

Four (4) proteins make up the chromosomes.

Each protein is a letter. For example:

Protein 1: **d**

Protein 2: **f**

Protein 3: **g**

Protein 4: **o**

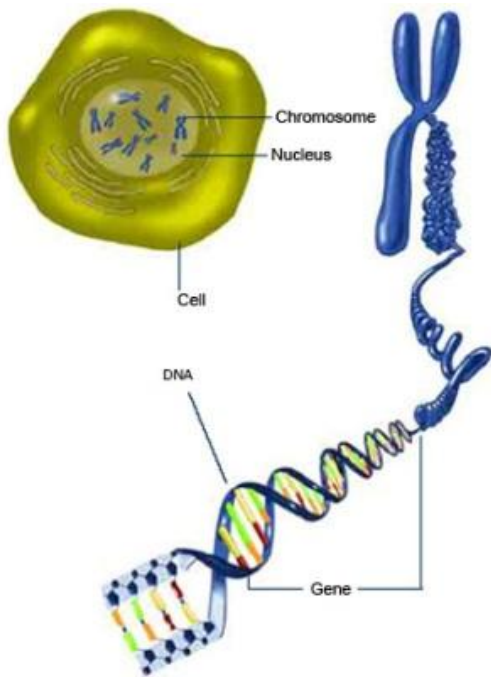
So, the DNA inside the chromosome is a line of colours (a text).

For example: **dogfoggodfoodgood**

Each word in this text is a GENE:

dog fog god food good

Each 'word' i.e. GENE carries a 'meaning' i.e. the information for one quality or one characteristic. The total number of our Genes is our Genome or DNA and it is unique for every single person.



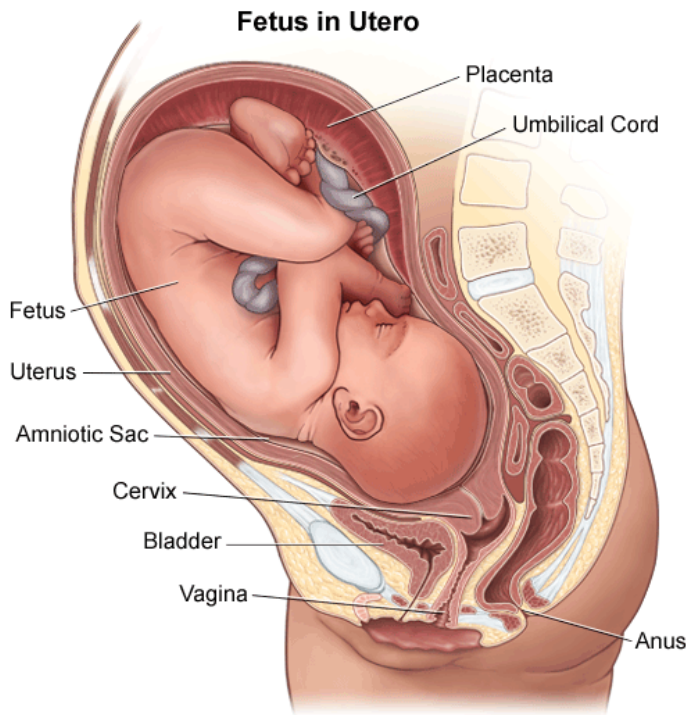
Each cell has in its core
46 chromosomes (23 pairs)

23 from the father + 23 from the mother

The genetic disorders occur
because:

1. There are more or less chromosomes
2. Some chromosomes might be incomplete or abnormally shaped
3. A specific gene might be mutated

Therefore, DNA **sample** should be taken to **carry out** diagnostic and **predictive testing** that will lead to **preventive measures** and provision of **precautionary action** thus reducing the likelihood of illness.



The **fetus** in the **womb**, inside the **placenta**, is immersed in the **amniotic fluid** and is fed through the **umbilical cord**.

The Genome of each human being is unique and that is our **Genetic Fingerprint**.

Our genetic make up is responsible for aspects of our personality.

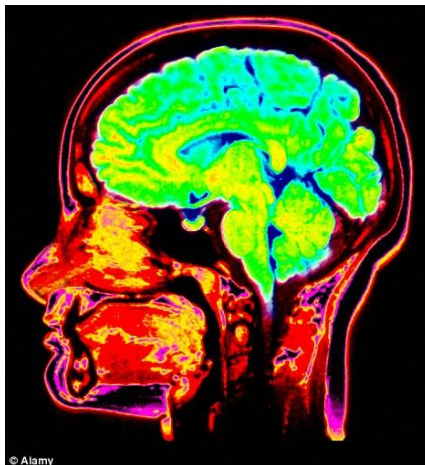
Nurture or Nature?

There is an **interaction between** the environment and the genes that determines who we are.



A study on the workings of the human brain

Scanners peered into the brains of 14 subjects.



- (a) They presented the subjects with negative and positive themes and then
- (b) monitored which parts of the brain was activated

[Turn to pg 116:](#) In what ways did the optimists differ from the pessimists?