.
4. **Agroforestry:** Integrating trees into farming to reduce pressure on forests.
5. **Legislation and Enforcement:** Enforcing laws against illegal logging.
6. **Education and Awareness:** Promoting the importance of forests and conservation efforts.

### **Deforestation has significant impacts on our planet:**

1. **Loss of Biodiversity:** Destroying habitats leads to the extinction of plant and animal species.
2. **Climate Change:** Trees absorb CO<sub>2</sub>; cutting them down increases greenhouse gases, contributing to global warming.
3. **Soil Erosion:** Trees prevent soil erosion; their removal leads to degraded soil quality and increased flooding.
4. **Water Cycle Disruption:** Forests regulate the water cycle; deforestation reduces rainfall and alters water availability.
5. **Impact on Indigenous Communities:** Many rely on forests for their livelihood and culture, losing their homes and resources.



# SCIENCE LESSON PLAN



**Theme: Energy and Fossil Fuels**

**Duration: 40 minutes**

**Grade Level: 5th-8th Grades**

## OBJECTIVE:

- Students will learn about different types of energy, the role of fossil fuels, and their impact on the environment.
- Students will understand the importance of renewable energy sources.

## MATERIALS:

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about energy and fossil fuels
- Vocabulary list related to energy and fossil fuels
- Quiz sheets

## LESSON STRUCTURE:

### 1. Introduction (5 minutes)

- Greet the students and introduce the topic: Energy and Fossil Fuels.
- Briefly explain the importance of energy in our daily lives and introduce the concept of fossil fuels.

### 2. Vocabulary Introduction (5 minutes)

- Introduce key vocabulary related to the topic: fossil fuels, renewable energy, non-renewable energy, coal, oil, natural gas, solar energy, wind energy, pollution, greenhouse gases.
- Write the words on the whiteboard and explain their meanings.

### 3. Reading Activity (10 minutes)

- Distribute a short article or handout about energy and fossil fuels.
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.

### 4. Video Presentation (5 minutes)

- Show a short video (3-5 minutes) about fossil fuels and renewable energy sources. After the video, ask a few comprehension questions to ensure understanding:
  - What are fossil fuels?
  - How do fossil fuels affect the environment?
  - What are some examples of renewable energy sources?



### 5. Group Discussion (10 minutes)

- Divide the class into small groups.
- *Assign each group a question to discuss:*
  - Why is it important to use renewable energy?
  - What are the benefits and drawbacks of using fossil fuels?
  - How can we reduce our dependence on fossil fuels?
- After the discussion, ask each group to share their thoughts with the class.

### 6. Conclusion and Quiz (5 minutes)

- Review the key points of the lesson.
- Give students a short quiz to review what they learned about energy and fossil fuels.
- Example questions:
  - What are fossil fuels?
  - Name one renewable energy source.
  - Why should we reduce the use of fossil fuels?

### Assessment:

- Participation in discussions and activities.
- Performance on the quiz.

### Homework:

- Ask students to research and bring one additional fact about renewable energy to share in the next class.

## NOTES FOR TEACHERS



**Energy** is vital in our daily lives as it powers homes, schools, hospitals, and industries. It fuels transportation, heats and cools buildings, and supports technology and communication. Fossil fuels—coal, oil, and natural gas—are energy sources formed from ancient organic matter. They are burned to release energy but produce greenhouse gases, contributing to climate change. Transitioning to renewable energy sources is crucial for sustainability and reducing environmental impact.

**Fossil fuels** are energy sources formed from the remains of ancient plants and animals buried over millions of years. The main types are coal, oil, and natural gas. These fuels are extracted and burned to produce energy for electricity, heating, and transportation. While they are efficient and widely used, burning fossil fuels releases carbon dioxide and other greenhouse gases, contributing to air pollution and climate change. Reducing fossil fuel use is essential for environmental sustainability.

### **Fossil fuels impact the environment significantly:**

1. **Air Pollution:** Burning fossil fuels releases pollutants like sulfur dioxide, nitrogen oxides, and particulate matter, harming air quality and human health.
2. **Climate Change:** They emit large amounts of carbon dioxide, a greenhouse gas that contributes to global warming.
3. **Water Contamination:** Oil spills and runoff from mining operations pollute water sources.
4. **Habitat Destruction:** Extracting fossil fuels disrupts ecosystems and wildlife habitats, leading to biodiversity loss.

### **Renewable energy sources include:**

1. **Solar:** Harnessing sunlight through solar panels to generate electricity.
2. **Wind:** Using wind turbines to convert wind energy into electricity.
3. **Hydroelectric:** Generating electricity from flowing water in rivers or dams.
4. **Geothermal:** Tapping into heat from the Earth's core to produce power.
5. **Biomass:** Burning organic materials like wood or plant waste to generate heat or electricity.
6. **Tidal:** Capturing energy from the rise and fall of tides to generate electricity.

# SOCIAL SCIENCES LESSON PLAN



**Theme: Food Waste**

**Level: 5th-8th Grades**

**Duration: 40 minutes**

## OBJECTIVE:

- Students will learn about the causes and impacts of food waste.
- Students will understand ways to reduce food waste in their daily lives.

## MATERIALS:

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about food waste
- Vocabulary list related to food waste
- Quiz sheets

## LESSON STRUCTURE:

### 1. Introduction (5 minutes)

- Greet the students and introduce the topic: Food Waste.
- Briefly explain what food waste is and why it is an important issue.

### 2. Vocabulary Introduction (5 minutes)

- Introduce key vocabulary related to the topic: food waste, landfill, composting, expiration date, sustainability, conservation.
- Write the words on the whiteboard and explain their meanings.

### 3. Video Presentation (5 minutes)

- Show a short video (3-5 minutes) about food waste and its impact on the environment.
- After the video, ask a few comprehension questions to ensure understanding:
  - What is food waste?
  - How does food waste affect the environment?

### 4. Reading Activity (10 minutes)

- Distribute a short article or handout about food waste.
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.



### 5. Group Discussion (10 minutes)

- Divide the class into small groups.
- Assign each group a question to discuss:
  - Why is it important to reduce food waste?
  - What are some ways to reduce food waste at home and school?
  - How can food waste affect people and animals?
- After the discussion, ask each group to share their thoughts with the class.

### 6. Conclusion and Quiz (5 minutes)

- Review the key points of the lesson.
- Give students a short quiz to review what they learned about food waste.
- Example questions:
  - What is one cause of food waste?
  - Name one way to reduce food waste.
  - Why is it important to reduce food waste?

### ASSESSMENT:

- Participation in discussions and activities.
- Performance on the quiz.

### HOMEWORK:

- Ask students to write a short paragraph on how they can help reduce food waste at home. They should include at least three practical steps they can take.



## NOTES FOR TEACHERS



### Key vocabulary related to food waste:

1. **Food Waste:** Discarding edible food, contributing to environmental and social issues.
2. **Landfill:** A site where waste is disposed of by burying it in the ground.
3. **Composting:** Decomposing organic waste into nutrient-rich soil for gardening.
4. **Expiration Date:** The date until which food is considered safe to consume.
5. **Sustainability:** Meeting present needs without compromising the ability of future generations to meet theirs.
6. **Conservation:** Protecting and preserving natural resources for sustainable use.

1. **Importance of reducing food waste:** It conserves resources, reduces greenhouse gas emissions, and addresses hunger by redistributing excess food to those in need. It also saves money for individuals, businesses, and governments, promoting sustainability and responsible consumption.

2. **Ways to reduce food waste:** Plan meals, buy only what's needed, store food properly, and use leftovers creatively. At school, implement portion control, offer salad bars, and educate students about the importance of reducing waste through awareness campaigns and composting programs.

3. **Impact of food waste:** Wasted food means wasted resources and contributes to climate change. It also perpetuates food insecurity by diverting edible food from those who need it. Additionally, decomposing food in landfills produces methane, a potent greenhouse gas that contributes to global warming.



# TRAFFIC/ROAD SAFETY LESSON PLAN

**Theme : Importance of Green Travel**

**Duration: 40 minutes**

**Level: 5th-8th Grades**

## OBJECTIVE:

- Students will understand the concept of green travel and its importance for road safety and the environment.
- Students will learn practical ways to incorporate green travel into their daily lives.

## MATERIALS:

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about green travel
- Vocabulary list related to green travel
- Quiz sheets

## LESSON STRUCTURE:

### 1. Introduction (5 minutes)

- Greet the students and introduce the topic: The Importance of Green Travel.
- Briefly explain what green travel is and why it is important for road safety and the environment.

### 2. Vocabulary Introduction (5 minutes)

- Introduce key vocabulary related to the topic: green travel, carbon footprint, public transportation, carpooling, cycling, walking, emissions.
- Write the words on the whiteboard and explain their meanings.

### 3. Video Presentation (5 minutes)

- Show a short video (3-5 minutes) about the benefits of green travel and how it helps the environment.
- After the video, ask a few comprehension questions to ensure understanding:
  - What is green travel?
  - How does green travel benefit the environment?





#### **4. Reading Activity (10 minutes)**

- Distribute a short article or handout about green travel.
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.

#### **5. Group Discussion (10 minutes)**

- Divide the class into small groups.
- Assign each group a question to discuss:
  - Why is it important to reduce our carbon footprint?
  - What are some green travel methods we can use in our daily lives?
  - How does green travel improve road safety?
- After the discussion, ask each group to share their thoughts with the class.

#### **6. Conclusion and Quiz (5 minutes)**

- Review the key points of the lesson.
- Give students a short quiz to review what they learned about green travel.
- Example questions:
  - What is one benefit of green travel?
  - Name one green travel method.
  - Why is it important to use green travel methods?

#### **ASSESSMENT:**

- Participation in discussions and activities.
- Performance on the quiz.

#### **HOMEWORK:**

- Ask students to write a short paragraph on how they can incorporate green travel into their daily routine. They should include at least three methods they can use.

## NOTES FOR TEACHERS



### Key vocabulary related to green travel:

- 1. Green Travel:** Environmentally-friendly modes of transportation that reduce carbon emissions.
- 2. Carbon Footprint:** The total amount of greenhouse gases produced, measured in CO<sub>2</sub> equivalents.
- 3. Public Transportation:** Shared modes of travel such as buses, trains, and trams.
- 4. Carpooling:** Sharing a ride with others, reducing the number of individual vehicles on the road.
- 5. Cycling:** Riding a bicycle as a mode of transportation, promoting physical activity and reducing emissions.
- 6. Walking:** Traveling on foot, a sustainable and healthy mode of transportation.
- 7. Emissions:** Pollutants released into the atmosphere, including greenhouse gases like CO<sub>2</sub>.

**The importance of green travel** lies in its positive impact on the environment, reducing carbon emissions and pollution. It promotes sustainable transportation methods like walking, cycling, and using public transit, which also improve air quality and reduce traffic congestion. Additionally, green travel supports local economies and communities by minimizing the environmental footprint of tourism and transportation activities.

- 1. Reducing carbon footprint:** It mitigates climate change by decreasing greenhouse gas emissions, preserving the environment, and ensuring a sustainable future for generations to come.
- 2. Green travel methods:** Include walking, cycling, carpooling, using public transportation, and choosing eco-friendly vehicles like electric cars, reducing emissions and promoting sustainability.
- 3. Improved road safety:** Green travel reduces traffic congestion and accidents by decreasing the number of vehicles on the road, promoting safer and more efficient transportation systems.

# INFORMATION TECHNOLOGIES AND SOFTWARE LESSON PLAN



**Theme: Recycle, Repair, Reuse**

**Duration: 40 minutes**

**Grade Level: 5th-8th Grades**

## **OBJECTIVE:**

- Students will understand the concepts of recycling, reusing, and repairing in the context of information technologies and electronics.
- Students will learn the importance of sustainable practices in technology use and disposal.

## **MATERIALS:**

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about recycling, reusing, and repairing electronics
- Vocabulary list related to recycling, reusing, and repairing
- Quiz sheets

## **LESSON STRUCTURE:**

### **1. Introduction (5 minutes)**

- Greet the students and introduce the topic: Recycle, Repair, Reuse in Information Technologies.
- Briefly explain why sustainable practices are important in the context of electronics and technology.

### **2. Vocabulary Introduction (5 minutes)**

- Introduce key vocabulary related to the topic: recycle, repair, reuse, e-waste, sustainability, refurbish, upcycle.
- Write the words on the whiteboard and explain their meanings.

### **3. Video Presentation (5 minutes)**

- Show a short video (3-5 minutes) about the impact of e-waste and the benefits of recycling, reusing, and repairing electronics.
- After the video, ask a few comprehension questions to ensure understanding:
  - What is e-waste?
  - How can recycling electronics benefit the environment?



#### **4. Reading Activity (10 minutes)**

- Distribute a short article or handout about sustainable practices in technology (recycling, reusing, and repairing electronics).
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.

#### **5. Group Discussion (10 minutes)**

- Divide the class into small groups.
- Assign each group a question to discuss:
  - Why is it important to recycle electronics?
  - What are some ways to reuse old electronics?
  - How can repairing electronics help reduce e-waste?
- After the discussion, ask each group to share their thoughts with the class.

#### **6. Conclusion and Quiz (5 minutes)**

- Review the key points of the lesson.
- Give students a short quiz to review what they learned about recycling, reusing, and repairing electronics.
- Example questions:
  - What is one benefit of recycling electronics?
  - Name one way to reuse old electronics.
  - Why should we repair electronics instead of throwing them away?

#### **ASSESSMENT:**

- Participation in discussions and activities.
- Performance on the quiz.

#### **HOMEWORK:**

- Ask students to find an old electronic device at home and think of a way to recycle, reuse, or repair it. They should write a short paragraph describing what they can do with the device and share it in the next class.

## NOTES FOR TEACHERS



### Key vocabulary related to sustainability:

1. **Recycle:** Convert waste into reusable material.
2. **Repair:** Fix or restore items to working condition.
3. **Reuse:** Use items again for the same or different purposes.
4. **E-waste:** Discarded electronic devices.
5. **Sustainability:** Meeting present needs without compromising future generations.
6. **Refurbish:** Renovate or improve the condition of something.
7. **Upcycle:** Repurpose old items into new products.

**E-waste:** Discarded electronic devices like smartphones and computers.

**Recycling electronics:** Prevents toxic materials from entering landfills, conserves resources by recovering valuable metals, and reduces energy consumption and greenhouse gas emissions associated with manufacturing new products.

**Importance of recycling electronics:** Prevents hazardous materials from contaminating the environment, conserves resources, and reduces energy consumption and greenhouse gas emissions associated with manufacturing new electronics.

**Ways to reuse old electronics:** Donate them to charities, sell or trade them, repurpose them for DIY projects, or refurbish them for resale or donation.

**Repairing electronics:** Extends their lifespan, reduces the need for new replacements, and minimizes e-waste by keeping electronics out of landfills.



# HUMAN RIGHTS, CITIZENSHIP, AND DEMOCRACY

## LESSON PLAN



**Theme: Wasting Resources**

**Duration: 40 minutes**

**Grade Level: 5th-8th Grades**

### OBJECTIVE:

- Students will understand the concept of resource waste and its impact on the environment and society.
- Students will learn the importance of responsible resource use and conservation as part of good citizenship.

### MATERIALS:

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about wasting resources
- Vocabulary list related to resource conservation
- Quiz sheets

### LESSON STRUCTURE:

#### 1. Introduction (5 minutes)

- Greet the students and introduce the topic: Wasting Resources.
- Briefly explain what resource waste is and why it is an important issue for the environment and society.

#### 2. Vocabulary Introduction (5 minutes)

- Introduce key vocabulary related to the topic: resources, conservation, sustainability, waste, reduce, reuse, recycle.
- Write the words on the whiteboard and explain their meanings.

#### 3. Video Presentation (5 minutes)

- Show a short video (3-5 minutes) about the impact of wasting resources and the importance of conservation.
- After the video, ask a few comprehension questions to ensure understanding:
  - What are some examples of wasting resources?
  - How does wasting resources affect the environment and society

#### 4. Reading Activity (10 minutes)

- Distribute a short article or handout about the importance of conserving resources and ways to prevent waste.
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.



#### 5. Group Discussion (10 minutes)

- Divide the class into small groups.
- Assign each group a question to discuss:
  - Why is it important to conserve resources?
  - What are some ways we can reduce waste at home and school?
  - How does conserving resources contribute to good citizenship and democracy?
- After the discussion, ask each group to share their thoughts with the class.

#### 6. Conclusion and Quiz (5 minutes)

- Review the key points of the lesson.
- Give students a short quiz to review what they learned about wasting resources.
- Example questions:
  - What is one way to reduce waste?
  - Why is it important to conserve resources?
  - How does reducing waste help the environment?

#### ASSESSMENT:

- Participation in discussions and activities.
- Performance on the quiz.

#### HOMEWORK:

- Ask students to write a short paragraph on how they can help reduce waste in their daily lives. They should include at least three practical steps they can take and be prepared to share their paragraphs in the next class.



## NOTES FOR TEACHERS



### Key vocabulary related to sustainability:

1. **Resources:** Materials or substances used to fulfill needs or desires.
2. **Conservation:** Protection and preservation of resources for future generations.
3. **Sustainability:** Meeting present needs without compromising the ability of future generations to meet theirs.
4. **Waste:** Unused or discarded material, energy, or resources.
5. **Reduce:** Minimize the amount of waste generated by using resources more efficiently.
6. **Reuse:** Use items again for the same or different purposes to extend their lifespan.
7. **Recycle:** Convert waste into reusable material to prevent it from ending up in landfills or incinerators.

**Resource waste** refers to the inefficient use or disposal of natural resources like water, energy, and raw materials. It depletes finite resources, harms ecosystems, exacerbates pollution, and contributes to climate change. Addressing resource waste is crucial for sustainability, environmental protection, and ensuring a better future for all.

**Importance of conserving resources** preserves natural ecosystems, ensures resource availability for future generations, and mitigates environmental degradation and climate change.

**Waste reduction methods** include recycling, composting, energy and water conservation, mindful consumption, and proper waste management practices.

**Contribution to citizenship and democracy** fosters responsible stewardship of resources, promotes sustainable development, and empowers individuals to participate in decision-making processes for a healthier and more equitable society.

# MATH LESSON PLAN



**Theme: Reducing Carbon Footprint**

**Duration: 40 minutes**

**Level: 5th-8th Grades**

## OBJECTIVE:

- Students will understand the concept of a carbon footprint and how mathematical calculations can help reduce it.
- Students will learn to calculate their own carbon footprint and explore ways to minimize it through mathematical reasoning.

## MATERIALS:

- Whiteboard and markers
- Projector and computer (for video)
- Calculators
- Handouts with carbon footprint data and calculation formulas
- Quiz sheets
- <https://www.carbonfootprint.com/calculator.aspx>

## LESSON STRUCTURE:

### 1. Introduction (5 minutes)

- Greet the students and introduce the topic: Reducing Carbon Footprint.
- Briefly explain what a carbon footprint is and why it is important to reduce it.

### 2. Vocabulary Introduction (5 minutes)

- Introduce key vocabulary related to the topic: carbon footprint, emissions, reduction, calculation, data.
- Write the words on the whiteboard and explain their meanings.

### 3. Video Presentation (5 minutes)

- Show a short video (3-5 minutes) about carbon footprints and the importance of reducing them.
- After the video, ask a few comprehension questions to ensure understanding:
  - What is a carbon footprint?
  - Why is it important to reduce our carbon footprint?



#### **4. Calculation Activity (15 minutes)**

- Distribute handouts with carbon footprint data and calculation formulas.
- Walk through an example calculation as a class:
- Calculate the carbon footprint of a typical household based on given data (e.g., energy usage, transportation, waste).
- Ask students to use the provided data to calculate their own carbon footprint or that of their family using calculators.
- Discuss the results and what the numbers mean.

#### **5. Group Discussion (5 minutes)**

- Divide the class into small groups.
- Assign each group a question to discuss:
  - What are some ways to reduce your carbon footprint?
  - How can mathematical calculations help us understand the impact of our actions on the environment?
- After the discussion, ask each group to share their thoughts with the class.

#### **6. Conclusion and Quiz (5 minutes)**

- Review the key points of the lesson.
- Give students a short quiz to review what they learned about carbon footprints and calculations.
- Example questions:
  - What is a carbon footprint?
  - How can you calculate a carbon footprint?
  - Name one way to reduce your carbon footprint.

#### **ASSESSMENT:**

- Participation in discussions and activities.
- Accuracy and understanding shown in carbon footprint calculations.
- Performance on the quiz.

#### **HOMEWORK:**

- Ask students to write a short paragraph on how they can reduce their carbon footprint at home. They should include at least three practical steps and calculate the potential reduction in their carbon footprint based on these steps. Be prepared to share their findings in the next class.



## NOTES FOR TEACHERS

**Reducing carbon footprint** involves minimizing the amount of greenhouse gases emitted into the atmosphere. This can be achieved through actions such as using renewable energy, improving energy efficiency, adopting sustainable transportation methods, and promoting conservation practices. By reducing carbon footprint, we mitigate climate change, preserve natural resources, and create a healthier environment for current and future generations.

**Reducing carbon footprint:** Use energy-efficient appliances, reduce meat consumption, carpool or use public transit, minimize air travel, and support renewable energy sources.

**Mathematical calculations:** Quantify emissions, analyze trends, and evaluate the effectiveness of environmental policies and practices.

**Calculating carbon footprint:** Estimate energy usage, transportation, and waste production, then convert to CO<sub>2</sub> equivalents using emission factors to determine total carbon emissions.

# TURKISH LESSON PLAN

## TÜRKÇE DERS PLANI



**Konu: Aşırı Hava Olayları**

**Süre: 40 dakika**

**Sınıf Düzeyi: 5-8. Sınıflar**

### AMAÇ:

- Öğrenciler aşırı hava olaylarını tanıyacak ve bu olayların etkilerini anlayacak.
- Öğrenciler, aşırı hava olayları hakkında Türkçe dil becerilerini kullanarak yazılı ve sözlü ifadelerini geliştirecekler.

### MATERYALLER:

- Beyaz tahta ve kalemler
- Projeksiyon cihazı ve bilgisayar (video için)
- Aşırı hava olayları hakkında yazılı materyaller
- İlgili kelime listesi
- Soru kağıtları

### DERSİN AKIŞI:

#### 1. Giriş (5 dakika)

- Öğrencileri selamlayın ve konuyu tanıtır: Aşırı Hava Olayları.
- Aşırı hava olaylarının ne olduğunu ve neden önemli olduğunu kısaca açıklayın.

#### 2. Kelime Tanıtımı (5 dakika)

- Konu ile ilgili anahtar kelimeleri tanıtır: kasırga, sel, kuraklık, fırtına, dolu, afet.
- Kelimeleri beyaz tahtaya yazın ve anlamlarını açıklayın.

#### 3. Video Gösterimi (5 dakika)

- Aşırı hava olayları ve bunların etkileri hakkında kısa bir video (3-5 dakika) gösterin.
- Videodan sonra, öğrencilerin anladıklarını kontrol etmek için birkaç soru sorun:
  - Aşırı hava olayları nelerdir?
  - Aşırı hava olaylarının etkileri nelerdir?





#### 4. Okuma Etkinliđi (10 dakika)

- Aşırı hava olayları hakkında kısa bir makale veya yazılı materyal dağıtın.
- Öğrencilerden makaleyi bireysel veya eşli olarak okumalarını isteyin.
- Okuma sonrası, sınıfça makalenin ana noktalarını tartışın.

#### 5. Grup Tartışması (10 dakika)

- Sınıfı küçük gruplara ayırın.
- Her gruba tartışmaları için bir soru verin:
  1. Aşırı hava olaylarının nedenleri nelerdir?
  2. Aşırı hava olaylarına karşı alınabilecek önlemler nelerdir?
  3. Aşırı hava olaylarının topluma etkileri nelerdir?
- Tartışmadan sonra, her grubun düşüncelerini sınıfla paylaşmasını sağlayın.

#### 6. Sonuç ve Soru-Cevap (5 dakika)

- Dersin ana noktalarını gözden geçirin.
- Öğrencilere, aşırı hava olayları ve bunların etkileri hakkında kısa bir soru-cevap yapın.
- Örnek sorular:
  - Aşırı hava olayı nedir?
  - Aşırı hava olaylarının etkilerinden biri nedir?
  - Aşırı hava olaylarına karşı ne gibi önlemler alınabilir?

#### DEĞERLENDİRME:

- Tartışmalara ve etkinliklere katılım.
- Okuma materyalindeki ana noktaların anlaşılması.
- Soru-cevap etkinliğindeki performans.

#### ÖDEV:

- Öğrencilerden evde aşırı hava olayları hakkında kısa bir paragraf yazmalarını isteyin. Paragrafta, aşırı hava olaylarının bir örneğini ve bu olayın etkilerini açıklamalarını sağlayın. Hazırladıkları paragrafı bir sonraki derste paylaşmaları istenecektir.



## ÖĞRETMENLER İÇİN NOTLAR

**Aşırı hava olayları şunlardır:** Kasırga, sel, kuraklık, fırtına, dolu.

**Bu olayların etkileri ise şunlardır:** Can kaybı, ekonomik kayıplar, altyapı hasarı, tarım verimliliğinin düşmesi, ve çevresel zararlar.

**Aşırı hava olaylarının nedenleri şunlardır:** İklim değişikliği, hava kirliliği, ve doğal döngülerdeki bozulmalar.

**Bu olaylara karşı alınabilecek önlemler arasında:** İklim değişikliğiyle mücadele, afet hazırlık planları, altyapı güçlendirme yer alır.

**Topluma etkileri** ise can ve mal kaybı, ekonomik zararlar, ve toplumsal istikrarsızlıktır.



# ENVIRONMENTAL EDUCATION AND CLIMATE CHANGE LESSON PLAN



**Theme: Air, Soil, and Water Pollution**

**Duration: 40 minutes**

**Grade Level: 5th-8th Grades**

## **OBJECTIVE:**

- Students will understand the causes and effects of air, soil, and water pollution.
- Students will learn about the importance of preventing pollution and ways to reduce it.

## **MATERIALS:**

- Whiteboard and markers
- Projector and computer (for video)
- Printed articles or handouts about air, soil, and water pollution
- Vocabulary list related to pollution
- Quiz sheets

## **LESSON STRUCTURE:**

### **1. Introduction (5 minutes)**

- Greet the students and introduce the topic: Air, Soil, and Water Pollution.
- Briefly explain what pollution is and why it is important to prevent it.

### **2. Vocabulary Introduction (5 minutes)**

- Introduce key vocabulary related to the topic: pollution, contaminants, air pollution, soil pollution, water pollution, toxic, biodegradable, sustainability.
- Write the words on the whiteboard and explain their meanings.

### **3. Video Presentation (5 minutes)**

- Show a short video (3-5 minutes) about the different types of pollution and their impacts on the environment and human health.
- After the video, ask a few comprehension questions to ensure understanding:
  - What are the main types of pollution?
  - How does pollution affect the environment?



#### **4. Reading Activity (10 minutes)**

- Distribute a short article or handout about air, soil, and water pollution.
- Ask students to read the article individually or in pairs.
- After reading, discuss the main points of the article as a class.

#### **5. Group Discussion (10 minutes)**

- Divide the class into small groups.
- Assign each group a question to discuss:
  - What are the main causes of air, soil, and water pollution?
  - How can we reduce pollution in our daily lives?
  - What are the long-term effects of pollution on the environment and human health?
- After the discussion, ask each group to share their thoughts with the class.

#### **6. Conclusion and Quiz (5 minutes)**

- Review the key points of the lesson.
- Give students a short quiz to review what they learned about pollution.
- Example questions:
  - What is one cause of air pollution?
  - Name one way to reduce water pollution.
  - Why is it important to prevent soil pollution?

#### **ASSESSMENT:**

- Participation in discussions and activities.
- Understanding shown during the reading activity.
- Performance on the quiz.

#### **HOMEWORK:**

- Ask students to write a short paragraph on how they can help reduce pollution in their community. They should include at least three practical steps and be prepared to share their paragraphs in the next class.



## NOTES FOR TEACHERS

### Key vocabulary related to pollution:

1. **Pollution:** Release of harmful substances into the environment.
2. **Contaminants:** Substances that pollute the environment.
3. **Air Pollution:** Increase in harmful gases and particles in the atmosphere.
4. **Soil Pollution:** Contamination of soil with harmful substances.
5. **Water Pollution:** Environmental issue arising from the contamination of water sources.
6. **Toxic:** Substances that endanger living organisms.
7. **Biodegradable:** Materials that can be broken down naturally in the environment.
8. **Sustainability:** Balanced use and preservation of resources for future generations.

### What are the main causes of air, soil, and water pollution?

The main sources include industrial activities, fossil fuel use, agricultural chemicals, waste disposal, and urbanization.

### How can we reduce pollution in our daily lives?

We can reduce pollution in daily life through waste reduction, recycling, energy and water conservation, and using public transportation.

### What are the long-term effects of pollution on the environment and human health?

Pollution disrupts natural ecosystems, impacts ecosystems, and threatens human health. Long-term effects include climate change, diseases, and loss of biodiversity.

[illegible]

