

GCSE Biology Complete  
Revision Summary

Homeostasis and Response

Inheritance, Variation and Evolution

Ecology

Key Ideas

What happens in cells (and what do cells need)

Sexual and Asexual Reproduction

Meiosis

DNA

Mutation

Inheritance

Genetic Diseases

Sex Determination

Variation

Evolution

Selective Breeding

Genetic Engineering

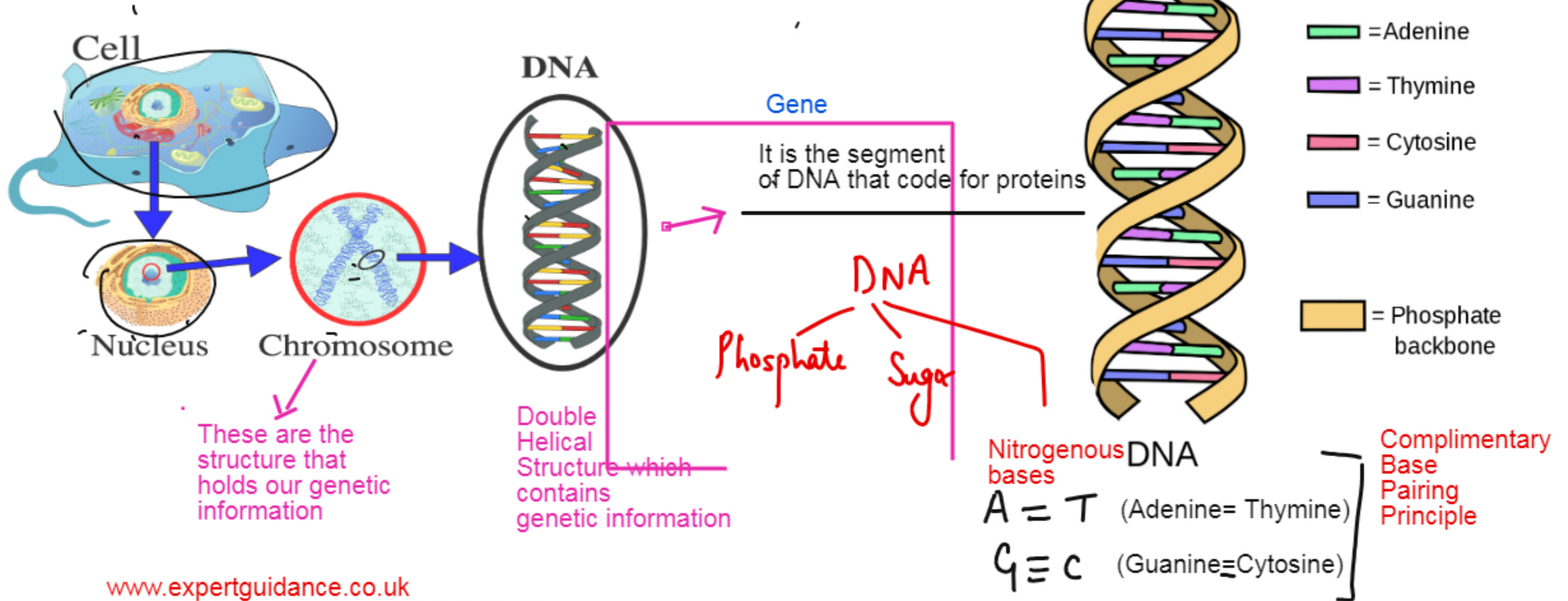
Speciation

Theories of Evolution

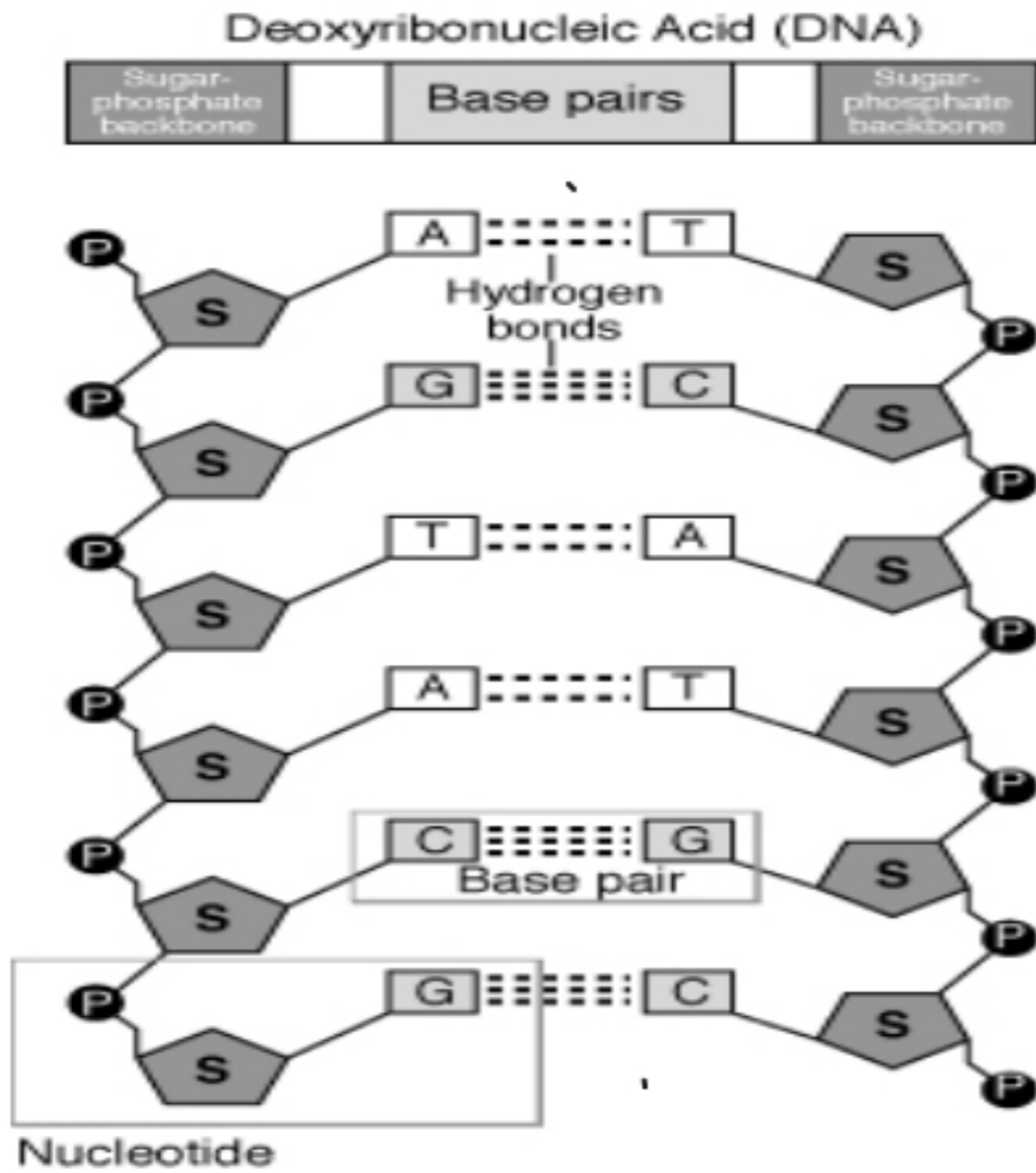
Speciation

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**DNA** = Deoxyribonucleic Acids.



# DNA : A POLYNUCLEOTIDE



Sourc: Wikimedia Commons

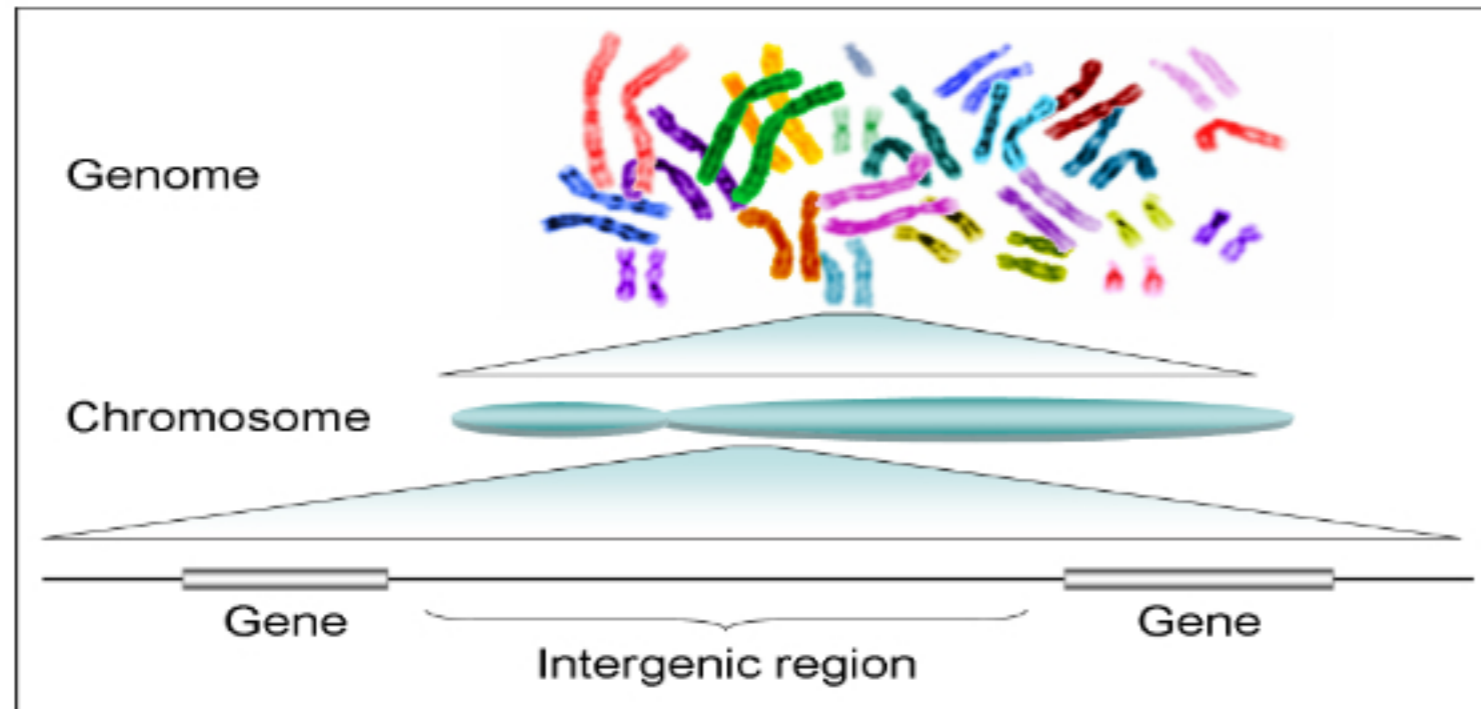
Phosphate + Sugar + Nitrogenous Base = Nucleotide

Deoxyribose

Adenine  
Thymine  
Guanine  
Cytosine

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Genome is the complete genetic materials of the organism.



Source: Wikimedia Commons

International collaboration to sequence around three billion bases and more than 20,000 genes.

#### Importance of Human Genome Project

- Understanding of genetic Diseases and inherited disorders
- Better personalised medicines
- Understanding Evolution
- Identifying new drugs target.



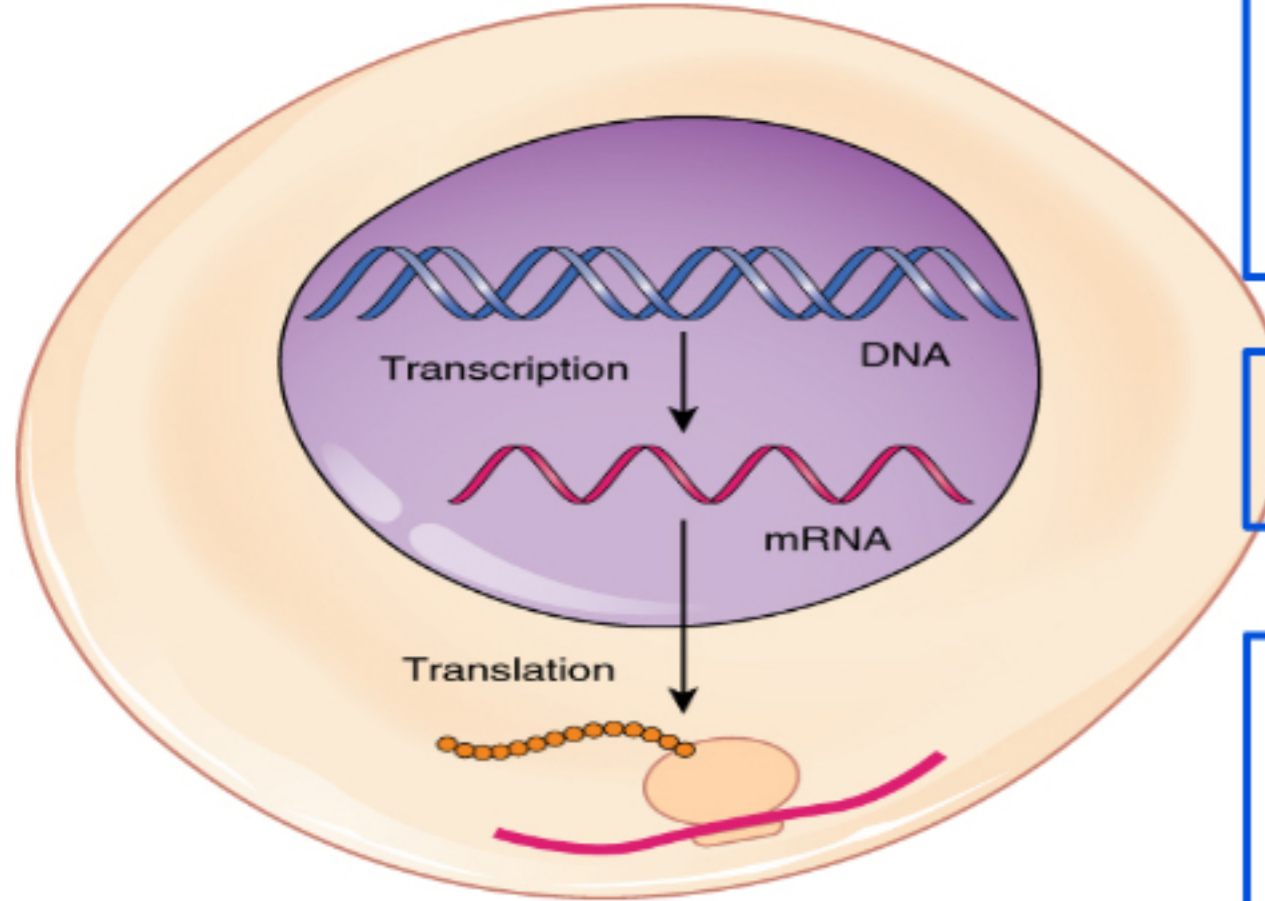
**PROTEIN SYNTHESIS**

The DNA copies the code and form mRNA by the process of transcription.

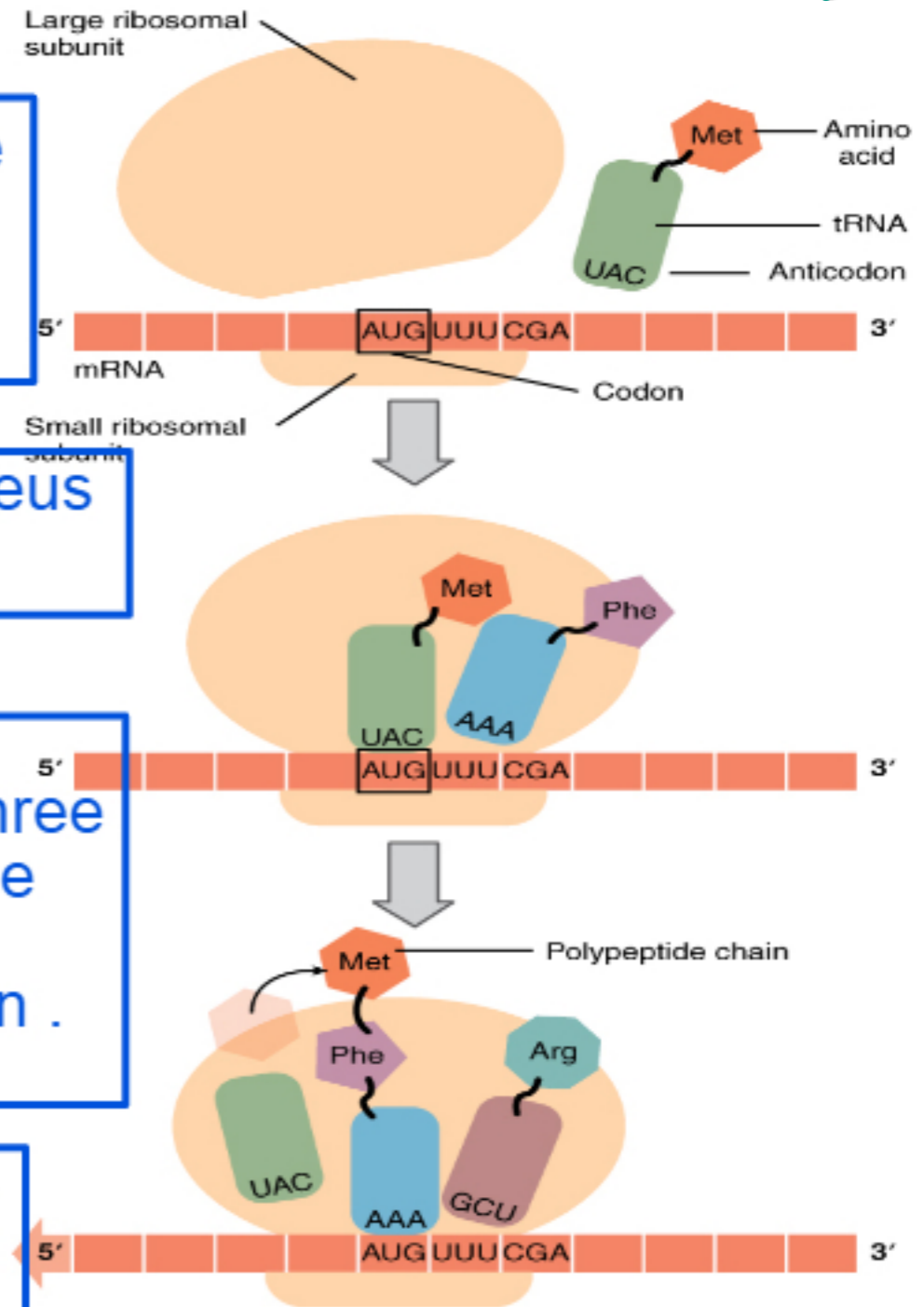
The mRNA leaves the nucleus and reaches the ribosome.

The ribosomes reads the bases in the sequence of three bases. The t-RNA brings the corresponding amino acid and forms polypeptide chain .

The polypeptide chain than forms proteins.



Section of DNA that codes for proteins is a gene.



Source: wikipedia Commons

## GCSE Biology Complete revision summary

### What happens in cells (and what do cells need)

Cell Biology

Organisation

Infection

Bioenergetics

Organisation hierarchy  
Human Digestive System  
Circulatory System  
Heart and the blood vessels  
Blood  
Coronary Heart Disease  
Non Communicable Disease  
Respiratory System  
Plant Tissues  
Plant Organ System  
Transpiration

# ENZYMES

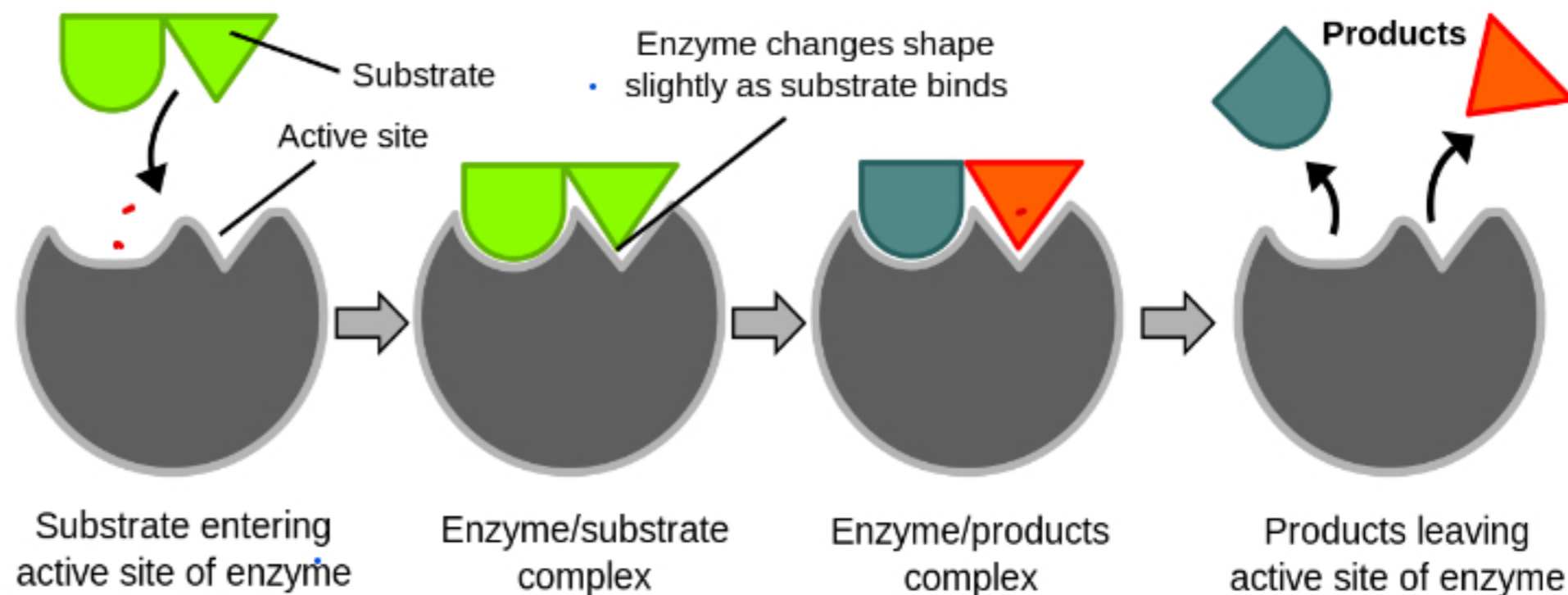
They are protein in nature so they are sensitive to heat and pH.

They are biological catalyst that increases the rate of a biological reaction without being used up.

They increase the rate of the reaction by providing an alternative route that works by lowering the activation energy.

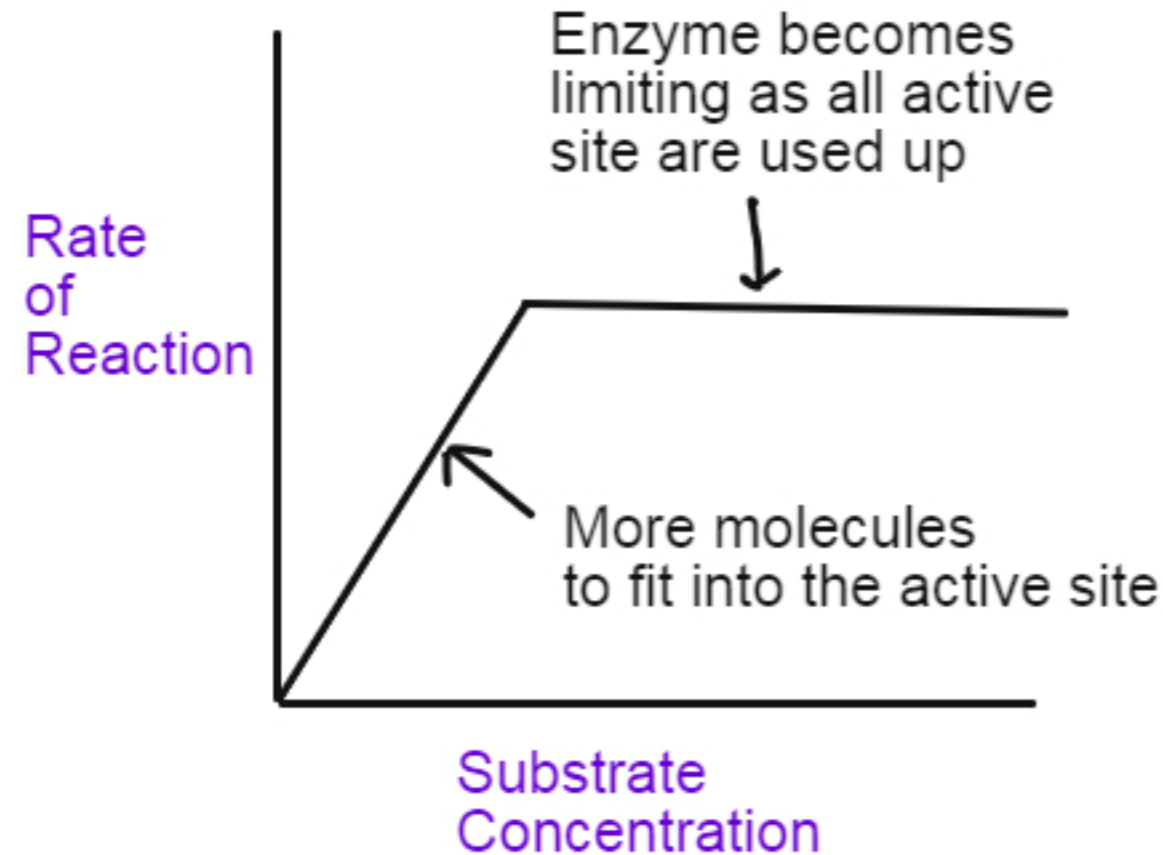
## LOCK AND KEY MODEL

Enzymes are highly specific due to the active site. As the active site has a shape complementary to the substrate. So the specific substrate molecule can fit into the active site of the enzyme.

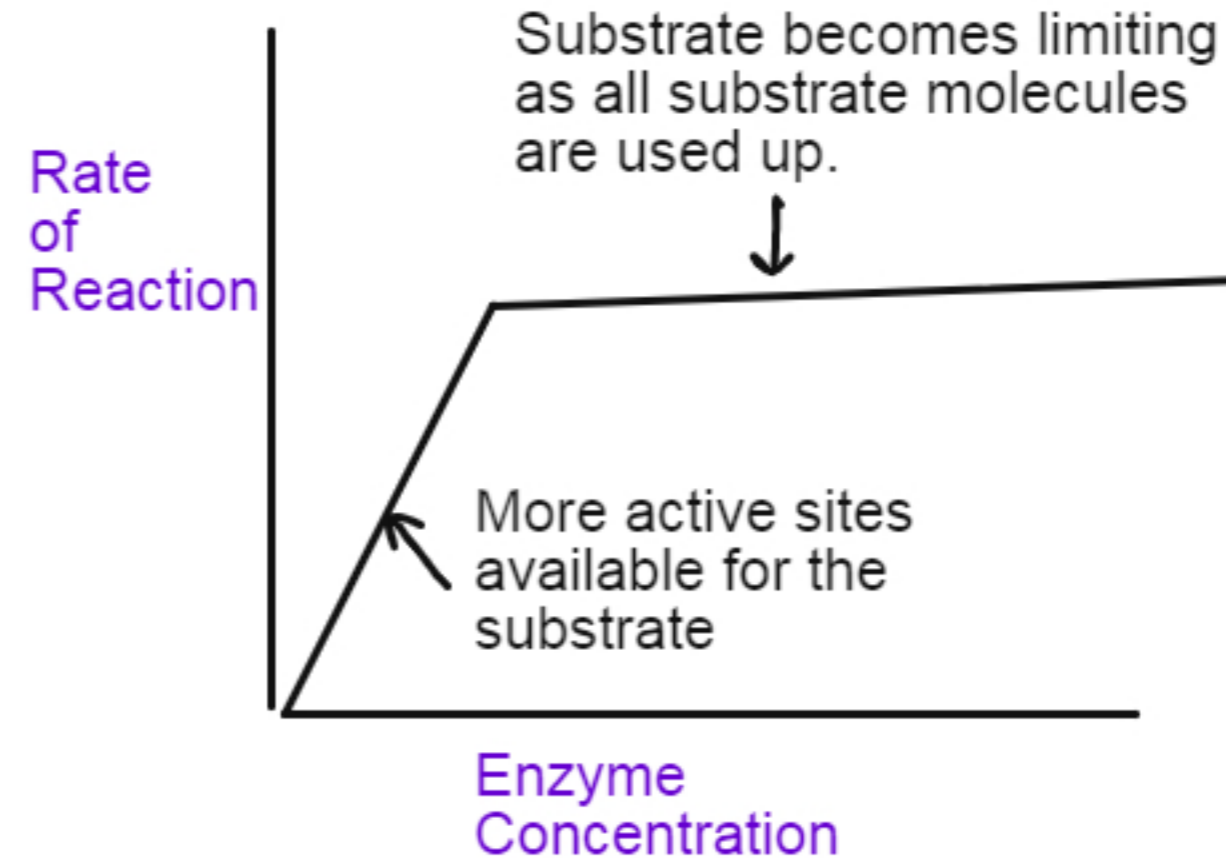


Source: Wikimedia Commons

SUBSTRATE CONCENTRATION



ENZYME CONCENTRATION

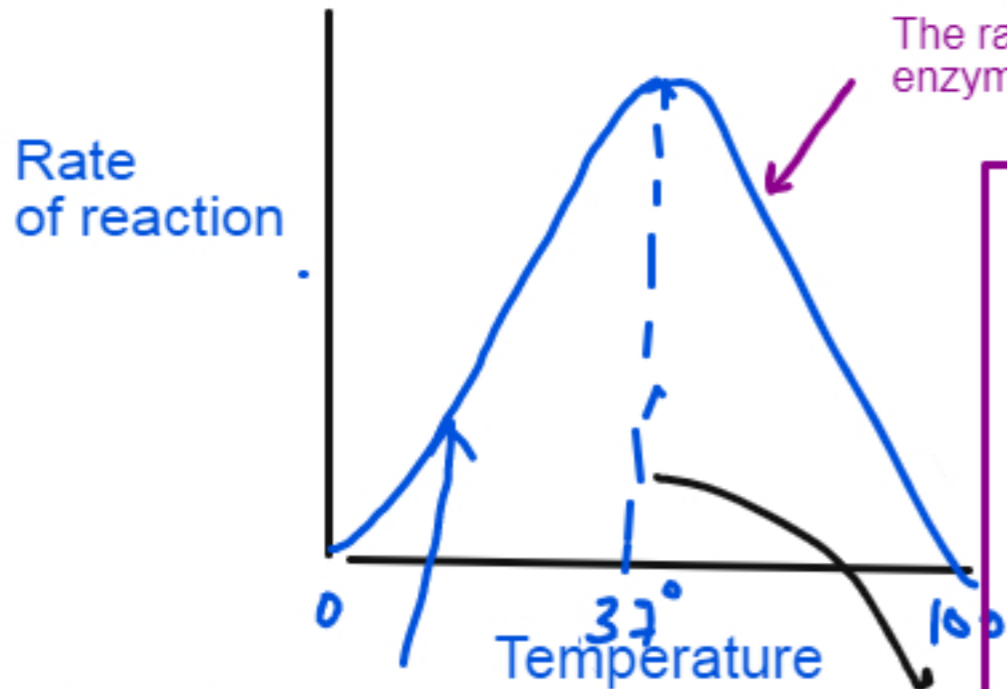






FACTORS AFFECTING ENZYME ACTIVITY

Temperature



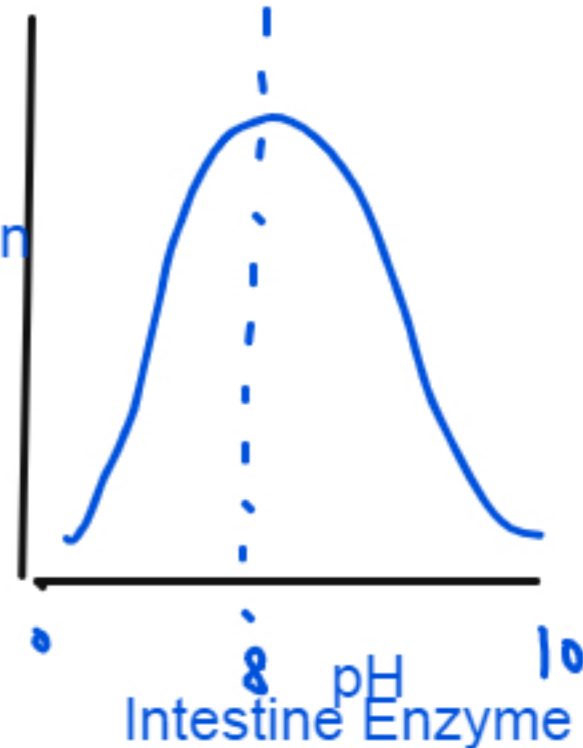
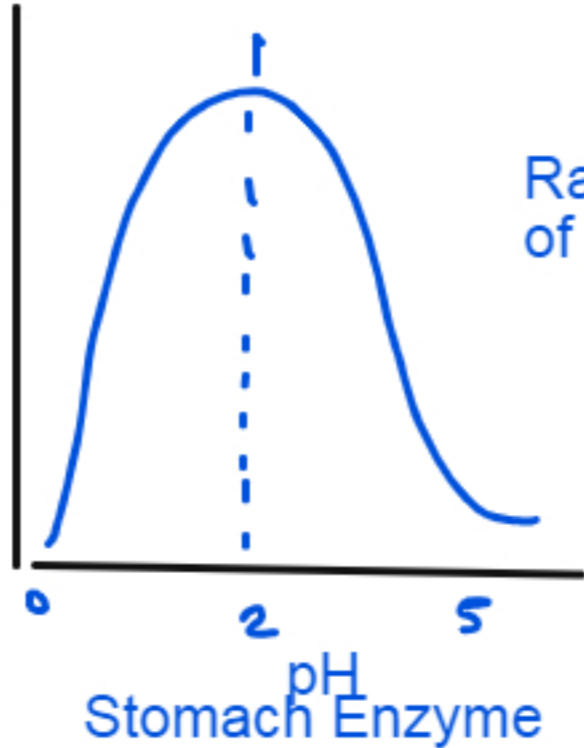
The rate of reaction increases as enzyme is denatured

Denaturation is the change in the shape of the enzyme with increase in temperature and pH beyond optimum which results in the change in shape of the active site. As a result, substrate molecules can no longer fit into the active site decreasing the rate of the reaction.

Rate of reaction increases as particles gain kinetic energy and they collide more increasing rate

The optimum temperature. It is the point where the enzyme activity is the highest.

pH



Different enzymes has different pH optimum. Stomach enzymes works in acidic conditions which are maintained by hydrochloric acid. Intentional enzymes works in alkaline pH maintained by bile.

NEXT STEP !!!!

★ CHECK SPECIFICAITON

★ EXAM QUESTIONS

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