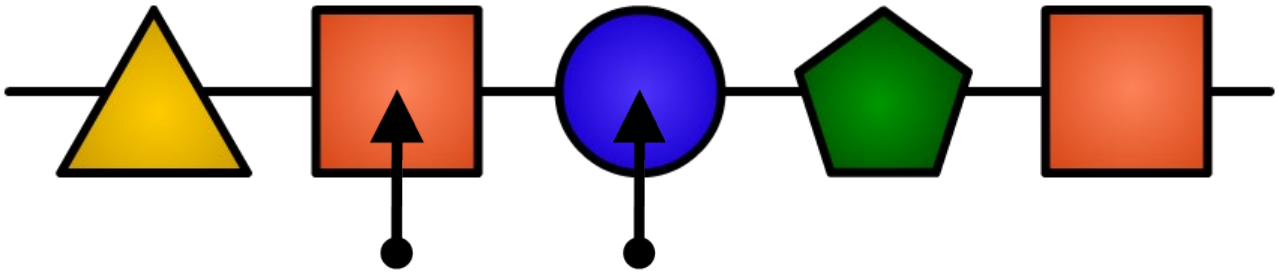
Protein Synthesis

What are proteins?

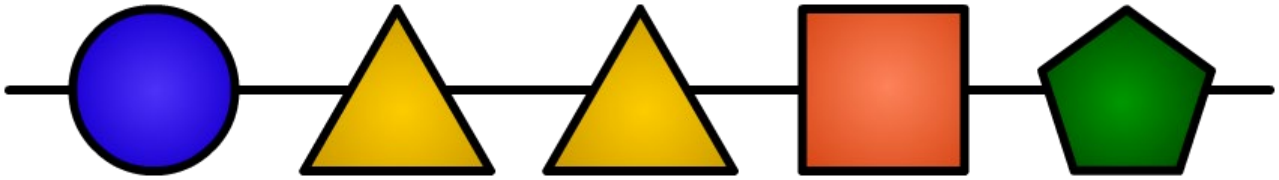
Proteins are made of long chains of **amino acids**. There are 20 different types of amino acid from which to make proteins.



protein molecule 1

amino acids

What happens if the amino acids are in a different order?

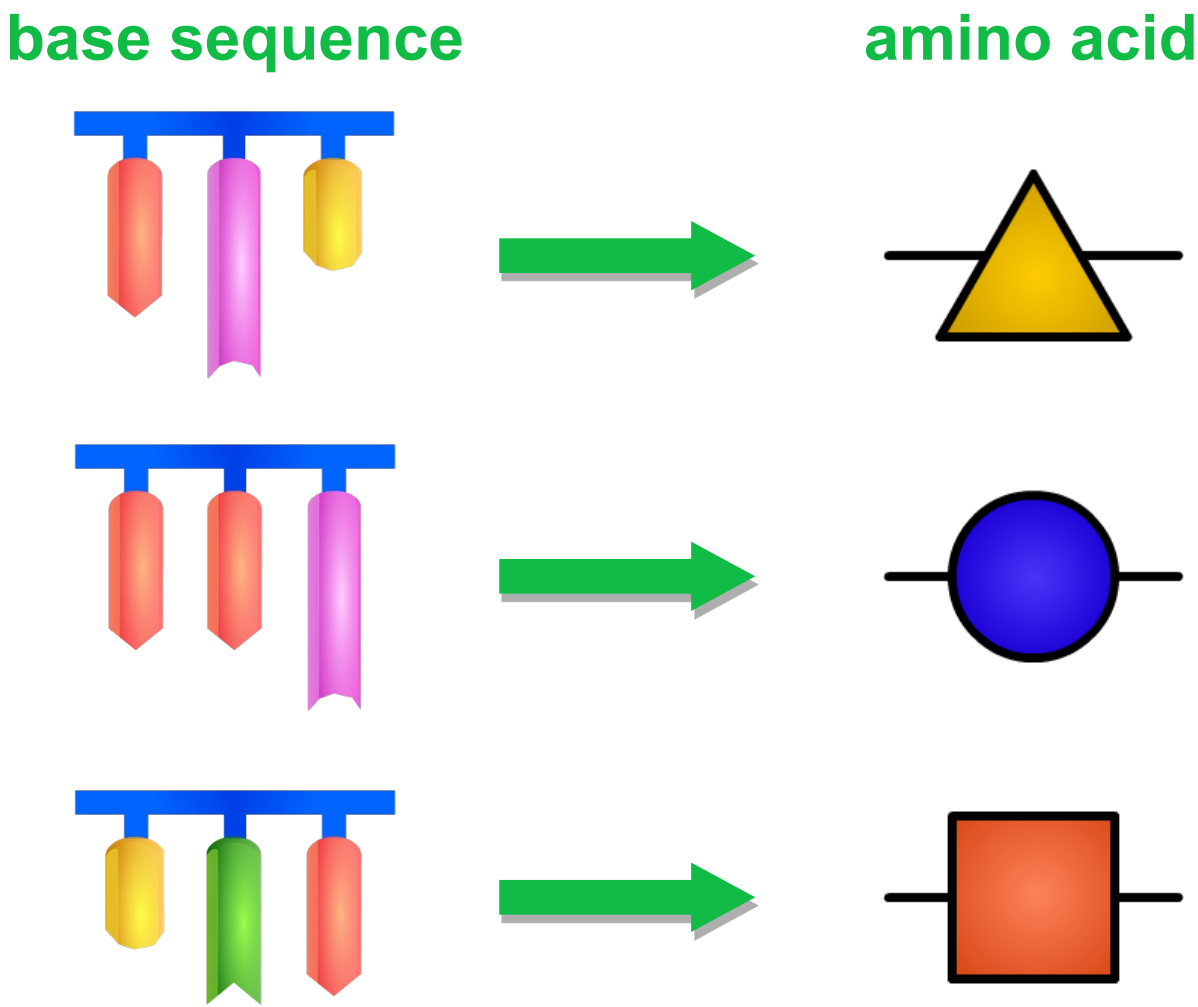


protein molecule 2

Different combinations of amino acids make different proteins.

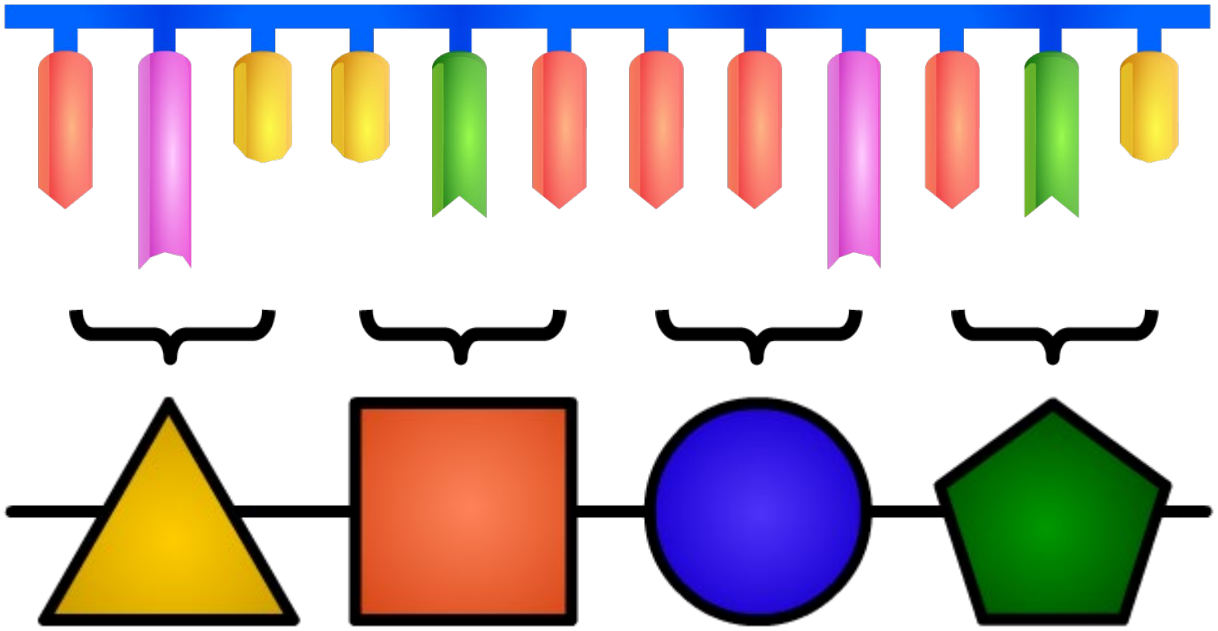
How does the genetic code work?

A **three-base** sequence codes for each amino acid.



Making proteins

Genes don't actually make proteins – they just contain the instructions on how to make them.

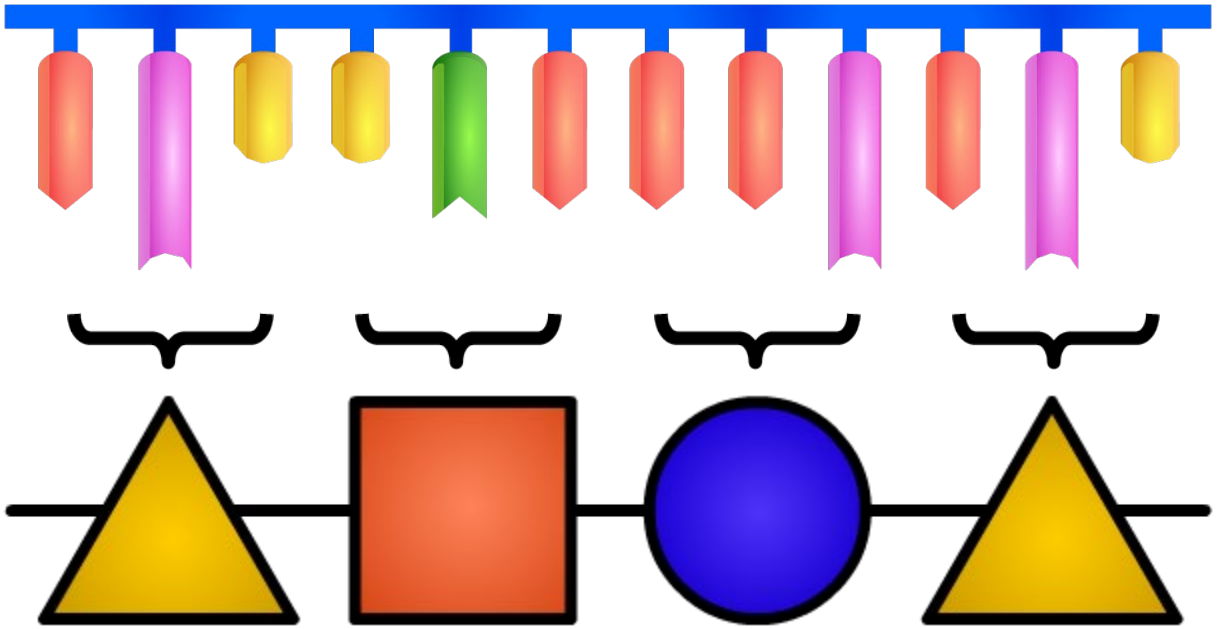


DNA stays in the nucleus, but proteins are built in the cell's cytoplasm.

Each gene contains a different sequence of bases.

Changing the code

If a gene changes, the cell makes a different protein.



Do cells use all of their genes, all the time?

No – different cells need different proteins at different times. An average cell makes 15,000 proteins: 2,000 in bulk and the rest in minute quantities.

Genetic jargon

Match the genetic term to its description

chromosome	the chemicals in DNA that carry the genetic code
DNA	a section of DNA that codes for a protein
gene	the small molecules that join to make proteins
bases	the molecule that genes are made of
protein	the type of molecule that genes code for
amino acid	a long, tightly-coiled molecule of DNA

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solve