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**General Integrated Science Unit 1**

**Task 6 : Climate Change and the Greenhouse Effect**

**Assessment Type : Extended Response**

**Weighting : 7.5%**

**Time allowed for the task:**

* 1 week to research the topics and complete your ***notes*** at home
* 30 minutes of lesson time to answer questions related to your research in class

**Climate Change and the Greenhouse effect:**

Climate change is one of the greatest ecological, economic and social challenges facing the world today. The scientific evidence shows that although world temperatures are increasing naturally, humans are accelerating the process at such a rate that nature cannot adapt quick enough to the changes. Climate change refers to the change in average weather conditions over a long period of time, whereas the weather refers to conditions over a brief period of time like a hours to days.

**Part A. Create a set of research notes.**

You are going to research what is causing this accelerated climate change and what are humans doing to reduce the effects they are having or have had. From your research you need to produce a set of notes on the following points. This will be marked and form 50% of your final mark for this assessment.

Points to create research notes on are:

1. What is meant by “climate change”?
2. How are humans thought to be causing climate change? Include the things that humans are doing and the effect these things are having on the climate.
3. Describe the impacts climate change is having on the following:

* Climatic events eg floods, drought etc
* People
* Land
* Biodiversity
* Permafrost
* The water and carbon cycles

1. What do scientists predict the future will look like if climate change continues at the same rate that it is occurring at now? Give the short term view and the long term view.
2. Explain what humans are doing to try and reduce the impact they have had or are having on climate change and how it works eg vertical farming, artificial photosynthesis, green fuels etc

**Part A. Research notes**

* These will be handed in prior to the assessment and will be marked on organisation, understanding of the concepts covered and coverage of the topic.

**Part B. In-class assessment will comprise of:**

* Specific questions based on the research notes you have made.

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| **Requirements for assessment** | **Due dates** |
| * Research notes | **Thursday 14th June** |
| * In-class assessment | **Thursday 14th June** |

**Validation Questions**

1. What is meant by the term “climate change”? (1 mark)

The term climate refers to changes in patterns of climate over a long period of time due to a combination of natural and human influences. (Accept similar answers)

1. Describe one thing that humans are doing to cause climate change. Include an explanation of how the activity is affecting the climate. (3 marks)

Human activities can also influence climate by changing concentrations of CO2 and other greenhouse gases in the atmosphere.

Examples could be the following with a valid explanation:

* Deforestation/ Mining/ agriculture
* Burning of fossil fuels/ urbanisation/ emissions from transport vehicles

1. Climate change is having an impact upon our weather systems already. In the future these impacts are predicted to become more severe. Describe an impact climate change is having on the weather or events associated with the weather. (4 marks)

Examples impacts could be the following accompanied with a description:

* Extreme weather events – floods, droughts, typhoons, cyclones etc.
* Rising sea levels- floods, drowning of islands

1. How will the events described in question 3 impact biodiversity? (2 marks)

A coherent explanation from the example given in question 3.

1. Climate change is occurring on the Earth as it has done many times before in the Earth’s history. Explain **two** things that scientists are predicting will happen to the Earth if climate change continues at the rate it is changing now. (4 marks)

During the next few decades and beyond, global warming is expected to cause further increases in

atmospheric moisture content, more extreme heatwaves, fewer frosts,further decreases in the extent and thickness of sea ice, further melting of mountain glaciers and ice sheets, shifts in rainfall (increases in most ropical and high-latitude regions and decreases in many subtropical

and mid-latitude regions), further ocean warming, and further rises in sea levels.

(Accept any TWO examples from the above answer 2 marks for each)

1. Humans are aware of the impact they are having on climate change and in some cases are trying to reduce the effect they are having. Choose one thing that humans are doing to try and reduce the effect they are having on climate change. Explain what they are doing and what they are hoping to achieve. (4 marks)

Accept any of the strategies (1mark) listed below with an explanation of what is being done (1.5 marks) and what are they hoping to achieve (1.5marks)

* Investing and developing renewable sources of energy (solar, wind, water)
* Reducing greenhouse gas emissions or stricter environmental policies
* Innovations like artificial photosynthesis, vertical farming etc.