



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination
Sample 2

Climate Action and Sustainable
Development

Ordinary Level

2 hours 30 minutes

300 marks

Examination Number

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Date of Birth

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For example, 3rd February
2005 is entered as 03 02 05

Centre Stamp

Instructions

Write your answers in blue or black pen. You may use pencil and colouring pencils for graphs and diagrams only.

Write your answers in the spaces provided in this booklet. There is space for extra work at the end of the booklet. Label any such extra work clearly with the question number and part.

This examination booklet will be scanned and your work will be presented to an examiner on screen. Anything that you write outside of the answer areas may not be seen by the examiner.

Section A 100 marks

There is one question in this section, answer **all** parts of this question.

Section B 160 marks

Answer any **four** questions in this section. Each question carries 40 marks.

Section C 40 marks

Answer **one** question in this section. Each question carries 40 marks.

Section A

100 marks

Answer **all** parts of this question.

Question 1

(100 marks)

(a) (i) Which **three** of the following are examples of greenhouse gases?

Tick (✓) the **three** correct boxes.

Carbon Dioxide ☐

Oxygen ☐

Methane ☐

Nitrous Oxide ☐

Helium ☐

Indicate whether each of the following statements is true or false by ticking (✓) the correct box for each.

	True	False
(ii) Deforestation by people is one cause of the enhanced greenhouse effect.	☐	☐
(iii) Atmospheric greenhouse gas levels are a poor indicator that human induced global warming is occurring.	☐	☐

(b) Which **two** of the following are examples of NGOs (Non-Governmental Organisations)?

Tick (✓) the **two** correct boxes.

WWF (World Wildlife Fund for Nature)  They work to ensure that the value of nature is reflected in decision-making from a local to global scale.	☐
Department of the Environment, Climate and Communications  An Roinn Comhshaoil, Aeráide agus Cumarsáide Department of the Environment, Climate and Communications Government department in Ireland that has responsibility for policies across communications, postal, energy, natural resources, climate, waste and environment.	☐
UN Food and Agriculture Organisation  Food and Agriculture Organization of the United Nations Agency of the United Nations that leads international efforts to defeat hunger, improve nutrition and food security.	☐
Greenpeace  An international environmental organisation which uses a strategy it calls 'creative confrontation' to highlight environmental misdeeds by corporations, industries and governments.	☐

(c) Indicate whether each of the following statements is true or false by ticking (✓) the correct box for each.

	True	False
(i) The Anthropocene is viewed as the period in which human activity has been the main influence on climate and the environment.	☐	☐
(ii) Peat bogs are a natural example of a carbon sink.	☐	☐
(iii) Sustainable development is a concept that promotes meeting the needs of the present without compromising the ability of future generations to meet their needs.	☐	☐
(iv) Precipitation is when water vapour is lost from plants to the atmosphere.	☐	☐
(v) Individual action is more effective than collective action at achieving systemic change.	☐	☐

(d) Study **Figure 1** opposite showing the countries of the Global South and the Global North and answer the questions that follow.

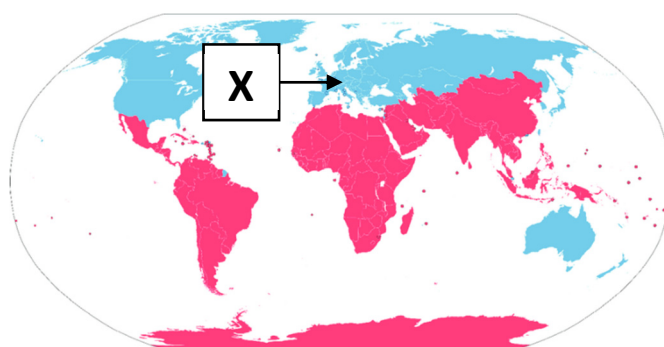


Figure 1

(i) Which of the following is shown at X?
Tick (✓) the correct box.

Global North ☐
Global South ☐

(ii) Name **one** country in the Global North **and one** country in the Global South that you have studied.

Country from Global North:

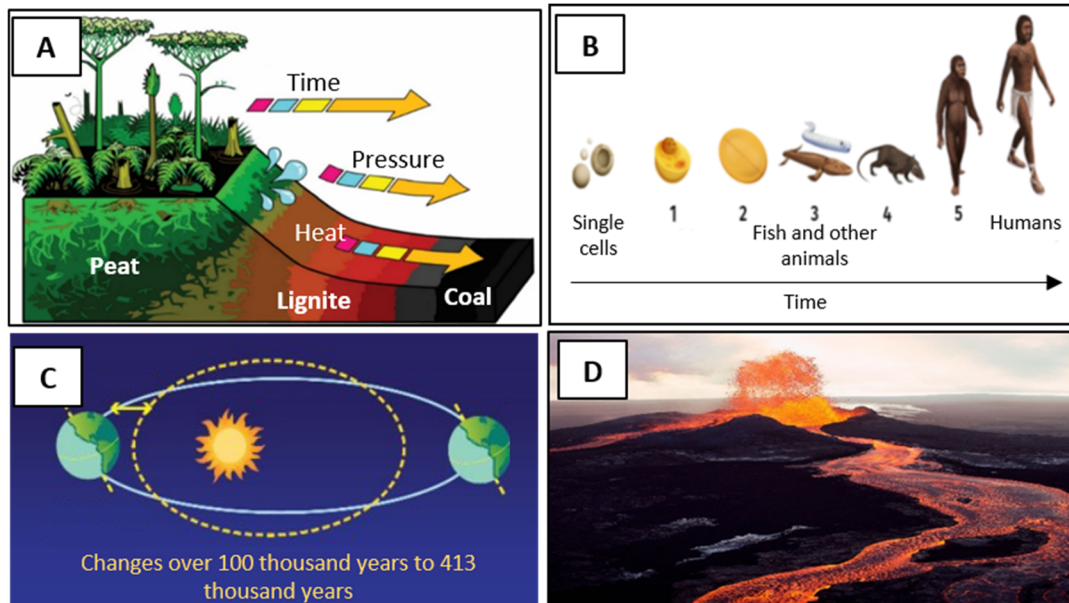
Country from Global South:

(iii) Name **one** climate justice movement from the Global North **and one** climate justice movement from the Global South that you have studied.

Climate justice movement from Global North:

Climate justice movement from Global South:

- (e) (i) Study the images labelled **A** to **D** below which show natural factors that have influenced Earth's climate. Match each image to the factor in the table that best matches it by writing the correct letter for each.



Natural factor that has influenced Earth's climate	Letter
Tectonic plate activity	
Changes in the Earth's orbit	
Evolution of life	
Formation of fossil fuels	

- (ii) Tectonic plate activity occurs in which of the following Earth systems?
Tick (✓) the correct box.

Geosphere ☐

Biosphere ☐

Hydrosphere ☐

Atmosphere ☐

- (f) Complete the table below by matching each term from the list with the description in the table that best matches it.

Capitalism Global Warming Degrowth Data Bioeconomy

Description	Term
Using renewable biological resources from land and sea, to produce food, materials and energy.	
Measurements or statistics collected for research.	
Involves shrinking rather than growing economies so that less of the world's dwindling resources are used.	
Long-term increase in the Earth's average temperature.	
When trade and industry are controlled by private owners for profit.	

- (g) (i) Indicate whether the following definition refers to misinformation or disinformation by ticking (✓) the correct box.

False or misleading information that is intentionally spread with the purpose of deceiving people.

Misinformation ☐

Disinformation ☐

- (ii) Define the term *greenwashing*.

(h) Examine the infographic in **Figure 2** below and answer the questions that follow.

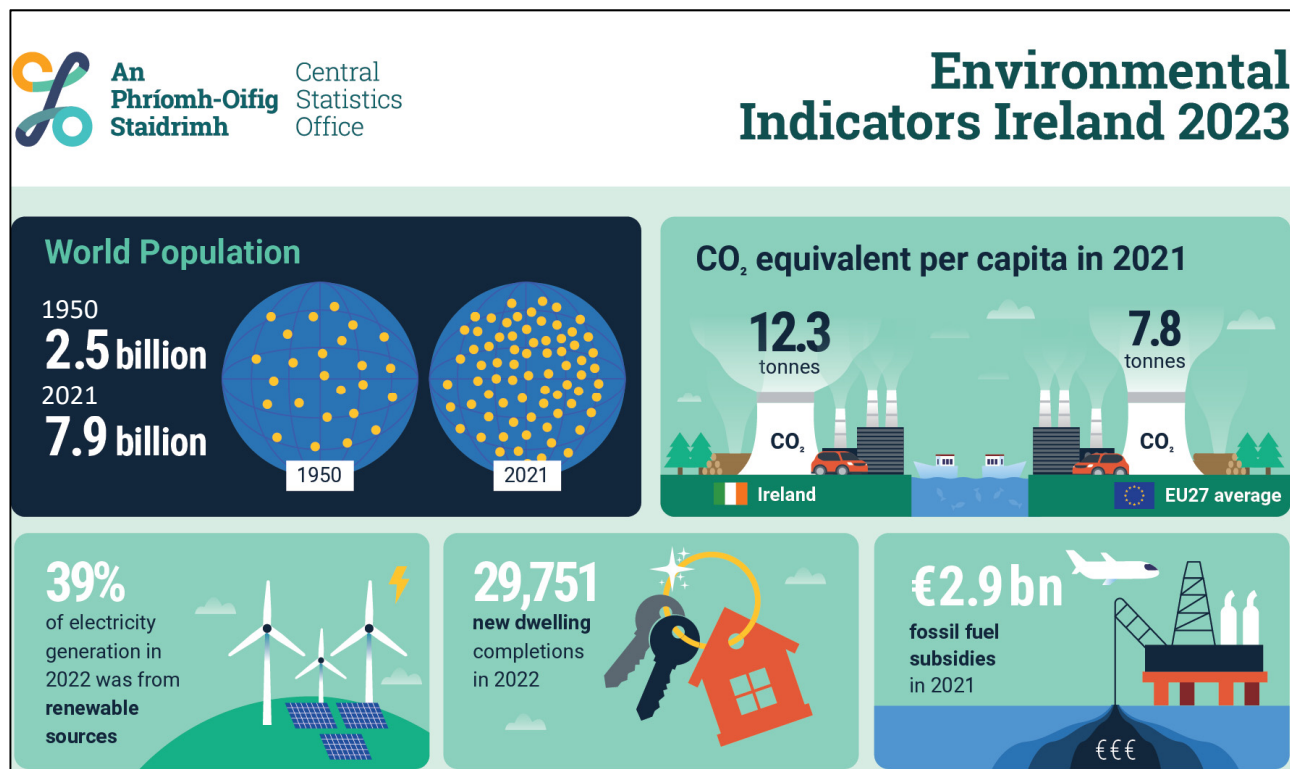


Figure 2

- (i) What was the trend in global population between 1950 and 2021?
Tick (✓) the correct box.

Increasing ☐

Decreasing ☐

Stationary ☐

- (ii) Was Ireland's CO₂ equivalent per capita higher or lower than the EU27 average in 2021?
Tick (✓) the correct box.

Higher ☐

Lower ☐

- (iii) Calculate the percentage of electricity generated from non-renewable sources in 2022.

- (iv) Name **one** example of a renewable energy source **and one** example of a non-renewable energy source.

Renewable:

Non-renewable:

- (i) Which **two** of the following are the most reliable information to use when researching?
Tick (✓) the **two** correct boxes.

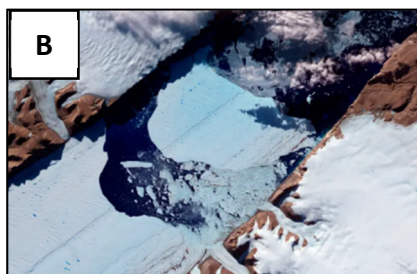
From a reputable source ☐

Contains bias ☐

Makes reference to evidence ☐

Cannot be verified ☐

- (j) Examine the photographs below which show different impacts of climate change and answer the questions that follow.



- (i) Match each photograph above labelled **A** to **D** to the impact of climate change that best represents it in the table below.

Impact of climate change	Photograph
Glaciers are melting at a quicker rate	
Increase in number of wildfires	
Desertification	
Increased frequency of storms	

- (ii) Which of the impacts listed below relates to the cryosphere?
Tick (✓) the correct box.

Increase in number of wildfires ☐

Glaciers are melting at a quicker rate ☐

Desertification ☐

Increased frequency of storms ☐

Answer any **four** questions in this section. Each question carries 40 marks.

Question 2**(40 marks)**

- (a) Study the infographic in **Figure 3** below which contains findings from a survey carried out to learn about the climate change beliefs and attitudes of the Irish people and answer the questions that follow.

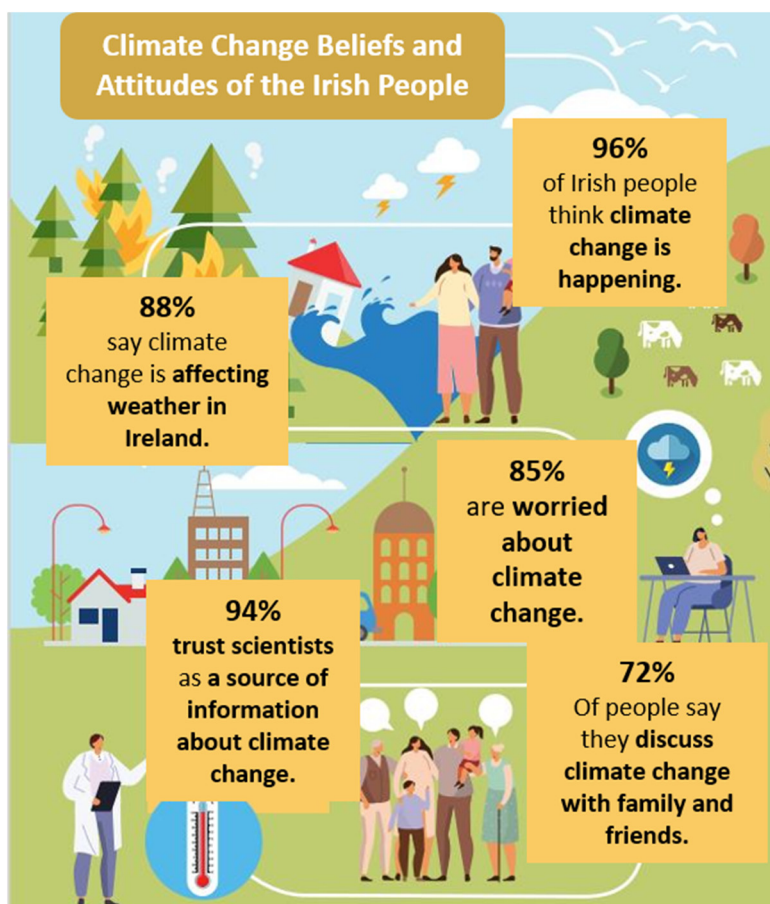


Figure 3

- (i) What percentage of Irish people trust scientists as a source of information about climate change?

- (ii) Calculate the percentage of people that do not think climate change is happening.

(b) Examine the images in **Figure 4** below and answer the question that follows.



Figure 4

Describe **two** ways that climate change is affecting people.

(c) Explain how non-native invasive species can impact biodiversity.

- (d) Explain how the **two** sources of evidence listed below can be used to prove that climate change is happening.

Temperature change over time	Changes in precipitation
	

Question 3

(40 marks)

Examine the chart in **Figure 5** below showing information on how lifestyle choices can reduce carbon emissions and answer the questions that follow.

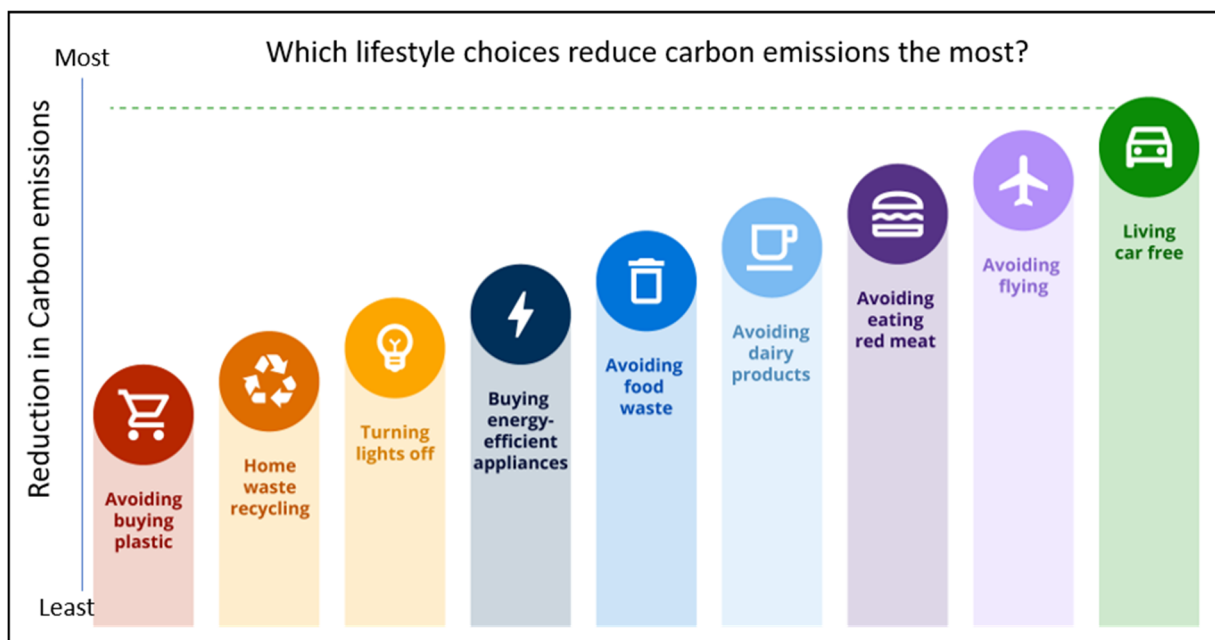


Figure 5

- (a) According to **Figure 5**, which lifestyle choice reduces carbon emissions the most?

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- (b) Choose **one** of the lifestyle choices shown above **and** describe briefly how it reduces carbon emissions.

Lifestyle choice:
Brief description:

- (c) The Sustainable Development Goals (SDGs) are a set of goals adopted by all United Nation (UN) members in 2015.

- (i) What set of UN goals came before the Sustainable Development Goals?



(ii) Describe the aims of the Sustainable Development Goals.

(d) (i) Name a climate or sustainability action that you researched **and** identify the issue it was aiming to address.

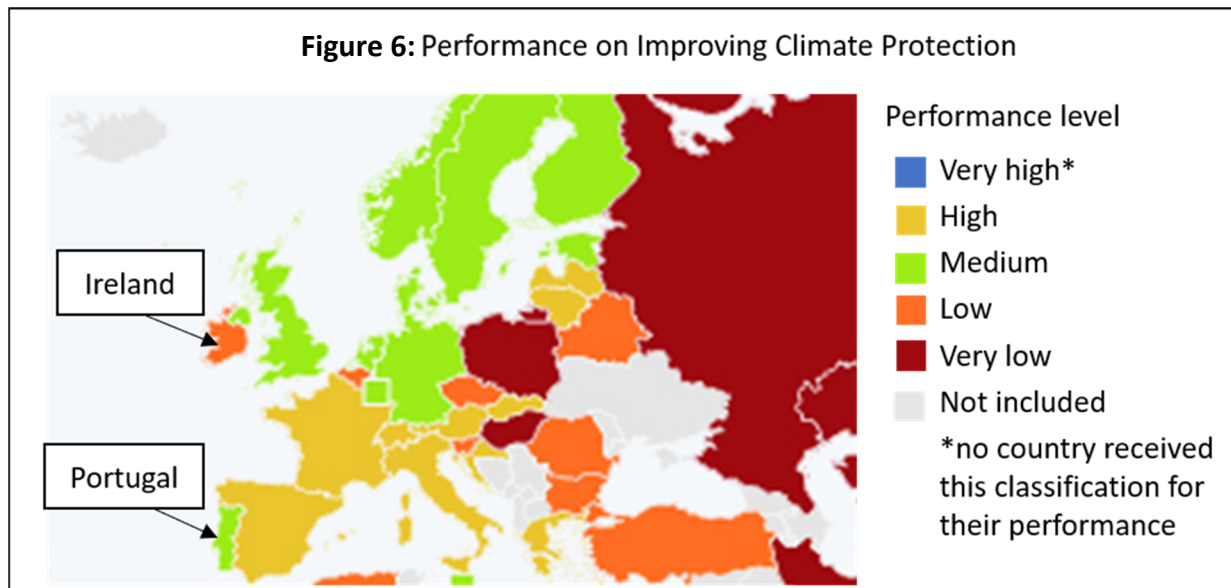
Action:
Issue:

(ii) Explain whether the action named in **(i)** was effective or not at addressing the issue. In your explanation refer to the factors that affected the action's effectiveness.

Question 4

(40 marks)

- (a) The map below in **Figure 6** shows countries classified according to their climate protection performance. A country's performance is based on its per-capita greenhouse gas emissions, renewable energy production, energy consumption and its climate change policy. Study the map and answer the questions that follow.



- (i) What classification was awarded to Portugal for their performance on improving climate protection?

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- (ii) Briefly explain **one** reason why no country was classified as 'very high' for their performance on improving climate protection.

- (iii) According to this map, do you think Ireland performed well in comparison to other European countries? Explain your answer using evidence from the map.

- (iv) Is this map an effective way to communicate data related to climate action? Explain your answer.

- (b) Name an innovative community from either Ireland or the Global South **and** describe briefly how it is adapting to the effects of climate change.

Name of innovative community:
Brief description:

- (c) Policies implemented by governments can have different environmental impacts. Name **one** policy you studied, state its aims and examine whether progress has been made in achieving its aims.

Question 5

(40 marks)

- (a) In 2021, the EPA (Environmental Protection Agency) developed a new approach to calculating total waste generation by individual material type. Their calculations show that non-metallic wastes accounts for 3,163 thousand tonnes or 13% of all waste generated and includes many common materials. The breakdown of the waste for 2021 is shown in the table below.



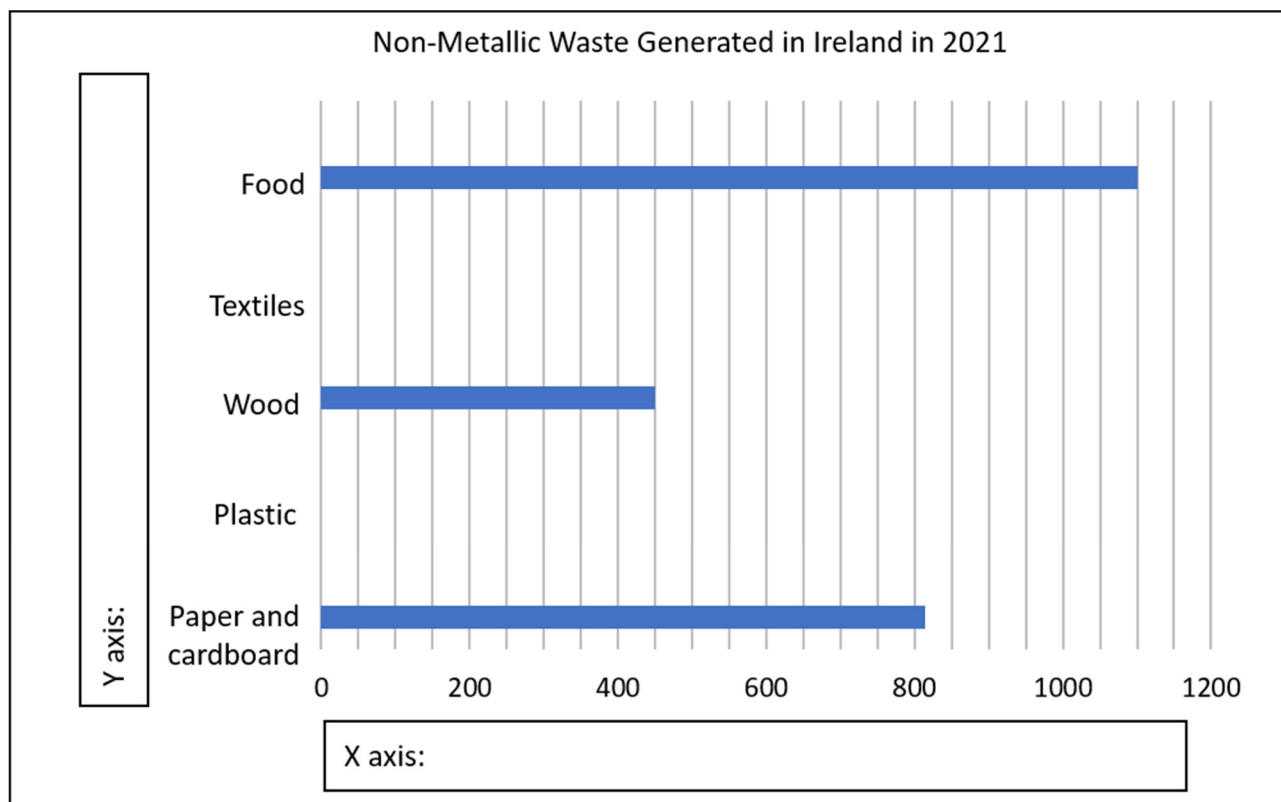
Non-Metallic Waste
Generated in Ireland in 2021

Type of waste	Weight (in thousand tonnes)
Food	1,100
Textiles	250
Wood	449
Plastic	550
Paper and cardboard	814
Total	3,163

- (i) Using the data in the table above complete the bar chart below by:

(a) Correctly labelling the X axis and the Y axis

(b) Correctly drawing in the bars for plastic and textiles.



(ii) Which type of non-metallic waste had the lowest weight?

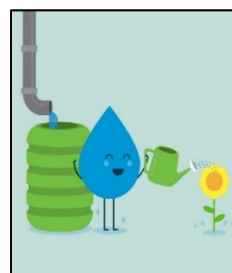
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(iii) The circular economy promotes waste reduction.

Suggest and explain **one** way to reduce waste.

- (b) Describe **two** challenges associated with increasing the amount of energy that comes from renewable sources.

- (c) Increasing the amount of renewable energy used in an economy is one way to decarbonise an economy. Other ways of achieving this goal are through carbon sequestration and through increasing water efficiency.



Explain how carbon sequestration **or** increasing water efficiency decarbonises an economy.

Question 6

(40 marks)

- (a) Read the article below about the deposit return scheme and answer the questions that follow.



Record-Breaking Returns: Irish Consumers Bring Back 300 Million Plastic Bottles and Cans

Re-turn, operators of Ireland's Deposit Return Scheme, is pleased to announce further record-breaking recycling achievements with 300 million drinks containers now returned since the scheme launched on 1 February 2024. This is one example of Ireland engaging in the circular economy.

- (i) According to the article above, how many drinks containers have been returned since the launch of the deposit return scheme?

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- (ii) Explain how the Re-turn logo helps to communicate the aim of the scheme?

- (b) Name **two** sources of energy used in Ireland.

1.
2.

(c) Explain how the exploitation of **one** energy source you studied can impact the environment.

(d) Briefly explain what is meant by regenerative agriculture **and** describe how it can help achieve a just transition in agriculture.

Section C

40 marks

The questions in this section require an answer in the form of an essay.

Answer **one** question in this section. Each question carries 40 marks.

Question 7

(40 marks)

Discuss the roles of individual and collective action in resolving the root causes of climate injustice.

In your discussion include the following:

- the root causes of climate injustice
- examples of individual and collective action
- how effective these actions can be in ensuring that everyone's needs are met now and in the future.



Or

Question 8

(40 marks)

Write an account about an investigation you carried out on the impact of an environmental factor in a local ecosystem.

In your account include the following:

- the environmental factor you investigated
- how you collected your qualitative and quantitative data
- actions that could be taken to protect or improve that ecosystem
- how that ecosystem and human well-being are interdependent.



Tick (✓) the relevant box to indicate which question from **Section C** you are answering.

Question 7 ☐

Question 8 ☐

Use this space for planning/roughwork.

Tick (✓) the relevant box to indicate which question from **Section C** you are answering.

Question 7 ☐

Question 8 ☐

[illegible]

Acknowledgements

Images

Images on page 3: <https://www.pentagram.com/news/angus-hyland-writes-about-the-wwf-logo-for-computer-arts>;
<https://www.gov.ie/en/organisation/departments-of-the-environment-climate-and-communications/>;
<https://www.un.org/en/academic-impact/fao>; <https://www.greenpeace.org.uk>

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<https://www.visualcapitalist.com/path-of-human-evolution/>; <https://ugc.berkeley.edu/background-content/earths-spin-tilt-orbit/>; <https://www.britannica.com/science/volcanic-eruption>

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https://www.wtvl.com/news/tropical-trio-nasa-captures-image-of-hurricanes/article_fda5774c-94b6-11e7-b865-c3a8167935e2.html; <https://earth.org/desertification-in-africa/>

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Images on page 10: <https://goosocean.org/news/adapting-to-climate-change-the-role-of-ocean-data/>

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<https://www.wikihow.com/Measure-Rain>

Images on page 12: <https://blogs.bath.ac.uk/climate-action/2022/04/13/climate-change-can-one-person-really-make-a-difference/>; https://international-partnerships.ec.europa.eu/policies/sustainable-development-goals_en

Image on page 14: <https://www.statista.com/chart/28816/climate-change-performance-index/>

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Images on page 18: <https://www.fas.scot/article/the-benefits-of-peatland-restoration/>;
https://www.facebook.com/DwrCymruWelshWater/photos/a.296854960338242/5278898092133879/?_rdr

Image on page 19: <https://www.citizensinformation.ie/en/whats-new/deposit-return-scheme-starts-1feb2024/>

Images on page 21: <https://www.voicesofyouth.org/blog/we-need-climate-justice>;
<https://madscientistassociates.net/services/ecological/>

Texts

Data on page 16: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/waste-generation/>

Text on page 19: <https://re-turn.ie/record-breaking-returns-irish-consumers-bring-back-300-million-plastic-bottles-and-cans/#:~:text=Dublin%2C%20Friday%2019th%20July%202024,launched%20on%20February%201%2C%202024>

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Leaving Certificate Examination – Ordinary Level

Climate Action and Sustainable Development

Sample 2

2 hours 30 minutes