Rosalind Franklin and Francis Crick

DNA means everything to you. Literally. DNA (Deoxyribonucleic acid) is a molecule inside your body that tells your body how to be, well, you. It contains information about your eye colour, the colour of your hair and even your height. Think of it as a recipe for how to build another you.

Scientists have known about DNA since 1869, but they didn't discover the role it played in genetics until 1943. Then, they discovered that it had a huge role to play in inheritance. This is how physical aspects are passed from a mother and father to their children. Even then, it wasn't known what DNA looked like or how it worked. This important piece of the puzzle fell to three very important people.

In the 1950s, many scientists were trying to work the structure of DNA. Two of these were British scientists named Francis Crick and Rosalind Franklin. Francis Crick was working with a partner called James Watson. Rosalind Franklin was working with another scientist, Maurice Wilkins.
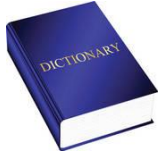
In 1953, a chemist in California thought he had cracked the mystery. When he was proved wrong, Crick and Watson were determined to beat him to it. A few weeks later, on 6th February 1953, they published their own version that changed the world. Suddenly, the world could use DNA to solve a variety of problems.

But, a scandal erupted. It soon became clear that Crick and Watson may have had some help in their discovery. Just before they announced their amazing find, Maurice Wilkins had shown them a set of x-rays that Rosalind Franklin had produced. These provided key information in their discovery, but Franklin was never credited. When she died in 1958, she still had no idea how important her images were to the advancement of science.

What is important is that, between them, the three scientists gave the world a clear picture of DNA and how it works. Their hard work and the discoveries of scientists before them have made it possible for scientists to detect and treat diseases in babies before they are even born; to identify the age and origins of ancient human beings and for police forces to determine if somebody is innocent or guilty of a crime.

Francis Crook and Rosalind Franklin may have had their differences, but they were both pioneering innovators and British scientists who changed the world.

1.	Translator (Vocabulary)	Find a definition for "inheritance" in the text.
2.		Which word tells you that working out what DNA looked like was difficult?
3.		Which word or phrase has a definition that most closely matches "to solve or find a solution to a problem"?
4.		Write a definition for "variety".
5.		Which word or phrase tells you that Rosalind Franklin's x-rays were important?

6.	Author (Authorial intent)	Why has the author put Deoxyribonucleic acid in brackets?
7.	Editor (Summarise)	List one of the things that DNA controls, according to this text.
8.	Detective (Inference)	Why does DNA mean "Literally" everything to you?
9.	Reporter (Retrieval)	When did scientists first discover DNA?
10.	Editor (Summarise)	Make a list of three things that DNA allows us to do now.

Active and Passive Voice

Look at these pairs of sentences:
"The dog is chasing the squirrel." / "The squirrel is being chased by the dog."
"Scientists classify glass as a solid." / "Glass is classified as a solid."

Both sentence pairs make sense. Both describe the same facts. However, in each pair one sentence uses the active voice and one uses the passive voice.

Which sentence would you use? That would depend on what tone you wanted to convey and what you wanted the reader to focus on…

Introduction
Sentences can be described as active or passive. Sentences are usually constructed using the active voice with a subject, verb and object. Using the passive voice is a way of writing sentences so that the subject has the action 'done' to it – the object of the sentence comes first. The passive voice can be useful for making writing sound more formal and objective by focussing on the result of an action rather than the person doing the action.

Active voice
In a sentence written in the active voice, the subject of the sentence performs the action. Sentences which use the active voice are usually more straightforward to understand as they are clear and direct. Both these sentences use the active voice:
The winner of the race lifted the trophy.
The doctor examined the patient.
The subject *'the winner of the race'* performs the action described by the verb *'lifted'*. The subject *'the doctor'* performs the action described by *'examined'*. The subjects are all doing something – they are all taking action in these sentences.

Passive voice
In a sentence written in the passive voice the subject is acted on by the verb.
Active: *The puppy chewed the toy.*
Passive: *The toy **was chewed by** the puppy.*
Passive: *The toy **was chewed**.*
To create the passive voice, add the verb 'to be' (in the correct tense) and then the main verb. Often a preposition such as 'by' is also used.
For example: *The patient **was** (past tense of to be) **examined** (verb) **by** (preposition) the doctor.*
*Exams have **to be taken** every year **by** pupils.*

Which of these is in the passive voice?

Someone has eaten the ice cream.

The ball was saved by the goalkeeper.

His grandma was looking after him.

We are going to watch a movie tonight.

Active versus passive

Using the active voice in a sentence often means less words are used than in the passive voice. For example:

Passive: *The books were collected by the teacher.* (7 words)

Active: *The teacher collected the books.* (5 words)

Passive sentences can cause confusion because they can be vague about who is responsible for the action. For example, *'A goal was scored'*. Who scored the goal? Doesn't the writer know?

Converting sentences to active voice

One way to avoid using the passive voice is to look for a 'by' phrase. Rewrite the sentence so that the subject in the 'by' phrase is closer to the beginning of the sentence.

For example: *'The exam was passed by the pupil'* would **change** to *'The pupil passed the exam'*.

Reasons to use the passive voice

Although the active voice is usually the preferred choice, there are sometimes good reasons to use the passive voice:

• To show interest in the person or object that experiences an action rather than the person or object that performs the action.
  For example, *The castle was built in 1066.* We are interested in the castle, not in who built it.

• Because we don't know or do not want to say who performed the action.
  For example, *'I had the feeling that I was being watched.'* - I don't know who was watching me

• To create an authoritative or factual tone.
  For example, *'Pupils are not allowed in the dining hall after 1:45 p.m.'* - it is a general rule

Which of these is *not* in the passive voice?

Mistakes were made.

In this science experiment, sugar and hot water are stirred together to form a solution.

The kite soared high in the sky.

The secret plans were stolen last night!

If you worked online, let Miss Nicholls know how you got on with the quizzes.