

Practice Worksheet on Atmospheric Pollution and Climate Change

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Subject: Environmental Science

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Long Answer Questions

1. Explain the effects of increased ultraviolet radiation reaching the Earth's surface.
2. Evaluate the success of the Montreal Protocol in reducing the production and consumption of ozone-depleting substances.
3. Discuss the role of hydrofluorocarbons (HFCs) as greenhouse gases and the significance of the Kigali Amendment.
4. Analyze the advantages of using LED technology in the context of phasing out HFCs.
5. Discuss the potential impact of staggered implementation timelines for the phase-out of HFCs on global environmental benefits.
6. Explain how vehicle emissions contribute to air pollution, focusing on nitrogen oxides.

7. Describe the trends in tropospheric ozone levels, explaining the factors contributing to the changes.

8. Discuss the factors that contributed to ozone layer depletion in the 1940s and 1970s.

Multiple Choice Questions

1. What is the primary effect of global warming?

- a) A reduction in greenhouse gas emissions
- b) An increase in the Earth's average temperature
- c) A decrease in sea levels
- d) An increase in biodiversity

2. Which international agreement is most directly associated with reducing ozone-depleting substances?

- a) Montreal Protocol
- b) Kyoto Protocol
- c) Paris Agreement
- d) Copenhagen Accord

3. Which of the following is a potent greenhouse gas targeted by the Kigali Amendment?

- a) Carbon dioxide
- b) Water vapor
- c) Hydrofluorocarbons
- d) Methane

4. Vehicle emissions are a significant source of which air pollutant?

- a) Nitrogen oxides
- b) Carbon monoxide
- c) Sulfur dioxide
- d) Ozone

5. Following the widespread adoption of CFCs, what happened to tropospheric ozone levels in urban areas initially?

- a) Decrease
- b) Increase
- c) Remain stable
- d) Fluctuate unpredictably

6. What is the most likely impact of increased nitrogen oxide emissions on air quality?

- a) Improved air quality
- b) Decreased air quality
- c) Increased biodiversity
- d) No significant effect

7. What is the primary environmental effect of excess nitrates in water bodies?

- a) They absorb excessive nitrates
- b) They cause eutrophication
- c) They decrease water acidity
- d) They increase dissolved oxygen

8. What is a potential negative effect of excessive fertilizer use on soil?

- a) Increased crop yields
- b) Reduced soil fertility
- c) Improved water quality
- d) Increased biodiversity

Answer Key

Long Answer Questions - Expected Responses

1. Explain the effects of increased ultraviolet radiation reaching the Earth's surface.

Expected Answer: Increased UV radiation leads to higher cancer rates in humans.

2. Evaluate the success of the Montreal Protocol in reducing the production and consumption of ozone-depleting substances.

Expected Answer: The Montreal Protocol significantly reduced the production and consumption of ozone-depleting substances.

3. Discuss the role of hydrofluorocarbons (HFCs) as greenhouse gases and the significance of the Kigali Amendment.

Expected Answer: HFCs are potent greenhouse gases contributing to global warming, hence the phasing-out agreement.

4. Analyze the advantages of using LED technology in the context of phasing out HFCs.

Expected Answer: LED technology offers economic and technological advantages for phasing out HFCs.

5. Discuss the potential impact of staggered implementation timelines for the phase-out of HFCs on global environmental benefits.

Expected Answer: Staggered implementation might delay global environmental benefits as some countries continue using HFCs.

6. Explain how vehicle emissions contribute to air pollution, focusing on nitrogen oxides.

Expected Answer: Vehicle emissions release nitrogen oxides, contributing to air

pollution.

7. Describe the trends in tropospheric ozone levels, explaining the factors contributing to the changes.

Expected Answer: Initially increasing, peaking in the 1970s due to urbanization, and then decreasing post-2000 due to the Montreal Protocol.

8. Discuss the factors that contributed to ozone layer depletion in the 1940s and 1970s.

Expected Answer: Lack of legislation and rules against the use of CFCs in industries led to ozone layer depletion.

Multiple Choice Questions - Correct Answers

1. What is the primary effect of global warming?

Correct Answer: An increase in the Earth's average temperature

2. Which international agreement is most directly associated with reducing ozone-depleting substances?

Correct Answer: Montreal Protocol

3. Which of the following is a potent greenhouse gas targeted by the Kigali Amendment?

Correct Answer: Hydrofluorocarbons

4. Vehicle emissions are a significant source of which air pollutant?

Correct Answer: Nitrogen oxides

5. Following the widespread adoption of CFCs, what happened to tropospheric ozone levels in urban areas initially?

Correct Answer: Increase

6. What is the most likely impact of increased nitrogen oxide emissions on air quality?

Correct Answer: Decreased air quality

7. What is the primary environmental effect of excess nitrates in water bodies?

Correct Answer: They cause eutrophication

8. What is a potential negative effect of excessive fertilizer use on soil?

Correct Answer: Reduced soil fertility