DNA

Passing on characteristics

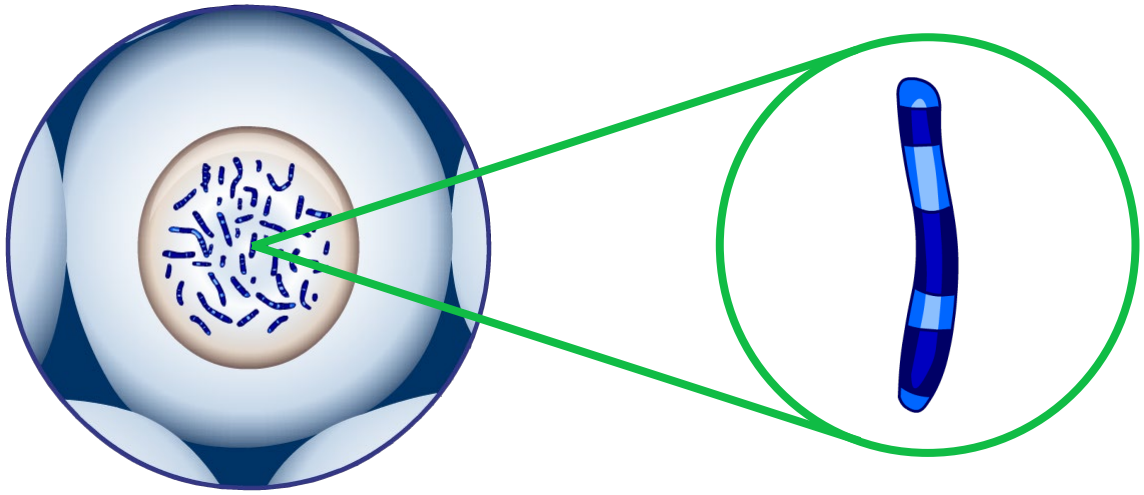
What makes this baby human? What determines its gender?

In all living things, characteristics are passed on in the **chromosomes** that offspring inherit from their parents.

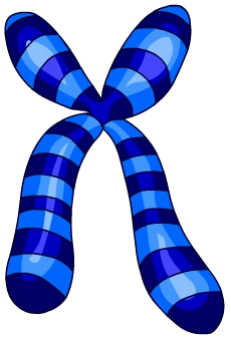
This means that all human characteristics must be something to do with chromosomes. Where are chromosomes found?

What do chromosomes look like?

Chromosomes are long strands of genetic information located in the nuclei of cells.

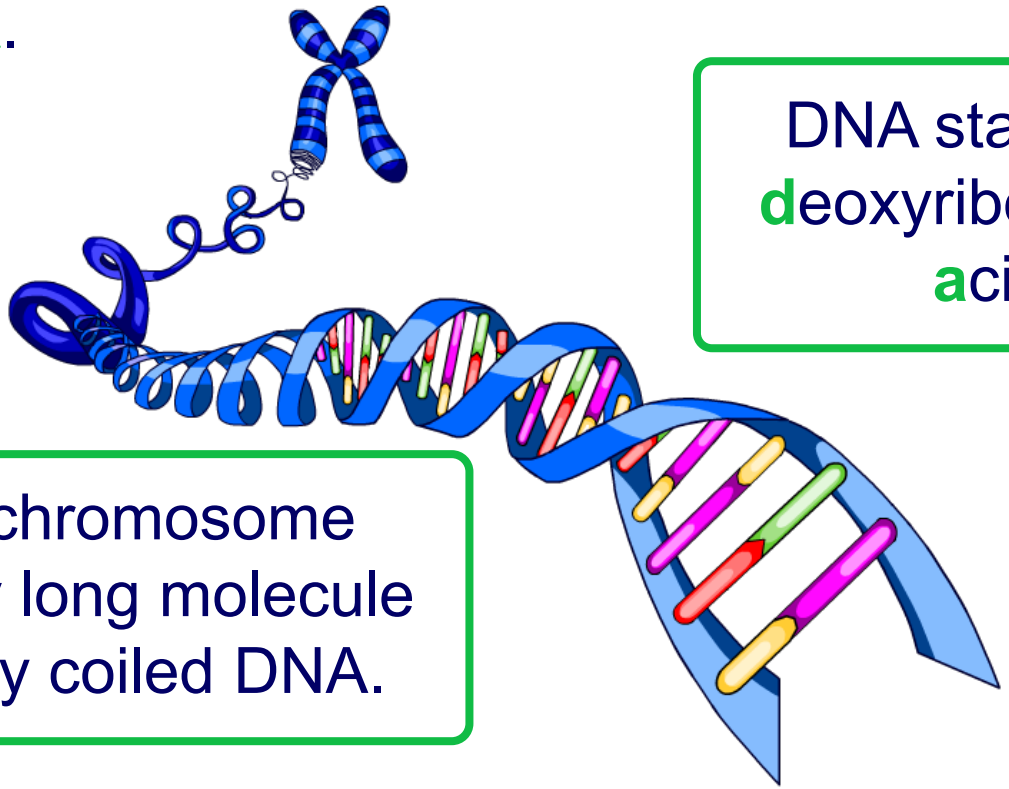


Chromosomes are most visible during cell division when they replicate and look like this…



What is DNA?

Chromosomes and their genes are made of a molecule called **DNA**.



DNA stands for **d**eoxyribo**n**ucleic **a**cid.

Each chromosome is a very long molecule of tightly coiled DNA.

DNA molecules carry the code that controls what cells are made of and what they do.

Which part of a DNA molecule holds this information?

The structure of DNA

DNA and base pairs

The double helix ‘ladder’ of a DNA molecule is held together by ‘rungs’ made from pairs of chemicals called **bases**.

There are four types of bases, and they are usually identified by their initials.

How do you think the four bases are paired?

How do bases pair together?

Base pairs hold the two strands of the DNA helix together. The rules for base pairing are…

‘A’ always pairs with ‘T’

‘C’ always pairs with ‘G’

There are millions of base pairs in a DNA molecule, and they **always** follow these rules.

It is the sequence of these bases along a DNA molecule that forms the **genetic code** – it’s that simple!