1 Alfred Wegener proposed the theory of continental drift. Which of the following observations did he use to support his theory?

A Fossils could be found in different countries.

B Africa and South America seemed to fit together like jigsaw pieces.

C Rocks had magnetic striping near the ocean ridges.

D The sea floor seemed to be made at the ridges.

2 Harry Hess proposed a mechanism by which Wegener’s continental drift could occur. Hess’s theory was called:

A plate tectonics

B continental drift

C seafloor spreading

D subduction

3 Magnetite is a magnetic mineral that can be found in basalt, which is common in oceanic crust. Magnetite enabled scientists to obtain evidence of:

A seafloor spreading

B Earth’s magnetic field

C subduction

D tectonic plates

4 Rifting is the process of:

A ocean trenches forming by collision of plates

B the crust subducting

C plates moving by sliding past each other

D the crust cracking and subsiding

5 Evidence of spreading of the crust at ocean ridges resulted from:

A seismic activity in the Earth’s crust

B differences in density of oceanic and continental crust

C subduction of plates at collision boundaries

D reversals in the Earth’s magnetic field

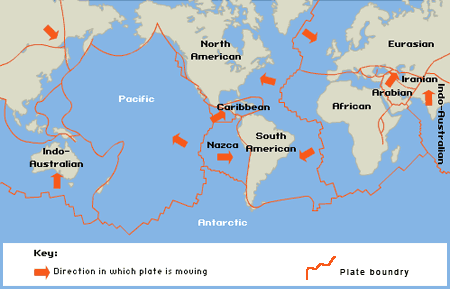
6 Tectonic plates nowadays can be measured accurately using:

A a tectonic scale

B GPS and satellites

C a seismometer

D microwave and mobile phone technology



7 Using the map above choose the **correct** statement below:

A The Pacific and Nazca Plates are converging

B There si a transform boundary between the Nazca and Caribbean Plates

C The Nazca and South American plates are converging

D All of the above

Short Answer

**Apply** your knowledge of what happens when an oceanic plate collides with a continental plate to answer the following questions.

**a Explain** why the oceanic plate is forced under the continental plate.

**b Outline** the process of subduction.

**c Explain** why volcanoes often form on the continental plate after the collision.

**Explain** the role of heat and convection in plate movement.

Vocabulary

*Match the terms to their definitions, by writing the number of the correct definition in the box.*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **TERM** |  | **DEFINITION** |
|  | Hess’s Theory | 1. | Large pieces of crust which move on the asthenosphere are called \_\_\_\_\_\_\_ \_\_\_\_\_\_\_ |
|  | Subduction | 2. | The movement of the tectonic plates over time which creates a change in distance between the continents ….occurs very gradually |
|  | Continental Drift | 3. | Patterns in of sections in rocks of alternating magnetism called \_\_\_\_\_ \_\_\_\_\_\_\_ |
|  | Rifting | 4. | A theory of Sea Floor Spreading created by a famous scientist |
|  | Continental Crust | 5. | A theory of continental drift proposed be a famous scientist who thought continents just scraped across ocean floors |
|  | Seafloor Spreading | 6. | Layer of crust under the level of the water |
|  | Wegener’s Theory | 7. | The occurrence of ancient skeletal remains of animal and plant material that are found in rock formation |
|  | Pangaea | 8. | Formation of new rocky crust at the ocean ridges and spreading outwards |
|  | Tectonic Plate | 9. | The process of crust sinking |
|  | Oceanic Crust/ Seafloor Crust | 10. | Large land mass which was present millions of years ago consisting of continents joined together |
|  | Magnetic Striping | 11. | A process by which continents broke up – the crust cracked and subsided allowing in the oceans |
|  | Fossil evidence | 12. | Layer of crust containing land mass above sea level |

*Write the correct term on the line next to each definition*

|  |  |  |  |
| --- | --- | --- | --- |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. | A layer of “plastic like” semi-solid rock in the lower mantle |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 2. | Where plates are sliding parallel to each other but in the opposite direction |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 3. | A deep trench in the ocean floor that is much deeper than the rest of the ocean floor |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 4. | Where plates are moving apart from each other in opposite directions |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 5. | Where plates are colliding with each other |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 6. | A chain of islands formed at the edges of colliding tectonic plates where one plate subducts |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 7. | Species of plant found in a country |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 8. | Species of animals found in a country |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 9. | An ocean current that extended from the polar region bringing very cold ocean temperatures |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 10. | A signal which is used to measure how fast tectonic plates are moving by positioning in terms of their global location |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 11. | Name given to scientist who study the earth, its formation, mineral deposits and rock structures |

SOLUTIONS

**Apply** your knowledge of what happens when an oceanic plate collides with a continental plate to answer the following questions.

**a Explain** why the oceanic plate is forced under the continental plate.

**b Outline** the process of subduction.

**c Explain** why volcanoes often form on the continental plate after the collision.

**a** The oceanic plate is denser and sinks below the lighter continental plate.

**b** Subduction is the sinking of one plate below another. The plate melts and magma is formed, rising up to the surface.

**c** A volcano is formed where the rising magma from the subduction forces itself through weak areas in the continental crust.

**Explain** the role of heat and convection in plate movement.

The mantle is very hot and is not completely solid.

The material slowly flows in a convection current with the hot mantle rising to the surface, cooling and then subsiding again.

As the convection current flows across the plates, it is thought to drag them along by friction.

*Match the terms to their definitions, by writing the number of the correct definition in the box.*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **TERM** |  | **DEFINITION** |
| **4** | Hess’s Theory | 1. | Large pieces of crust which move on the asthenosphere are called \_\_\_\_\_\_\_ \_\_\_\_\_\_\_ |
| **9** | Subduction | 2. | The movement of the tectonic plates over time which creates a change in distance between the continents ….occurs very gradually |
| **2** | Continental Drift | 3. | Patterns in of sections in rocks of alternating magnetism called \_\_\_\_\_ \_\_\_\_\_\_\_ |
| **11** | Rifting | 4. | A theory of Sea Floor Spreading created by a famous scientist |
| **12** | Continental Crust | 5. | A theory of continental drift proposed be a famous scientist who thought continents just scraped across ocean floors |
| **8** | Seafloor Spreading | 6. | Layer of crust under the level of the water |
| **5** | Wegener’s Theory | 7. | The occurrence of ancient skeletal remains of animal and plant material that are found in rock formation |
| **10** | Pangaea | 8. | Formation of new rocky crust at the ocean ridges and spreading outwards |
| **1** | Tectonic Plate | 9. | The process of crust sinking |
| **6** | Oceanic Crust/ Seafloor Crust | 10. | Large land mass which was present millions of years ago consisting of continents joined together |
| **3** | Magnetic Striping | 11. | A process by which continents broke up – the crust cracked and subsided allowing in the oceans |
| **7** | Fossil evidence | 12. | Layer of crust containing land mass above sea level |

*Write the correct term on the line next to each definition*

|  |  |  |
| --- | --- | --- |
| **Asthenosphere** | 1. | A layer of “plastic like” semi-solid rock in the lower mantle |
| **Transform Boundary** | 2. | Where plates are sliding parallel to each other but in the opposite direction |
| **Mid Ocean Trench** | 3. | A deep trench in the ocean floor that is much deeper than the rest of the ocean floor |
| **Divergent boundary** | 4. | Where plates are moving apart from each other in opposite directions |
| **Convergent Boundary** | 5. | Where plates are colliding with each other |
| **Island Arc** | 6. | A chain of islands formed at the edges of colliding tectonic plates where one plate subducts |
| **Flora** | 7. | Species of plant found in a country |
| **Fauna** | 8. | Species of animals found in a country |
| **CircumPolar Current** | 9. | An ocean current that extended from the polar region bringing very cold ocean temperatures |
| **GPS – Global Postioning System** | 10. | A signal which is used to measure how fast tectonic plates are moving by positioning in terms of their global location |
| **Geologist** | 12. | Name given to scientist who study the earth, its formation, mineral deposits and rock structures |