

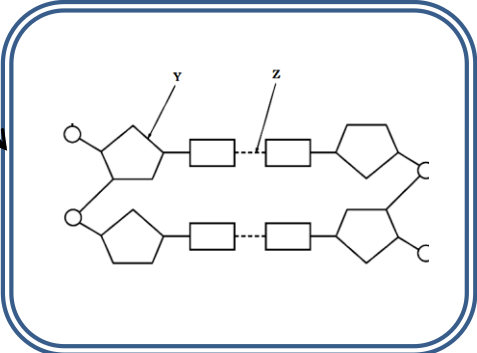
Draw lines to match the **enzyme** to its function in DNA replication.

<b>Enzyme</b>	<b>Function in DNA replication</b>
DNA polymerase	joins fragments of DNA together on the lagging strand
Ligase	bonds nucleotides into the backbone of a new DNA strand

Draw a **labelled diagram** of one.

Name of the **repeating units** that make up a molecule of DNA.

Label the **3' and 5'** end of each strand. Name bonds Y and Z.



# Unit 1 KA2: Structure and Replication of DNA

The **process that follows DNA replication**

The **small section of DNA** needed by DNA polymerase to **start replication** is called?

**3D Shape of DNA** is described as a ....

Describe the **base pairing rule** for DNA.

Name **5 substances** that are required, in order for **DNA replication** to take place.

- 1.
- 2.
- 3.
- 4.
- 5.

At what end (**3' or 5'**) does DNA polymerase add new nucleotides?

Explain why the **"lagging" strand** has to be copied in fragments.

Explain why the strands of DNA are described as **anti-parallel**.

# Unit 1 KA 3: Gene Expression

Transcription and translation involve three types of RNA....



How many of the genes in a cell are **expressed**?

**Sub-units** that join together to form a **polypeptide**.

Type of **bond** that **joins amino acids** together.

Which process creates **mature mRNA** from the primary transcript.

Write in a label or description for each, numbered, **step in transcription**

Define the term **intron**

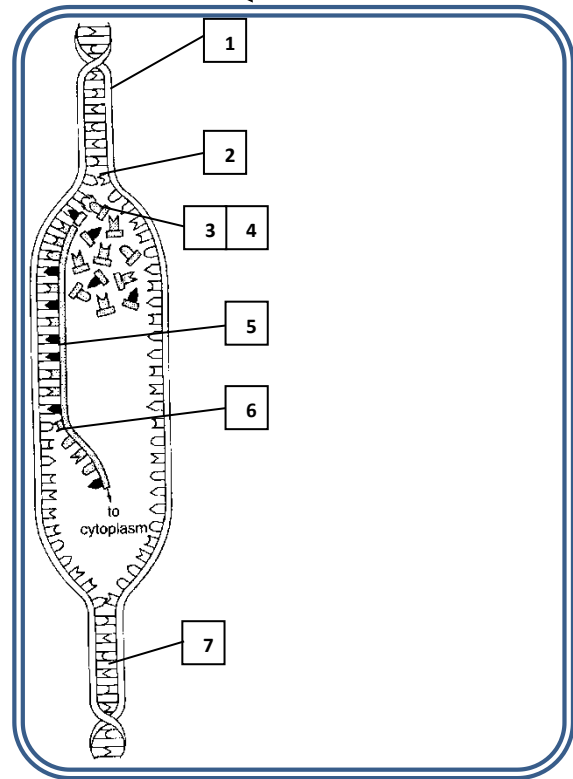
Define the term **exon**

Three **differences** between **DNA** and **RNA**.

DNA	RNA

What is alternative RNA splicing?

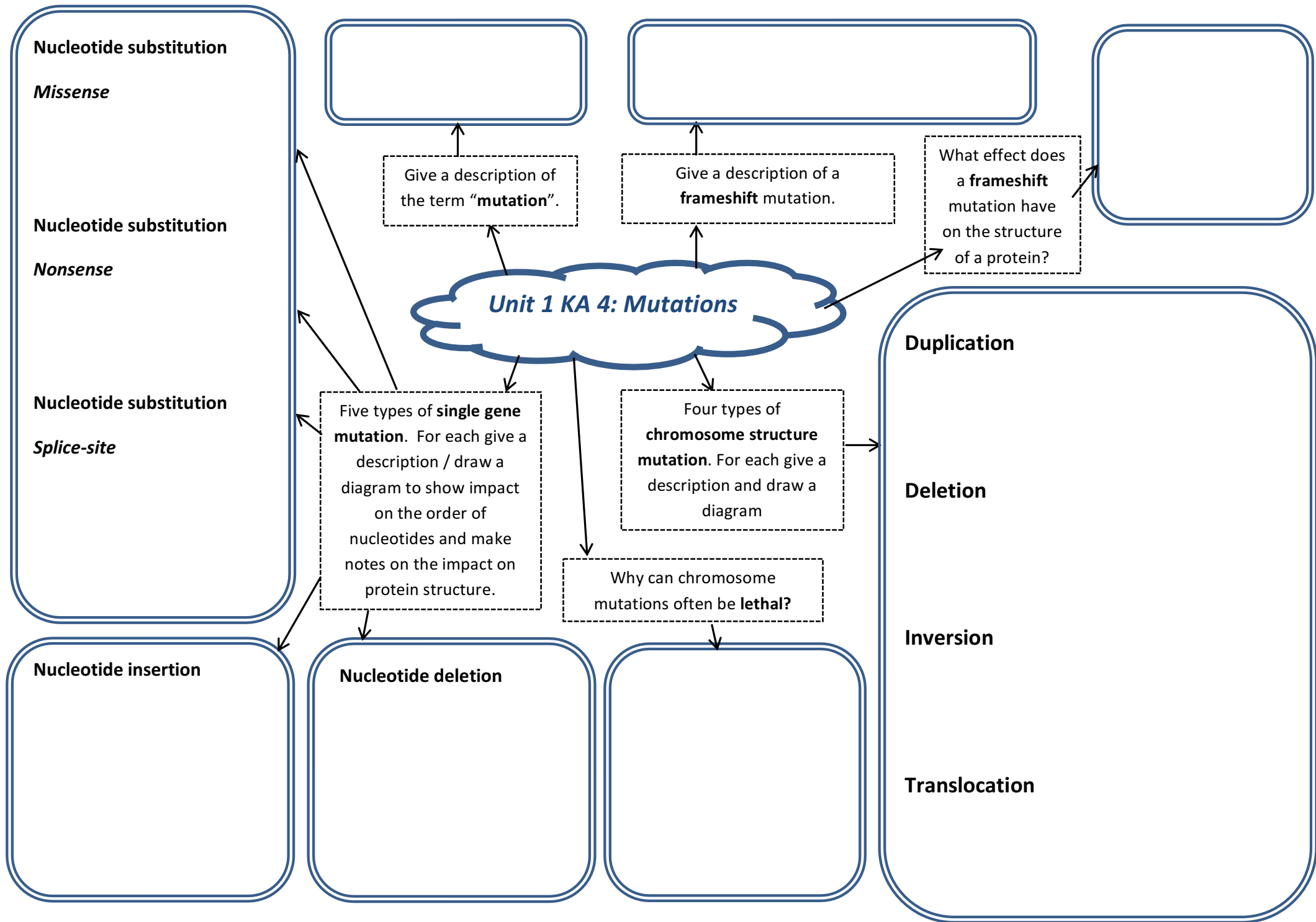
Describe translation (include start codon, stop codon, mRNA codon, tRNA anticodon, peptide bond, amino acid, ribosome)



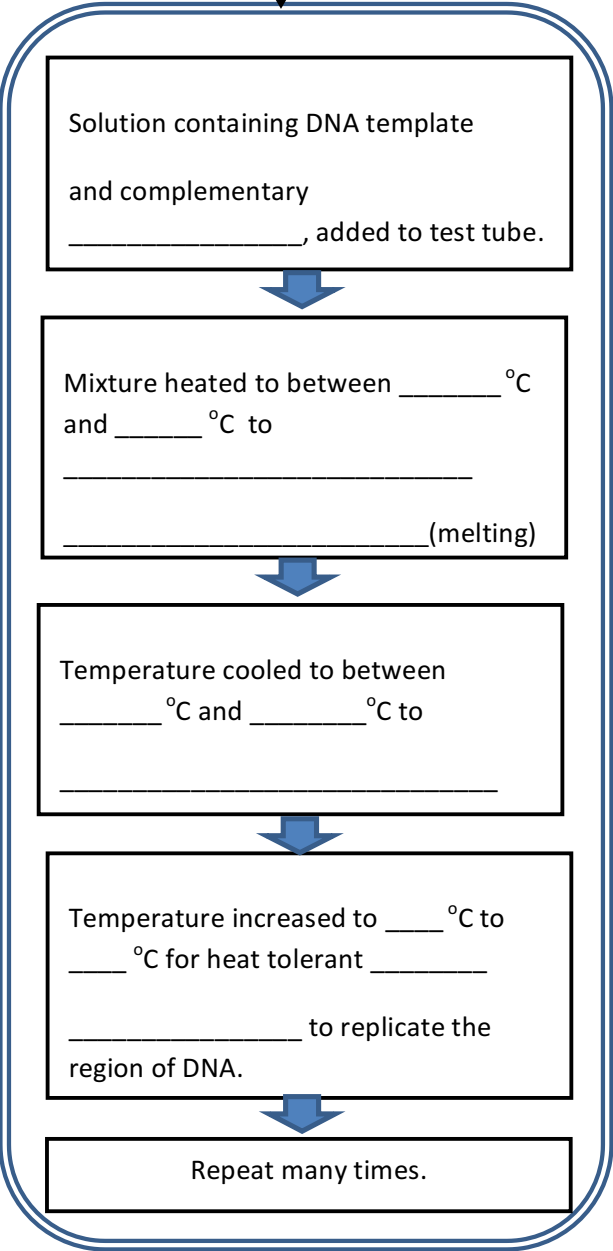
1.

2.

3.



Complete the flow chart to show the steps **amplification** of DNA using **PCR**.



**Unit 1 KA5: Human Genomics & PCR (KA2)**

List 3 **uses** of DNA amplified through **PCR**.

- 1.
- 2.
- 3.

In PCR, what is a **primer**?

\_\_\_\_\_

Define the term **genomic sequencing**

\_\_\_\_\_

Define the term **genome**

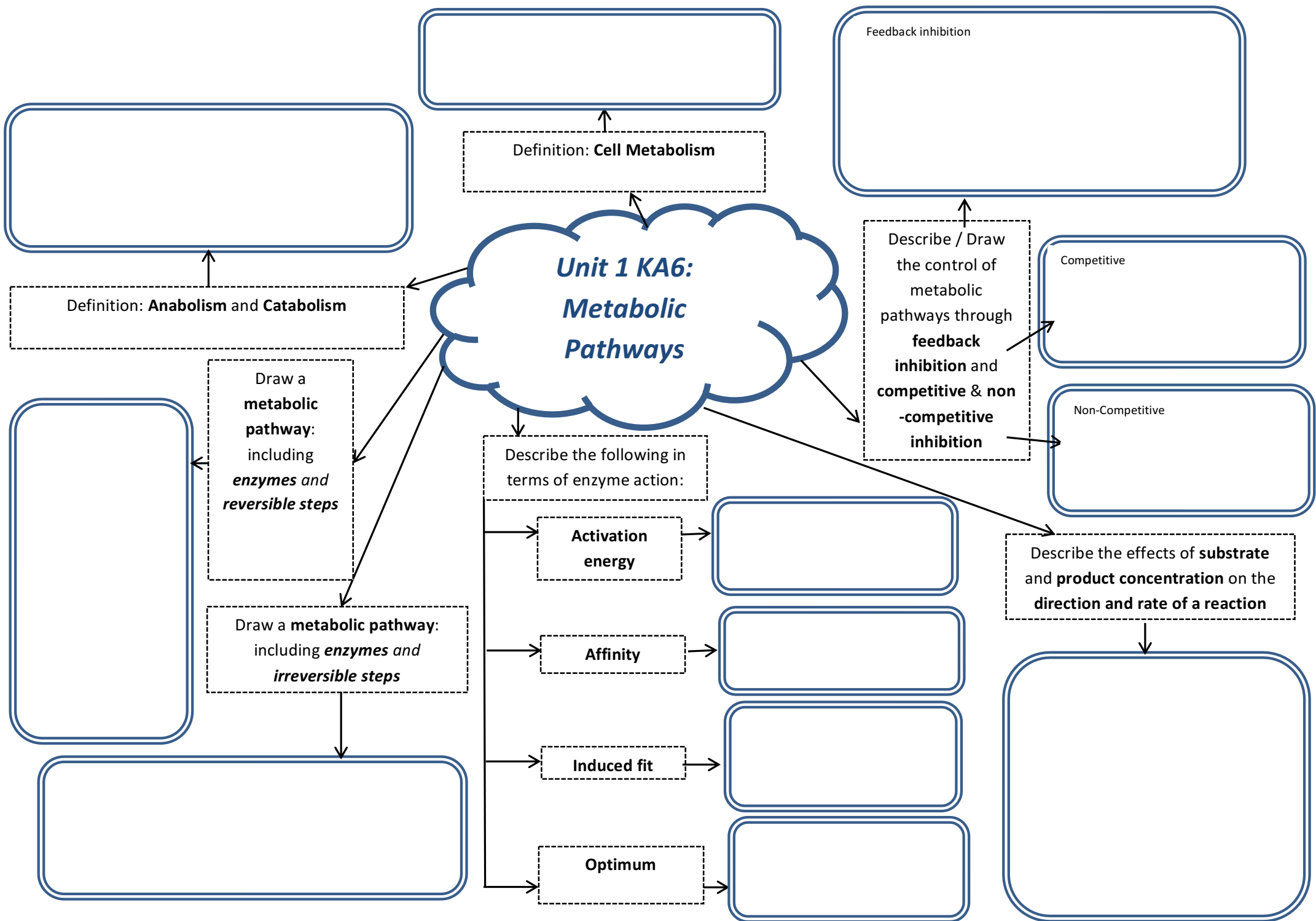
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Explain how information about an individual genome could be used in **Personalised Medicine**

\_\_\_\_\_

Describe the use of an **pharmacogenetics**

\_\_\_\_\_



# Unit 1 KA7: Cell Respiration

Glycolysis and the phosphorylation of glucose and intermediates

Describe the difference between 'energy investment' and 'energy payoff' during glycolysis.

Name and describe the 3 stages in aerobic respiration including the sites of each.

Draw the citric acid cycle. Include: oxaloacetate, citrate and CoA.

Describe the role of the following in cell respiration:

NAD

Dehydrogenase

ATP

ATP Synthase

Hydrogen

ATP synthesis through the electron transport chain

Describe the function of ATP and draw a diagram of ATP and its formation

**Unit 1 KA8: Energy Systems in Muscle cells**

What is an oxygen debt?

Describe the **role of NAD** in lactate metabolism

Complete the table comparing **fast twitch** and **slow twitch** muscle fibres

Describe / draw a diagram of the conversion of **pyruvate to lactate and vice versa**

Under what **circumstances** would a cell **produce lactate**

Feature	Type of skeletal fibre	
	Slow twitch	Fast twitch
Speed of contraction		
Length of contraction		
Speed at which fibres become fatigued		
Respiratory pathway(s) normally used to generate ATP		
Number of mitochondria		
Density of blood capillaries		
Concentration of myoglobin		
Major storage fuel used		