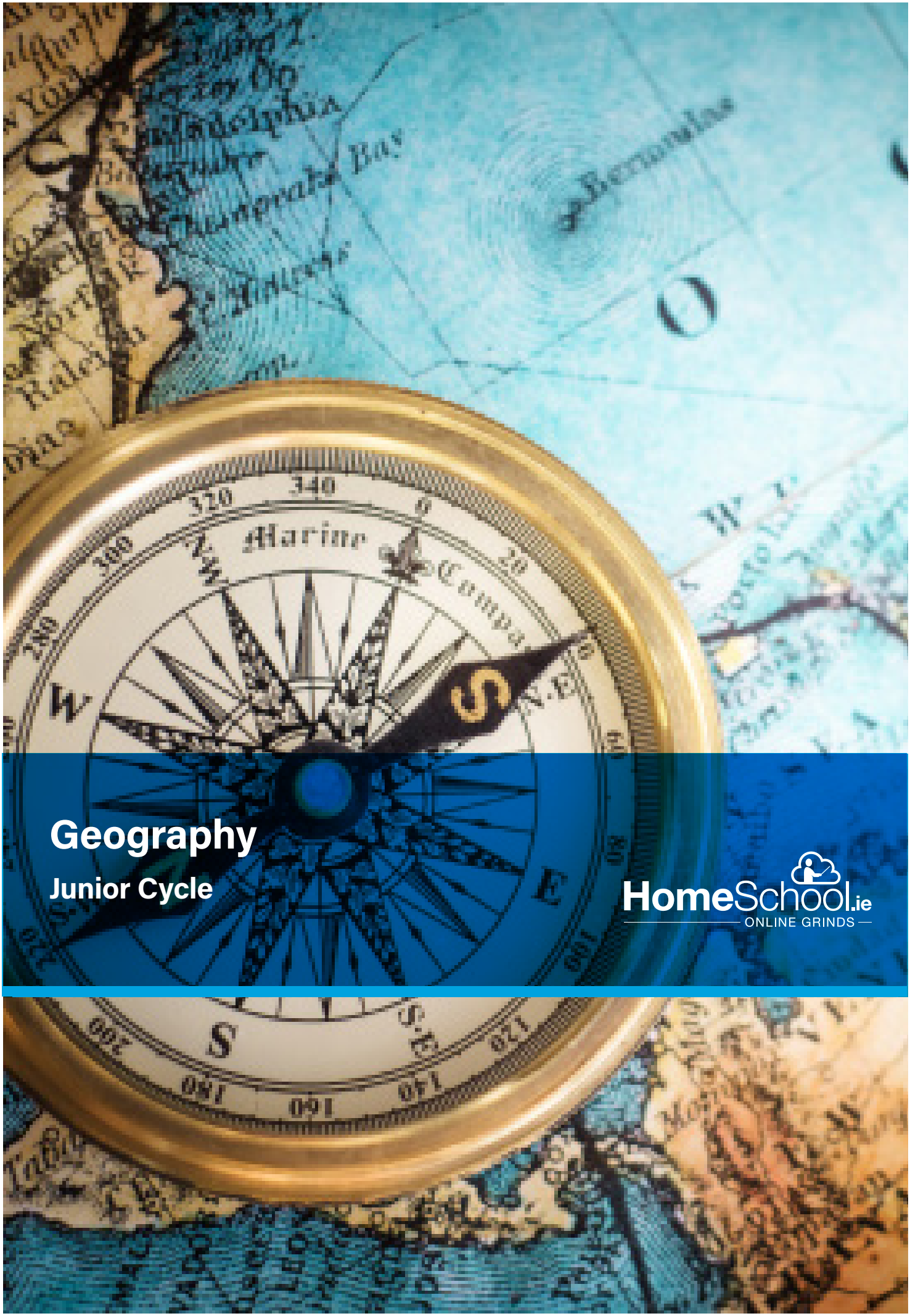


Geography

Junior Cycle

HomeSchool.ie
ONLINE GRINDS

Contents: **Lessons 1 to 24**

		Page
Lesson 1	An introduction, the earth's structure and fold mountains	1
Lesson 2	Our Restless Earth: Volcanoes	9
Lesson 3	Our restless earth: Earthquakes	17
Lesson 4	Shaping our earth: Rocks, weathering and mass movement	25
Lesson 5	The work of rivers and the sea	35
Lesson 6	The work ice and glaciers	45
Lesson 7	Irish and global climates	55
Lesson 8	Climates: The restless atmosphere: Wind, storms and weather forecasting	63
Lesson 9	Energy Sources	73
Lesson 10	Soils	83
Lesson 11	Primary economic activities: Farming and Peatlands	91
Lesson 12	Exploitation of natural resources	99
Lesson 13	Secondary economic activities	107
Lesson 14	Global warming	115
Lesson 15	Tertiary economic activities	123
Lesson 16	Reading the landscape part 1: Ordnance survey maps	133
Lesson 17	Reading the landscape part 2: Aerial photographs	143
Lesson 18	Population: Migration	151
Lesson 19	Population and settlement in Ireland	161
Lesson 20	Comparing population change in Ireland and Tanzania	173
Lesson 21	Patterns of economic development	181
Lesson 22	Comparing life chances with young people in Ireland and Tanzania	191
Lesson 23	Our interconnected world	197
Lesson 24	Exam prep	205

Subject : Junior Cycle Geography

Teacher : Mr Lenehan

LESSON 1

An introduction, the earth's structure and fold mountains

1.0 Learning Intentions

- Name and Explain the layers of the earth.
- Understand what plates are and how they move.
- Understand and be able what happens when plates meet or separate.
- Understand how fold mountains form.
- Know 3 different folding periods and examples of fold mountains from each period.
- Explain how people interact with these fold mountains.

1.1 Specification

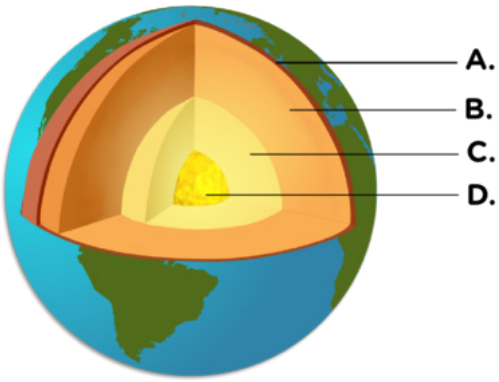
1.1 *Describe the formation and global distribution of volcanoes, earthquakes, and fold mountains in the context of plate tectonics and structure of the Earth.*

2.1 *Describe the economic and social impacts of how we interact with the occurrence of volcanoes, earth quakes, and fold mountains.*

1.3 The Structure of the earth

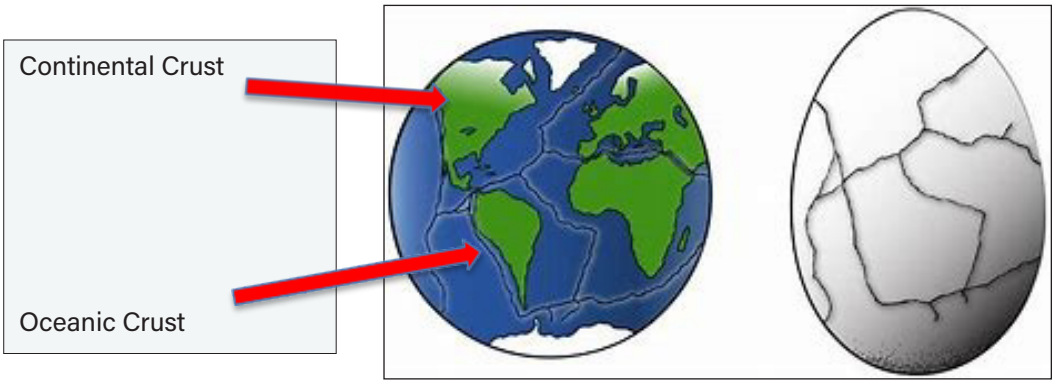
- **The Crust**: Outside layer, made up of solid rock, oceans and continents lie here.
- **The Mantle**: Lies beneath the crust, made of molten/semi molten rock called magma which is moved around by currents called convection currents.
- **The Core:** The centre of the earth, made up of iron and nickel. The hottest part of the earth (6,000 degrees). It is made up of the inner and outer core.

Pause the video and label A, B, C and D below



Plates

- The Earth's crust is **broken into plates**, similar to the cracked shell of a hard-boiled egg.
- Plates with land on top are called **continental plates.**
- Plates with oceans on top are called **oceanic plates.**



How do plates move?

- Magma in the mantle is moved around in a circular motion by **convection currents.**
- These convection currents cause plates to move.
- At plate boundaries, plates will **collide**, **separate** or **slide past each** other as a result.

Convection currents

1. When magma is heated it **rises up.**
2. As it rises it cools and **moves sideways.**
3. The friction between the magma and the **crust causes the plates to move.**
4. The magma then cools and **sinks back down** into the mantle.
5. This process is constantly repeated.

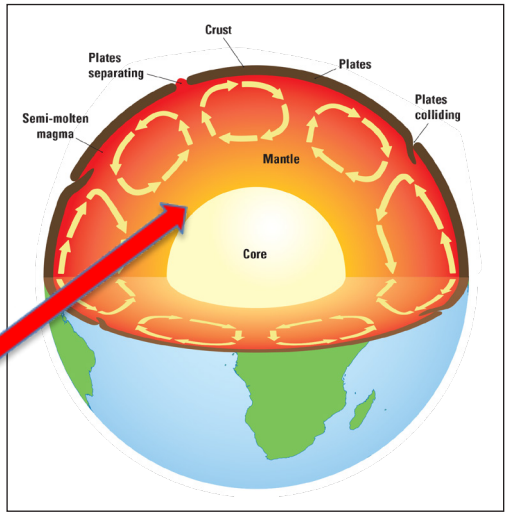


Plate Tectonics

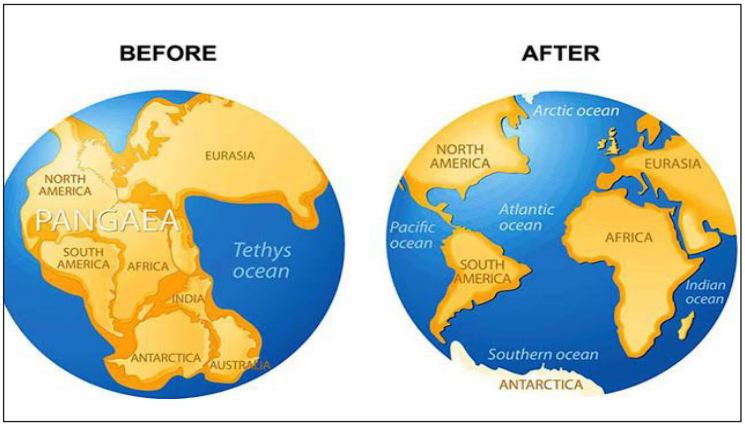
- The study of plates and their movement is called **plate tectonics.**
- The first person to come up with the idea was a German scientist called **Alfred Wegener.**
- Wegener believed that the continents used to **fit together like a jigsaw.**



Notice how the shapes of the major continents match up

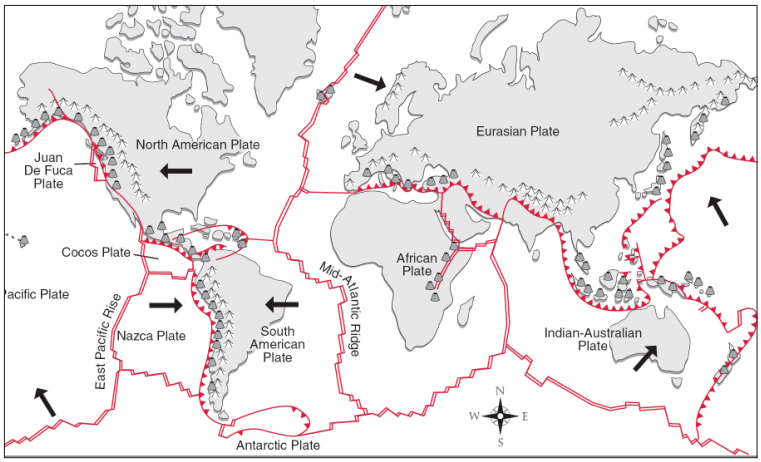
Pangea

- Wegener believed that all plates were once joined together in one huge land mass called **Pangea**.
- Pangea then broke up and the continents slowly moved into their current positions. Wegener called this **continental drift.**



It took around 200 million years for Pangea to fully break up and form the continents as we know them today!

What happens where two plates meet each other?



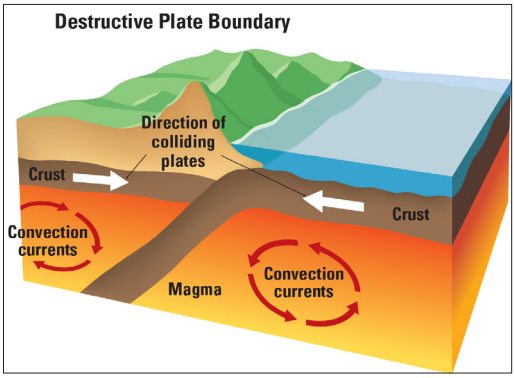
Have a look at the diagram above. The red lines represent areas where major plates meet each other.
Can you see the boundary between the **North American plate** and the **Eurasian plate**? Can you identify which country does this boundary cut through? Convection currents cause these plates to constantly move which result in **lots of activity** at these plate boundaries. We will now look at the 3 different types of plate boundaries.

Video link of Pangea's evolution: https://www.youtube.com/watch?v=ALBUX31tW4M

1.4 Plate boundaries

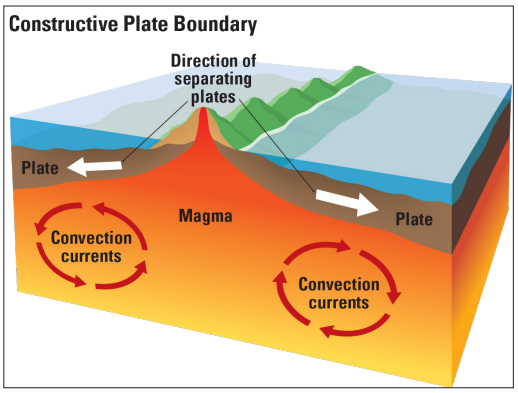
1. Destructive Plate Boundaries

- At destructive plate boundaries, plates collide causing **earthquakes**.
- The heavier plate gets pushed into the mantle and is melted by magma; this is called **subduction**.
- The lighter plate is forced upwards and buckles, forming **fold mountains. i.e. The Andes.**



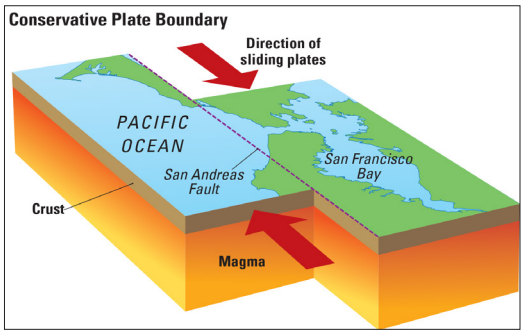
2. Constructive Plate Boundaries

- Constructive plate boundaries, plates pull apart.
- Cracks (fissures) appear as the ocean floor is stretched and thinned.
- Hot molten rock (magma) rises up through the cracks.
- Magma cools forming a **new crust and land,** e.g. Mid-Atlantic Ridge, volcanic islands.



3. Conservative Plate Boundaries

- At conservative plate boundaries, plates move past each other and get jammed.
- When they jam, pressure builds up.
- Pressure then gets released and causes earthquakes, i.e., the **San Andreas Fault.**



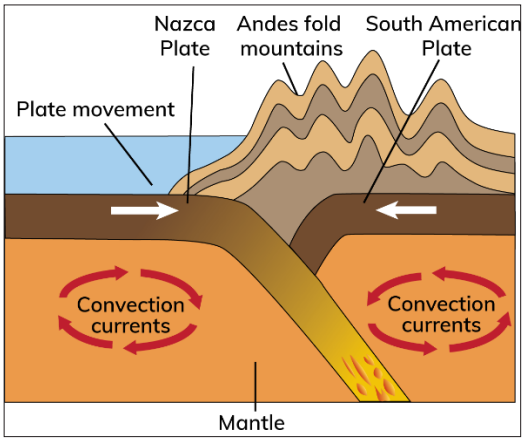
1.5 Fold mountains

Fold Mountains

Fold mountains are mountain ranges formed at destructive plate boundaries.

Here, two plates move towards each other **and collide**. This causes sediments and rocks to get damaged and crumple (hence the name, destructive plate boundaries.

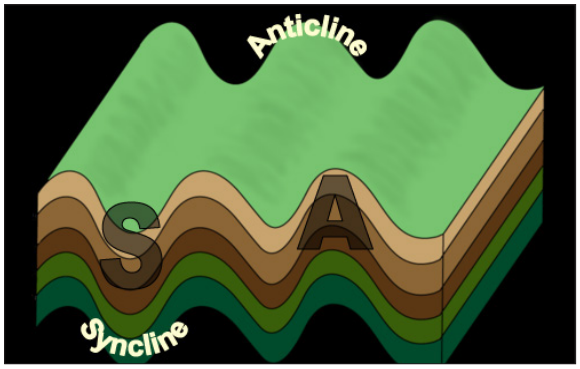
The force of the plates pushing together causes the land above to **buckle upwards**, forming a **mountain range** over time.



There are two main parts of a fold mountain that we must know.

A **syncline** (Letter S shape on the left) is the name given to a downward fold, i.e. the valley between fold mountains.

An **anticline** (Letter A shape on the left) is a long narrow mountain ridge formed when two plates collide.



Periods of folding

1. Alpine folding period

The Alpine folding period **was 30-35 million years ago.**

The Alps (Europe), The Andes (South America), The Rockies (North America), The Himalayas (Asia).

Look at the image on the right of the Alps. How many **European countries** do the Alps cover?

Video link to the Himalayan fold mountain formation:
https://www.youtube.com/watch?v=HuSHOQ6gv5Y



2. The Armorican folding period

The Armorican folding period was **250 million years ago.**

This folding happened when the **Eurasian and African plates collided.**

Irish examples of fold mountains from this period include The Galtee, **The Comeragh and The MacGillycuddy Reeks.**

The Comeragh Mountains are represented by the red dot on the map to the right. They span across Tipperary and Waterford.

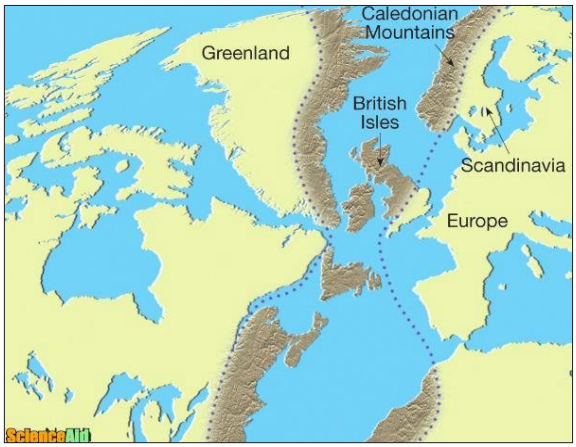


3. The Caledonian folding period

This was **400 million years ago** when the **Eurasian** and the **North American plates collided.**

Examples of mountains that were formed were The **Dublin and Wicklow** mountains as well as mountain ranges in **Scotland, Norway and Scotland.**

The Caledonian mountains can be seen in the **grey areas** on the map to the left.



How do humans interact with fold mountains?

Tourism



Beautiful scenery in mountains provides activities such as **rock climbing, river rafting, skiing and hill walking**, i.e. Skiing in the Austrian Alps.

Tourism **provides employmen**t, i.e. tour guides, ski instructors, bus drivers as well as providing business for restaurants and hotels.

Tourism **can also be negative**, i.e. **pollution** from transport services and avalanches as skiers and snow boarders **dislodge snow.**

Farming



Farming is difficult in mountainous areas. **Cattle and sheep** farming are more common as crops are difficult to grow.

Forestry

The **harsh physical mountainous landscape** means that sometimes forestry is the only economic activity that can take place.

Unfortunately, cutting down trees can then lead to **soil erosion and landslides** (Below) on mountains. Dislodge snow.

1.6 Homework Correction

Each week, corrections and sample answers from the previous week's homework will be here to help you to self-assess your work.

1.7 Homework Task

Q 1. Explain how convection currents work.

Q 2. Name four major continental plates.

Q 3. What do plates do at destructive plate boundaries?

Q 4. Explain how fold mountains are formed and give an example of a folding period.

Q 5. Give one positive way and one negative way in which humans interact with fold mountains.