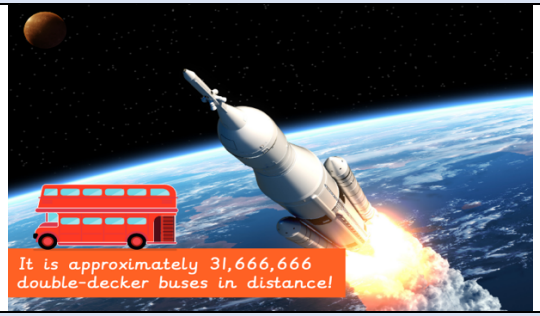
Y5 Knowledge Organiser – Data handling: Mars Rover 1

Key vocabulary	
Binary code	A code used in computers, based around the binary values of 0 and 1.
Data	Information used for a specific purpose or investigation.
Data transmission	The movement of information from one or more points to another.
Discovery	When something is intentionally or unintentionally found.
Distance	The amount of space between two places or objects.
Input	Information sent to a computer by an input device such as a keyboard or mouse for processing.
Mars Rover	A robotic vehicle, that explores, investigates and returns data about the terrain on Mars.
Moon	Orbits round planet Earth and is Earth's only natural satellite.
Numerical data	Information that is based on numbers and digits.
Output	Information or data that is sent by the computer to an output device such as a printer or speakers.
Planet	A large natural object that orbits around a star.
Radio signal	A radio wave that is sent or received to somewhere
Scientist	A person who studies within the fields of Science, such as Physics, Biology and Chemistry.
Sequence	A set order or pattern for something to follow.
Signal	A voltage, current or electromagnetic wave that is either sent or obtained.
Computer simulation	Computer generated imitation of something such as a program test or product prototype
Space (astronomy)	A vast area around and beyond planet Earth, which is not inhabited.

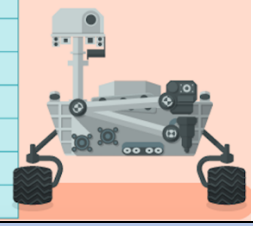
Key Facts

The Mars Rover had to travel 380,000km to get to Mars, it took eight and a half months.



Binary:

Binary value	Decimal value
0 0 0 0	0 zero
0 0 0 1	1 one
0 0 1 0	2 two
0 0 1 1	3 three
0 1 0 0	4 four
0 1 0 1	5 five
0 1 1 0	6 six
0 1 1 1	7 seven
1 0 0 0	8 eight
1 0 0 1	9 nine
1 0 1 0	10 ten



When a robot thinks independently, it needs to be able to calculate a range of data. All decisions carried out by a robot, or any computer, are done in binary - including the Mars Rover.

What I have learnt before	What I am learning now	What I will learn next
• To know that a database is a collection of data stored in a logical, structured and orderly manner. • To know that different visual representations of data can be made on a computer. • To know that computers can use different forms of input to sense the world around them so that they can record and respond to data. This is called 'sensor data'. • To know that a weather machine is an automated machine that responds to sensor data.	• To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. • To know what numbers using binary code look like and be able to identify how messages can be sent in this format. • To understand that RAM is Random Access Memory and acts as the computer's working memory. • To know what simple operations can be used.	• To know that data contained within barcodes and QR codes can be used by computers. • To know that infrared waves are a way of transmitting data. • To know that Radio Frequency Identification (RFID) is a more private way of transmitting data. • To know that data is often encrypted so that even if it is stolen it is not useful to the thief and that data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'. • To know the difference between mobile data and WiFi.