

# Year 5- Autumn 2- Computing – Data Handling



## Big Question

How can data be collected in space?

### Key Vocabulary for the unit:

**Binary code:** A code 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:** A vast area around and beyond planet Earth, which is not inhabited.

### Powerful knowledge/skills for this unit:

To know that Mars Rover is a motor vehicle that collects data from space.

To understand how data might be used to tell us about a location.

To know what numbers using binary code look like.

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 calculate bit patterns.

To learn the meaning of vocabulary associated with data: data and transmit.

To understand that binary signals (Boolean) can be transferred into character-based language, ASCII.

### What I should already know from Year 4:

To know that computers can use different forms of input to sense the world around them.

To know that a weather machine is an automated machine that responds to sensor data.

To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.

### Useful diagrams for the unit:

The Mars Rover had to travel 350 million miles (approx) to get to Mars, it took eight and a half months.



It is approximately 9 billion double-decker buses in distance!

### Binary:

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.

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

