



## Year 9 Science Dynamic Earth Assessment Task 2024

<b>TOPIC:</b> Dynamic Earth ( <i>ES</i> )	<b>MARKS:</b> / 35
<b>SUBMISSION REQUIREMENTS:</b> Submitted via CANVAS on <b>Thursday, 21<sup>st</sup> March by 11:59pm.</b>	<b>WEIGHTING:</b> 30%
<b>OUTCOMES TO BE ASSESSED:</b> <b>SC5 -7WS</b> processes, <b>analyses</b> and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions <b>SC5 -8WS</b> <b>Applies</b> scientific understanding and critical thinking skills to suggest possible solutions to identified problems. <b>SC5 -9WS</b> Produces a plan to <b>investigate</b> identified questions, hypotheses or problems, individually and collaboratively. <b>SC5 -13ES</b> <b>Explains</b> how scientific knowledge about global patterns of geological activity and interactions involving global systems can be used to inform decisions related to contemporary issues.	
<b>DIRECTIONAL VERBS:</b> <b>Apply:</b> Use, utilise, employ in a particular situation. <b>Analyse:</b> Identify components and the relationship between them; draw out and relate implications <b>Explain:</b> Relate cause and effect; make the relationships between things evident; provide why and/or how. <b>Investigate:</b> Carry out a systematic or formal inquiry to discover and examine the facts of a problem to make conclusions based on evidence.	

### **TASK DESCRIPTION: (40 Marks)**

*Students are to complete each section of the assigned work booklet.*

*Activity 1: Annotated Tectonic Plate Movements (10 marks)*

*Activity 2: Current Volcanic Case Study (10 marks)*

*Activity 3: Graphing Ice Cores (10 marks)*

*Activity 4: Extended Response: Impacts of Climate Change (10 marks)*

## **ASSESSMENT CRITERIA:**

### **Activity 1: Annotated Tectonic Plate Movements (10 Marks) SC5 -7WS, SC5 -13ES**

- Students are to **analyse** the stimuli image and write an annotated **explanation** of the movement of the tectonic plates described.

### **Activity 2: Current Volcanic Case Study (10 marks) SC5 -8WS, SC5 -9WS**

- Students are to **investigate** a current volcanic eruption, based on the scaffolded required information.

### **Activity 3: Graphing Ice Cores (10 marks) SC5 -7WS**

- Students are to **process** the secondary source data and display the information graphically according to correct scientific graphing conventions.

### **Activity 4: Extended Response: Impacts of Climate Change (10 marks) SC5 -8WS, SC5 -13ES**

- Students are to create an extended response on the impacts of climate change answering the question "How does climate change affect the environment and people?". Students are able to use the scaffolded ALARM matrix to plan their answers, as well as referring to graphical data provided for them, as evidence in their response.

## ASSESSMENT MARKING CRITERIA

<b>Activity 1</b> <i>Annotated Tectonic Plate Movements</i> <b>SC5 -7WS, SC5 -13ES</b>	<b>Mark</b>	<b>Grade</b>
- Includes all 5 sections annotated accurately in extensive detail with a demonstration that the diagram has been <b>processed</b> and an <b>explanation</b> of what each diagram represents, including key technical language.	9-10	A
- Most sections annotated in detail , demonstrating that the diagram has been processed and explaining most aspects with sufficient key technical language.	7-8	B
- Some sections annotated in detail, demonstrating the some aspects of the diagram has been processed and explaining aspects with some key technical language.	5-6	C
- A section with sufficient level of detail which attempts to <b>explain</b> multiple <b>processes</b> based on the information processed from the diagram.	3-4	D
- Limited information piece.	1-2	E

## ASSESSMENT MARKING CRITERIA

<b>Activity 2:</b> <i>Current Volcanic Case Study</i> <b>SC5 -8WS, SC5 -9WS</b>	<b>Mark</b>	<b>Grade</b>
<p>An outstanding case study:</p> <ul style="list-style-type: none"> <li>- Identifies the volcano’s name and geographic location.</li> <li>- Describes in extensive detail the features including types, size and shape in detail.</li> <li>- Includes a description of the type of volcano.</li> <li>- Describes in extensive detail its geological formation.</li> <li>- Highlights any significant impacts on the environment and human settlements.</li> <li>- Discusses in extensive detail the effects of past.</li> <li>- Describes in detail the impact on human settlements, including displacement, casualties, and economic consequences.</li> <li>- Investigates in extensive detail the strategies employed by authorities.</li> <li>- Describes in extensive detail why is it important to understand the features and behaviour of volcanoes.</li> </ul>	9-10	A
<p>A high level case study</p> <ul style="list-style-type: none"> <li>- Identifies the volcano’s name and geographic location.</li> <li>- Describes in detail the features which includes mostly the types, size and shape</li> <li>- Describes its geological formation, including tectonic setting or magma composition.</li> <li>- Identifies a notable eruption.</li> <li>- Highlights a significant impact on the environment and human settlements.</li> <li>- Discusses in detail the effects of past eruptions on the local environment.</li> <li>- Describes briefly an impact on human settlements, including displacement, casualties, or economic consequences.</li> <li>- Investigates one strategy employed by authorities.</li> <li>- Describes briefly why is it important to understand the features and behaviour of volcanoes.</li> </ul>	7-8	B
<p>A sound case study:</p> <ul style="list-style-type: none"> <li>- Identifies the volcano’s name and geographic location.</li> <li>- Describes briefly some features. Neglects to describes its geological formation, including tectonic setting and magma composition.</li> <li>- Identifies a notable eruption briefly. Neglects to highlight an impact on the environment or human settlements.</li> <li>- Discusses briefly an effect of a past eruption on the local environment. Neglects to describes an impact on human settlements, including displacement, casualties, or economic consequences.</li> </ul>	5-6	C

- Neglects any strategy employed by authorities to mitigate volcanic hazards.		
A basic case study: <ul style="list-style-type: none"> <li>- Identifies the volcano's name without geographic location.</li> <li>- Identifies the types or shape of the type of volcano. Neglects to describes its geological formation, including tectonic setting and magma composition.</li> <li>- Neglects to identifies a notable eruption briefly.</li> <li>- No mention of a past eruption on the local environment.</li> <li>- Neglects any strategy employed by authorities to mitigate volcanic hazards.</li> </ul>	3-4	D
A limited case study: <ul style="list-style-type: none"> <li>- Provides limited information.</li> </ul>	1-2	E

### ASSESSMENT MARKING CRITERIA

<b>Activity 3: Graphing Ice Cores SC5 -7WS</b>	<b>Mark</b>	<b>Grade</b>
Graph includes relevant scientific title, labelled horizontal and vertical axis including units, even scales for all axis, appropriate graph type, accurate plotting, and a clarity of data	5	A
Graph includes 5 of the components above	4	B
Graph includes 4 of the components above	3	C
Graph contains 3 of the components above	2	D
Graph contains limited information	1	E

### ASSESSMENT MARKING CRITERIA

<b>Activity 4: Impacts of Climate Change SC5 -8WS, SC5 -13ES</b>	<b>Mark</b>	<b>Grade</b>
<ul style="list-style-type: none"> <li>- Identifies what is causing the climate to change.</li> <li>- Describes in detail a change in the environment due to climate change.</li> <li>- <b>Explains</b> in extensive detail how the change in the environment affects people.</li> <li>- Refers to both graph emission measurements, quoting the values shown.</li> </ul>	9-10	A
<ul style="list-style-type: none"> <li>- Identifies what is causing the climate to change.</li> <li>- Describes a change in the environment due to climate change.</li> <li>- <b>Explains</b> in detail how the change in the environment affects people.</li> <li>- Refers to both graph emission measurements, neglecting to quote the values shown.</li> </ul>	7-8	B
<ul style="list-style-type: none"> <li>- Identifies what is causing the climate to change.</li> <li>- Neglects to Describes a change in the environment due to climate change.</li> <li>- <b>Explains</b> briefly how the change in the environment affects people.</li> <li>- Refers to one of the graph's emission measurements, neglecting to quote the values shown.</li> </ul>	5-6	C
<ul style="list-style-type: none"> <li>- May identify what is causing the climate to change.</li> <li>- Describes some aspect of a change in the environment due to climate change.</li> <li>- Neglects to explain how the change in the environment affects people.</li> <li>- No reference to any graphs.</li> </ul>	3-4	D
<ul style="list-style-type: none"> <li>- Provides limited information on climate change.</li> </ul>	1-2	E