

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: \_\_\_\_\_

---

**IB ESS**

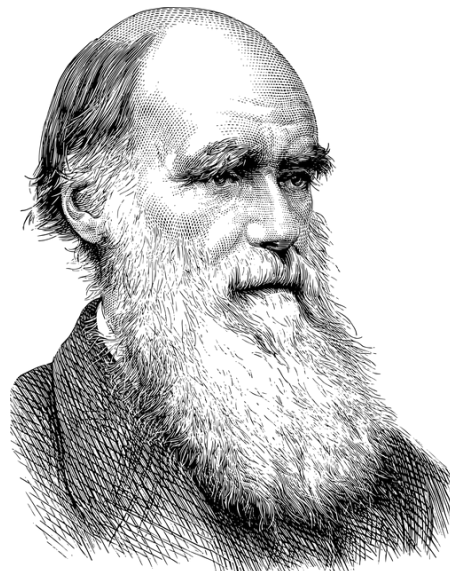
# 3.2 Origins of Biodiversity

## Significant ideas:

Evolution is a gradual change in the genetic character of populations over many generations achieved largely through the mechanism of natural selection.

Environmental change gives new challenges to species, which drives evolution diversity.

There have been major mass extinction events in the geological past.



# Natural Selection

1. Define Speciation.

---

---

---

---

---

2. Using the table, summarise the mechanism of natural selection.

	Details
Variation	<hr/> <hr/> <hr/> <hr/> <hr/>
Fitness	<hr/> <hr/> <hr/> <hr/> <hr/>
Reproductive success	<hr/> <hr/> <hr/> <hr/> <hr/>
Inheritance	<hr/> <hr/> <hr/> <hr/> <hr/>



## Isolation of Populations

1. List three physical barriers that might separate populations.

---

---

---

2. Outline the factors which might provide different selection pressures on populations that have been split and separated.

---

---

---

---

3. Using modern nations/continents as a reference, outline the structure of the ancient continent, "Gondwana".

---

---

---

4. With reference to plate tectonics, explain how Gondwana was transformed into the structure of continents we currently have on Earth.

---

---

---

---

5. Explain how land bridges may influence the evolution of species.

---

---

---

---

---



## Mass Extinctions

1.

a) Outline what is meant by the term "background extinction rate".

---

---

---

---

b) State the estimated background extinction rate, including the units.

---

---

2.

a) Outline what is meant by the term "mass extinction".

---

---

---

---

b) How many mass extinctions have occurred through geological history (not including the influence of humans)?

\_\_\_\_\_

3. Outline three factors that may have resulted in mass extinctions in the past.

---

---

---

---

---

---

---

---

---

---



4. Complete the table showing the details of mass extinctions through geological history

	Time (Millions of years ago)	Geological time period	Proportion of families lost
Forward in time			

*Note: In biological classification a "family" is a specific group of species. A family contains anywhere up to a thousand species.*

