

CLIMATE CHANGE QUIZ NIGHT – Questions and Answers

The *Climate Change Quiz Night Questions and Answers* consists of five rounds covering climate change fundamentals, renewable energy and solutions, climate impacts and adaptation, climate leaders and agreements, and everyday actions for sustainability. It's suitable for event organisers, environmental educators, and anyone interested in hosting an engaging and educational quiz night focused on climate change and sustainability.

It is designed for organisers to pick and choose questions, depending on the audience. Overview of rounds:

Round 1: Climate Change Fundamentals. This round focuses on building a foundational understanding of climate change and its basic concepts. Participants will learn about greenhouse gases, their sources, and the key terms associated with climate science.

Round 2: Renewable Energy and Solutions. In this round, participants will explore renewable energy sources and their significance in addressing climate change. They'll learn how technologies like solar and geothermal power contribute to reducing greenhouse gas emissions.

Round 3: Climate Impacts and Adaptation. Round 3 delves into the impacts of climate change on various aspects of the environment and society. Participants will gain insights into the consequences of rising temperatures, sea level rise, and extreme weather events, as well as strategies for adapting to these changes.

Round 4: Climate Leaders and Agreements. This round shines a spotlight on key figures and international agreements that have shaped the global response to climate change.

Round 5: Everyday Actions for Sustainability. The final round focuses on empowering participants with actionable steps they can take in their daily lives to contribute to climate mitigation and adaptation efforts. This round emphasises the role of individual actions.

Each of these rounds provides participants with key learnings on climate change, covering its fundamental concepts, solutions, impacts, international cooperation, and the role of individuals. It aims to enhance awareness and inspire positive change regarding climate issues.

Questions and Answers

ROUND 1: CLIMATE CHANGE FUNDAMENTALS

Q: What causes the greenhouse gas effect?

Answer: The absorption of released infrared radiation by specific gases, including H₂O, CO₂, CH₄ and N₂O

Q: What is the primary gas responsible for the greenhouse effect?

Answer: Carbon dioxide (CO₂).

Q: How does deforestation contribute to climate change?

Answer: Deforestation can release carbon stored in trees, contributing to higher CO₂ levels in the atmosphere. It also reduces the number of trees absorbing CO₂ from the atmosphere. Contributes up to 20% of global GHG emissions.

Q: What term refers to the long-term average of weather conditions in a region?

Answer: Climate.

Q: Name the main consequence of melting ice sheets and glaciers.

Answer: Rising sea levels, reduced salinity that influences water column mixing, reduced albedo (ice @ 90%, water @ 0.1%) effect meaning more energy is absorbed and then released

Q: The burning of WHAT, is the dominant human activity that disrupts the natural carbon cycle?

Answer: Fossil fuels

HARDER QUESTIONS –

Q: What is the significance of carbon dioxide equivalents (CO₂-eq) in measuring greenhouse gas emissions?

Answer: CO₂-eq allows us to express the warming potential of different greenhouse gases relative to carbon dioxide.

Q: Compared to carbon dioxide – does Methane or Nitrous Oxide have the highest global warming potentials (GWP)?

Answer: Nitrous Oxide. Additional information when reading answers - Methane has about 28 times the GWP of carbon dioxide over 100 years, while nitrous oxide has approximately 265 times the GWP.

ROUND 2: RENEWABLE ENERGY AND SOLUTIONS

Q: Which energy source is derived from the heat within the Earth's crust?

Answer: Geothermal energy.

Q: What is the largest source of renewable energy in the world?

Answer: Solar energy. The Earth receives approximately 1.73×10^{17} Joules of energy per second (1kWh is equal to 3.6×10^6 Joules)

Q: How do solar panels generate electricity?

Answer: Solar panels convert sunlight into electricity through the photoelectric effect on the semiconductor in the photovoltaic cells.

Q: What are two ways that carbon neutrality can be achieved?

Answer: 1. Reducing emissions 2. Using carbon offsets

Q: Which potent greenhouse gas is reduced when organic waste is composted instead of being sent to landfills?

Answer: Methane.

Q: What is the concept of "food miles" and its relevance to climate change?

Answer: "Food miles" refers to the distance food travels from production to consumption. Lower food miles mean fewer emissions from transportation.

Q: Enteric fermentation in cattle leads to microbes in their stomach producing what greenhouse gas?

Answer: Methane.

Q: Photosynthesis is the process in which plants convert sunlight into energy. What gas are they absorbing from the atmosphere in this process?

Answer: Carbon dioxide

HARDER QUESTION –

Q: The National Greenhouse and Energy Report Act 2007 requires corporations that meet a certain threshold to report on WHAT two things?

Answer: Emissions and energy consumption

ROUND 3: CLIMATE IMPACTS AND ADAPTION

Q: How do rising global temperatures affect coral reefs?

Answer: Rising temperatures lead to coral bleaching and reduced oxygen concentration in the water

Q: Industry uses technology to capture and store carbon dioxide emissions. What does CCS stand for?

Answer: Carbon capture and storage (CCS).

Q: Name 2 types of extreme weather events that are likely to increase in frequency as a result of global warming?

Potential Answer:

- Heatwaves: Prolonged periods of extremely high temperatures.
- Intense Hurricanes/Cyclones/Typhoons: Stronger storms with higher wind speeds and heavier rainfall.
- Heavy Rainfall and Flooding: Increased precipitation leading to more intense and frequent flooding events.
- Droughts: Prolonged periods of reduced rainfall and water scarcity.
- Wildfires: Increased risk of larger and more frequent wildfires due to drier conditions.
- Sea-Level Rise and Coastal Storm Surges: Rising sea levels exacerbating the impact of coastal erosion.
- Melting Glaciers and Snowstorms: Changes in snowfall patterns and accelerated glacier melt.
- Extreme Cold Snaps: Paradoxically, warming can disrupt normal temperature patterns, leading to more intense cold snaps in some regions.

Q: What does IPCC stand for?

Answer: Intergovernmental Panel on Climate Change. Additional information when reading answers: The IPCC assesses scientific information about climate change and its impacts, providing policymakers with guidance.

Q: This is a multiple-choice question. What are the criteria for a carbon credit to be considered a legitimate offset?

- A. Carbon credits should represent genuine emissions reductions.
- B. Carbon credits should be verified by reputable standards.
- C. Carbon credits should meet relevant guidelines.
- D. All of the above.

Answer: D

ROUND 4: CLIMATE LEADERS AND AGREEMENTS

Q: Who wrote "An Inconvenient Truth" and helped bring climate change to mainstream awareness?

Answer: Al Gore.

Q: Which international agreement aims to limit global warming to well below 2 degrees Celsius?

Answer: The Paris Agreement

Q: What can organisation purchase to support process of becoming carbon neutral?

Answer: Carbon credits

Q: ACCUs are carbon credits approved by the Australian government. What does ACCU stand for?

Answer: Australian Carbon Credit Units (ACCUs)

Q: It is important to verify carbon credits, to ensure they represent legitimate WHAT?

Answer: Verified emissions

ROUND 5: EVERYDAY ACTIONS FOR SUSTAINABILITY

Q: In the context of waste management – what are the 3Rs?

Answer: Reduce, reuse, recycle of organic materials (cattle feed, composting, biochar)

Q: How does planting trees contribute to carbon sequestration?

Answer: Trees absorb carbon dioxide during photosynthesis, storing carbon in their biomass and promoting the growth of soil microbiome.

Q: Name TWO actions that you could take to reduce carbon emissions from vehicles?

Answer OPTIONS: Catching public transport; walking (to school or work); biking; car-pooling

Q: Switching to LED is an energy efficient measure that involves replacing traditional incandescent light bulbs. What does LED stand for?

Answer: Light Emitting Diode

Q: What could you install on your roof to incorporate renewables into your household?

Answer: Solar panels and solar water heating.