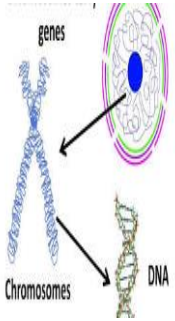
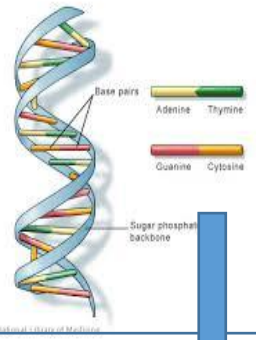
# DNA and Variation




**What I know from primary science:**

Sperm, pollen and eggs pass on information

Animals and plants belong to different species

Some species better adapted than others so survive better


Know information is passed on to next generation as genes.

Genes are found on chromosomes.

Chromosomes are passed on during reproduction.

Describe how chromosomes and genes are made from DNA.

DNA is the molecule of heredity.

DNA model was made by Watson, Crick, Wilkins and Franklin.

Know that variation is the difference within and between species.

Describe how variation may be discontinuous e.g. blood group or continuous e.g. height

Draw graphs to show these.

Describe how some variations lead to better adaptation. This allows some species to compete more successfully.

This leads to Natural Selection

Understand how species that can't adapt to new environments may become extinct.

We must preserve biodiversity by using eg gene banks to keep copies of DNA.

**Future learning**

DNA and genetics

Biodiversity and food security

Natural Selection and causes of extinction

Vocabulary: gene chromosome DNA

Continuous /discontinuous variation gene bank

Natural selection extinction biodiversity

**Core Questions Year 8 Unit 2**

1 What is a gene?

2 What does DNA Stand for?

3 What happens to the amount of DNA in sex cells (gametes)?

4 Who were the scientists credited with DNA discovery?

5 Variation describes the differences within species, it may be genetic

Or environmental or both causes. Give two examples of each.

6 What might organisms compete for?

7 What is Natural Selection?

8 Extinction means the permanent removal of a species from the planet.

What may the causes be?

9 Give an example of an animal made extinct by an Ice Age

10 How would you describe “Biodiversity”?

11 High biodiversity is healthier for the planet than low biodiversity TRUE or FALSE?

12 What might scientists keep in a gene bank?

**Core Questions Year 8 Unit 2 Biology**

Answers to core Questions Year 8 Unit 2 Biology

1 What is a gene?

1. A section of DNA

2 What does DNA Stand for?

2. Deoxyribose Nucleic Acid

3 What happens to the amount of DNA in sex cells (gametes)?

3. It is halved (23 single Chromosomes)

4 Who were the scientists credited with DNA discovery?

4. Watson and Crick 1953, Wilkins and Franklin.

5 Variation describes the differences within species, it may be genetic

5. genetic e.g. eye & hair colour, tongue rolling

Or environmental or both causes. Give two examples of each.

Environmental e.g. Scars, language accent BOTH: Mass, height.

6 What might organisms compete for?

6. Food, mates, territory, water, minerals, light

7 What is Natural Selection?

7. The best adapted species survive long enough to pass on their DNA to the next generation.

8 Extinction means the permanent removal of a species from the planet.

8. Meteor, competition, invasive species, predators.

What may the causes be?

Human intervention eg hunting, Climate change.

9 Give an example of an animal made extinct by an Ice Age

9 Mammoth

10 How would you describe “Biodiversity”?

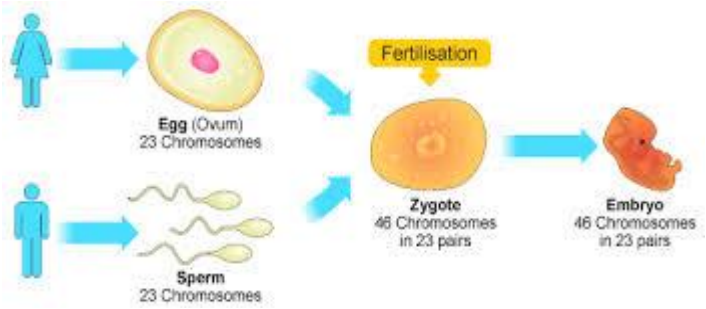
10. The range of animals and plants in a habitat or ecosystem at a given time.

11 High biodiversity is healthier for the planet than low biodiversity TRUE or FALSE? 11. TRUE

12 What might scientists keep in a gene bank? 12. Seeds containing the DNA of a vast range of species so they do not become extinct.

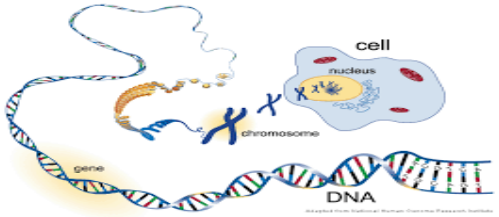
# Topic 2 Biology

# Genetics and Evolution




We inherit characteristics from our parents which are passed on through sperm and egg cells.

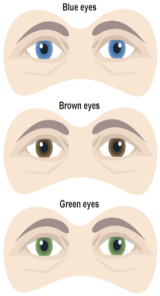
| Key word | Definition |
|---|---|
| Gene | The unit of heredity |
| chromosome | Long strands of DNA which carries the genes for each species |
| DNA | The molecule from which chromosomes and genes are made of |
| Variation | Different features in the same and different species |
| Continuous | Variation which has a range of values e.g. height |
| Discontinuous | Variation which has distinct categories e.g. blood group |
| Competition | Between the same and different species for survival |
| Natural selection | Best adapted species survive and pass on their genes to the next generation |
| Extinction | The permanent disappearance of a species across the planet |
| Biodiversity | The range of different plants and animals living on Earth |
| Gene banks | Storage vaults for DNA – kept under specific conditions to prevent extinction |




Genes are the unit of heredity which pass on our features to the next generation. Genes are short lengths of DNA which coil up to form chromosomes. They are found in the nucleus of living cells.

The DNA structure was modelled by four scientists:

Watson, Crick, Franklin and Wilkins.




**Variation**

Differences in the appearance of organisms is due to their **genes**, their **environment** or a combination of both.

**Natural Selection**

Some individuals are better adapted to their environment and are therefore better able to compete for survival


Biodiversity describes the vast range of different plants and animals on Earth. These variations in genes are very important to maintain so that we do not lose them forever.

Gene Banks are where samples of every seed are kept. If they become extinct in the wild – there will be a copy at the seed bank.