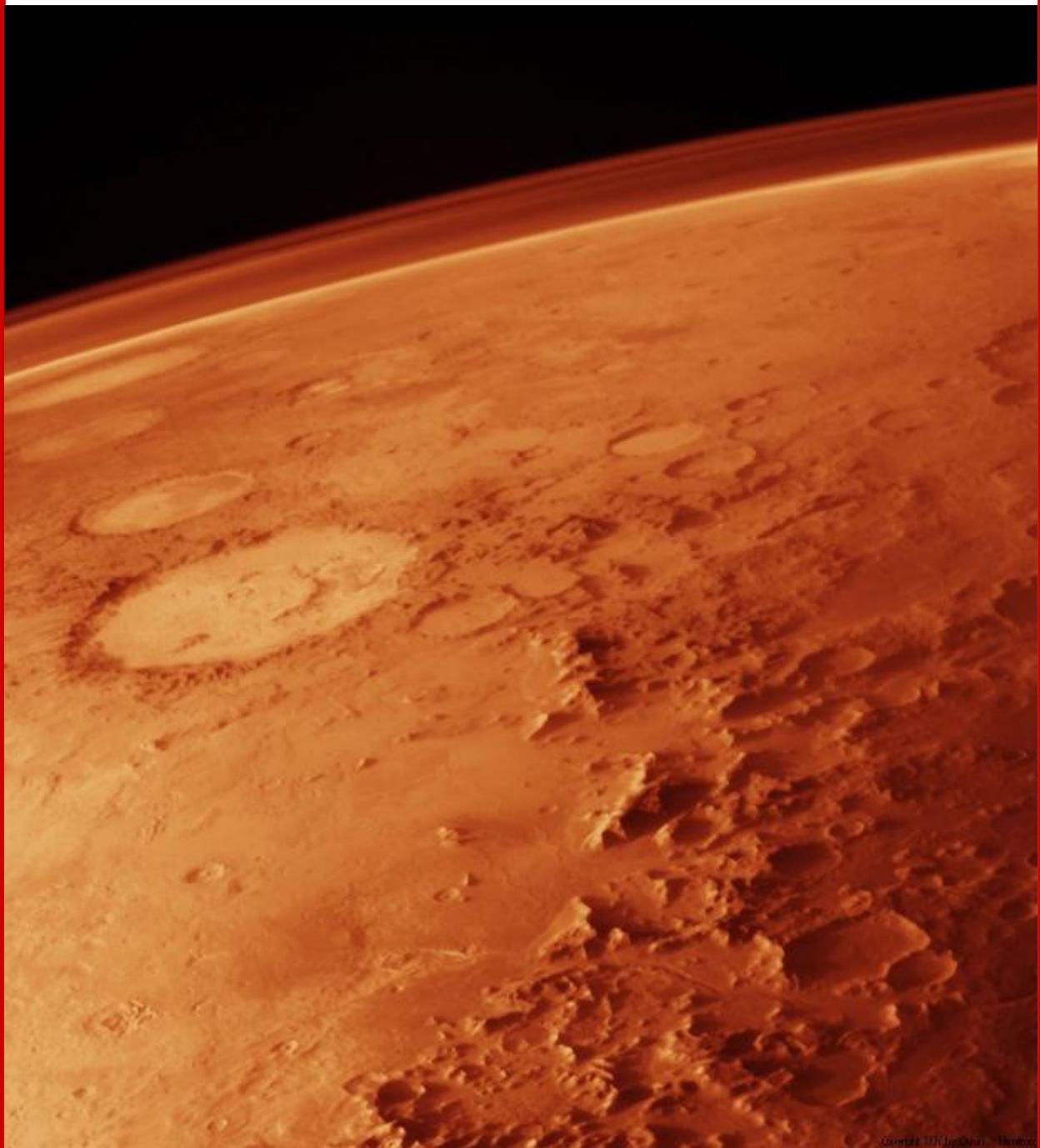


# Mission To Mars!

A dialogue activity for upper KS2



## Mission to Mars: Dialogue activity for upper KS2

### Part One:

As a class or in groups, pupils read the 'Fact or Fiction' cards. On each card there are three statements. Two are false and one of the statements is true. The pupils have to try and work out which are true and which are false.

### Part Two:

The scenario is that the pupils are astronauts, in a rocket orbiting Mars. They are planning to go down to the surface for an 8 hour mission.

Working in groups, pupils cut out the picture cards, and talk about which six objects they would take with them to Mars. On colourful post-it notes, they can write brief notes to explain what they chose or did not choose.

### Part Three:

Using the facts from part one, some photos, and the equipment photos and post-it notes from part two, pupils can make a poster about their mission to Mars.

### Other Resources:

The website <http://imaginemars2.jpl.nasa.gov/about/index.cfm> is absolutely brilliant and contains all the resources you will need to start a project on designing a Mars community. Their presentation [http://imaginemars.jpl.nasa.gov/info/discover\\_mars\\_01.html](http://imaginemars.jpl.nasa.gov/info/discover_mars_01.html) may be a bit complicated but for a large project the topics could be covered.

The website <http://starchild.gsfc.nasa.gov/> is very easy to use and can be useful for students to conducting their own research.

# Mission to Mars: Dialogue activity for upper KS2

## Fact or Fiction:

**Question 1:** 3. Just to check that the pupils understand how the questions work, and how important it is to read the question thoroughly.

**Question 2:** 1. Planets and space bodies are usually named by the International Astronomical Union (IAU) but the close planets can be seen without a telescope and so were first named by the Romans. Neptune and Uranus were discovered more recently, but the IAU decided to continue calling them after Roman (and Greek) gods.

Other planets:

Mercury is the god of commerce, travel and thievery in Roman mythology. The planet probably received this name because it moves so quickly across the sky. Venus is the Roman goddess of love and beauty. The planet is aptly named since it makes a beautiful sight in the sky, with only the Sun and the Moon being brighter.

Earth is the only planet whose English name does not derive from Greek/Roman mythology. The name derives from Old English and Germanic. There are, of course, many other names for our planet in other languages.

Mars is the Roman god of War. The planet probably got this name due to its red color.

Jupiter was the King of the Gods in Roman mythology, making the name a good choice for what is by far the largest planet in our solar system.

Saturn is the Roman god of agriculture.

Uranus is the ancient Greek deity of the Heavens, the earliest supreme god.

**Question 3:** 1. The gravity on Mars is 0.376 x gravity on Earth. This is because Mars is a lot smaller. The larger a planet is, the stronger the gravitational force is. Mars is actually about half the size of the Earth.

**Question 4:** 2. Mars is further from the Sun than the Earth, so less sunlight reaches it. It actually gets only 43% of the amount of sunlight that Earth gets.

**Question 5:** 2. Mars has a very thin atmosphere. It also has no magnetic field. This means that a lot of harmful radiation from the sun reaches Mars's surface, which creates an extra danger for astronauts. On

## Teacher's Sheet

Earth we use suntan lotion to protect ourselves from any radiation that gets through, but that wouldn't be enough for astronauts on Mars.

**Question 6:** 3. Mars has water ice caps at the poles and also there is likely to be water under the surface of Mars. Other features that Mars has that are similar to Earth's are deserts, volcanoes and valleys. Long ago, water probably flowed on the surface of Mars. Scientists see evidence of past water from the shapes of canyons and dried up streams in images sent to Earth by our Mars orbiting space craft. Mars rovers have found evidence of past water in the minerals found in surface rock samples. There is no surface liquid water on Mars at this time.

**Question 7:** 3. The first astronaut to go to Mars probably won't be until 2030. How old will the students be when this happens? Do they think it will be as exciting as the first man on the moon? There are no men on Mars yet, but there are 8 Mars Rovers! The first landed on Mars in 1971.

**Question 8:** 2. Not only is the atmosphere on Mars very thin, but there is very little oxygen in it!

Mars' atmosphere:		Earth's atmosphere:	
Carbon dioxide	95.7%	Nitrogen	78.0%
Nitrogen	2.7%	Oxygen	20.9%
Argon	1.6%	Argon	0.9%
Oxygen	0.2%	Carbon dioxide	0.04%
Carbon monoxide	0.07%	Water vapour	1%-4% at the surface
Water vapour	0.03%		
Nitric oxide	0.01%		

**Question 9:** 1. It is the largest volcano in the solar system and is 3 times the height of Mount Everest! Scientists believe the volcano has managed to become this large because the planet's crust doesn't move like on Earth. It is not known if Olympus Mons is still active or not.

**Question 10:** 3. This is much bigger than the Grand Canyon! It would stretch all the way from Los Angeles to New York if it was on Earth. It is just south of Mars' equator.

# Mission to Mars: Dialogue activity for upper KS2

## Picture Cards:

**Bicycle** - will be too hard to ride in a space suit! How bumpy is Mars?

**Biro Pen** - does not work in space because needs gravity to pull ink to tip, but might work on Mars.

**Compass** - How does a compass work? It points North to the North pole due to Earth's magnetic core. Will not work as Mars has no magnetic core.

**Dictaphone**

**Digital Camera**

**Drinking Water** - how will you drink it without taking off your spacesuit?

**Empty Containers** - to collect samples of Mars soil

**Family photo**

**GPS** - will not work as the satellites that make GPS work are around Earth

**Hiking Boots**

**Laptop**

**Mars Rover**

**Mobile phone** - will not work as the satellites that make GPS work are around Earth

**Pencil**

**Pick Axe**

**Picnic**—how will you eat without taking off space helmet?

**Rucksack**

**Sandwiches** - how will you eat without taking off space helmet?

**Solar Panel** - to create electricity. What would need the electricity? How much electricity would be created? (Mars is further from sun)

**Spacesuit** - What does a spacesuit do? What parts of a spacesuit are there?

**Spade**

**Spare Oxygen**

**Sunglasses** - Mars is further away from the sun, will these still be needed? (Extension- how does Mars' atmosphere compare to Earth's? Will that affect the amount of light?)

**Toothbrush**

**Two-way radio**

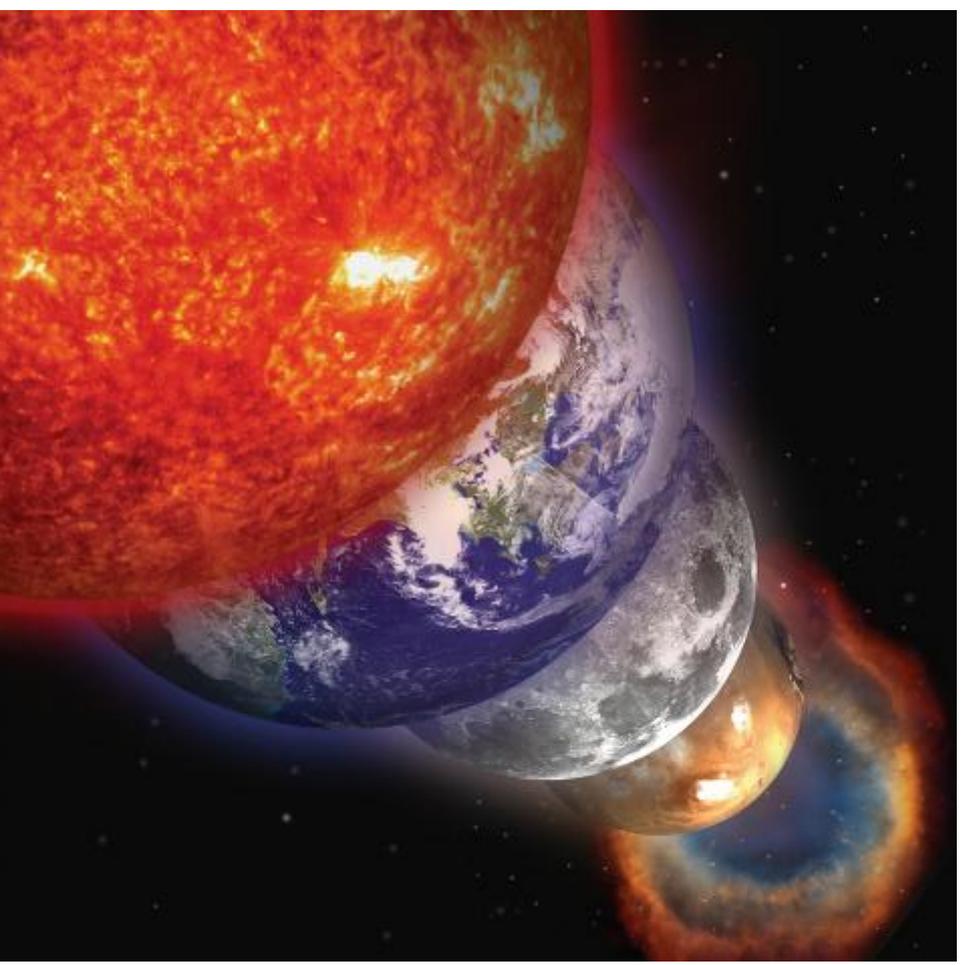
**Watch** - Can talk about Mars days as compared to Earth days, or timing how much oxygen you have left.

## Q.1

# Fact or Fiction?

Only one of these statements is true. Which is it?

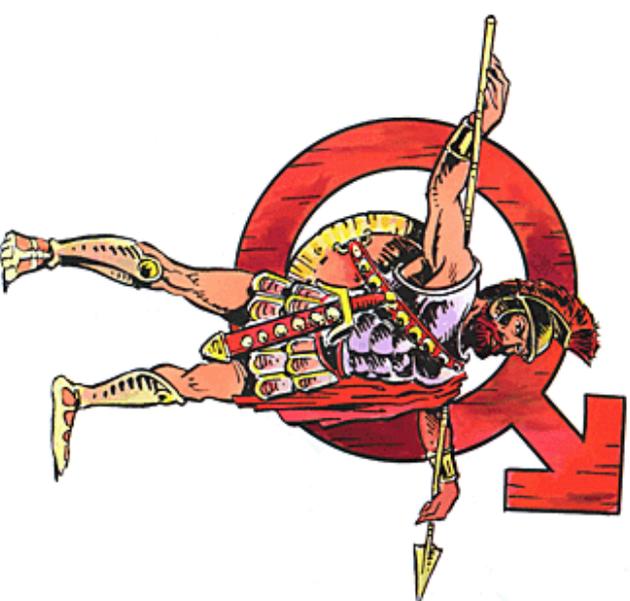
1. Mars is the third planet from the sun.
2. Mars is closer to the sun than Earth.
3. Mars is the fourth planet from the sun.



## Q.2 **Fact or Fiction?**

Only one of these statements is true. Which is it?

1. Mars is named after the Roman god of war.
2. Mars is named after the Greek god of war.
3. Mars is named after the chocolate bar.



## Q.3

# Fact or Fiction?

Only one of these statements is true. Which is it?

1. The gravity on Mars is less than on Earth (you float more).
2. The gravity on Mars is the same as on Earth.
3. The gravity on Mars is more than on Earth (you feel heavier).



Q.4

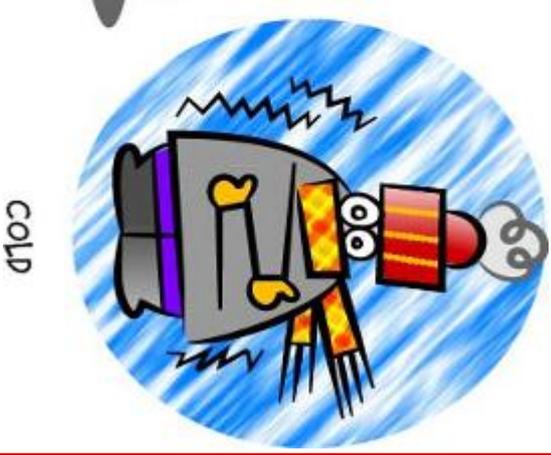
## Fact or Fiction?

Only one of these statements is true. Which is it?

1. Mars is very cold, the maximum temperature is  $-40^{\circ}\text{C}$ .

1. Mars is very cold, the maximum temperature is  $-20^{\circ}\text{C}$ .

2. Mars is very hot, the maximum temperature is  $40^{\circ}\text{C}$ .

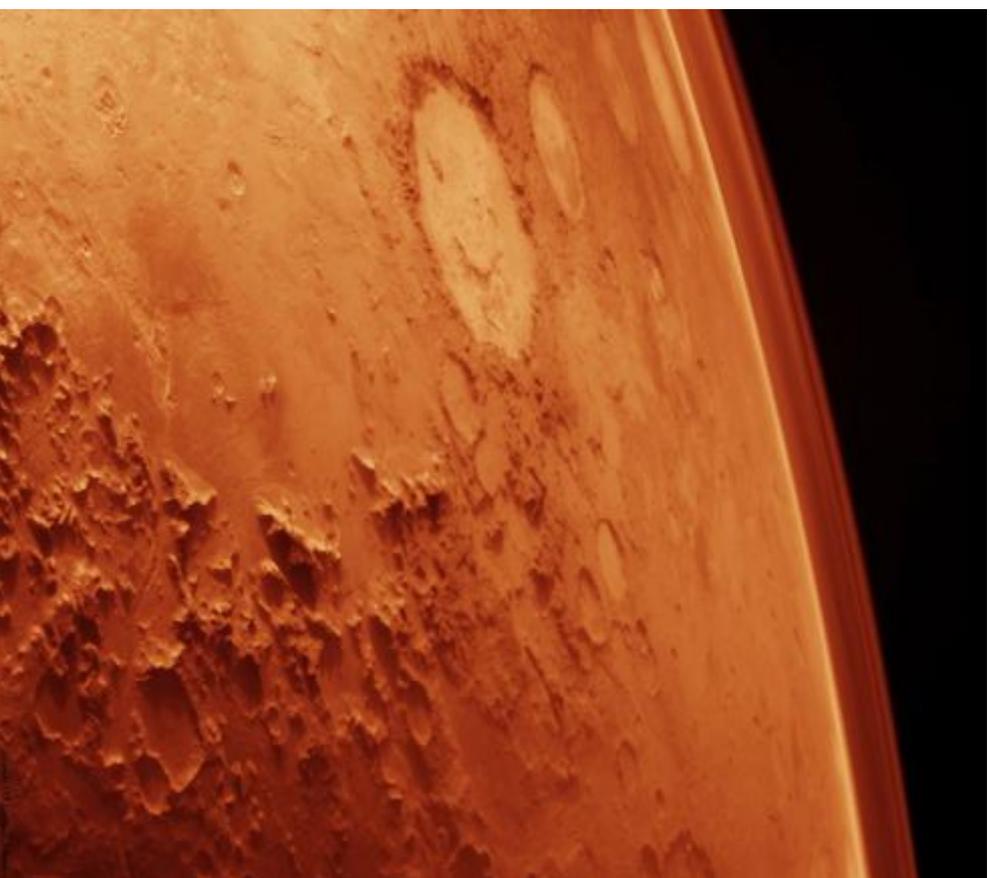


Q.5

## Fact or Fiction?

Only one of these statements is true. Which is it?

1. Mars has no atmosphere.
2. Mars has a thin atmosphere.
3. Mars has an atmosphere like Earth's.

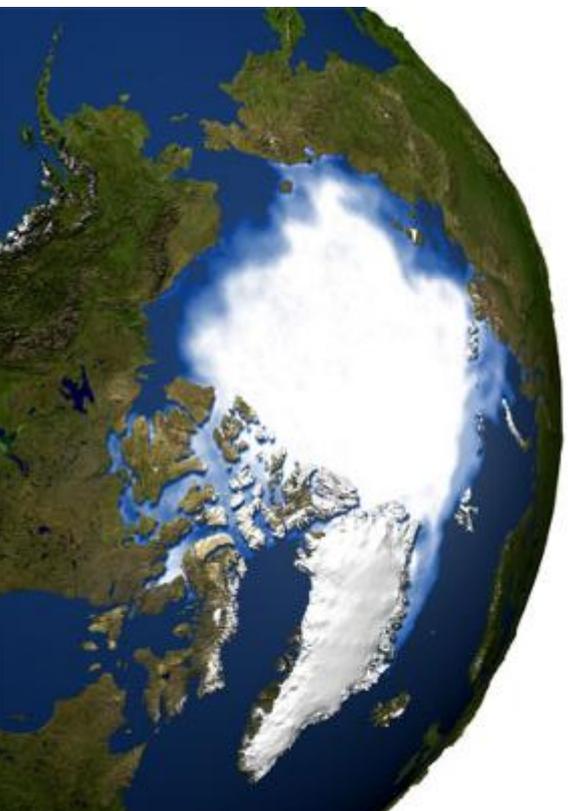


## Q.6

# Fact or Fiction?

Only one of these statements is true. Which is it?

1. Mars has grassy areas like the Earth.
2. Mars has oceans like the Earth.
3. Mars has polar ice caps like the Earth.



Q.7

## Fact or Fiction?

Only one of these statements is true. Which is it?

1. Only 2 astronauts have ever stepped on Mars.
2. Only 1 astronaut has ever stepped on Mars.
3. No astronauts have ever been to Mars.



## Q.8

# Fact or Fiction?

Only one of these statements is true. Which is it?

1. Astronauts will not be able to breathe on Mars because there is no oxygen.
2. Astronauts will not be able to breathe on Mars because there is too little oxygen.
3. Astronauts will be able to breathe on Mars just like they do on Earth.



## Q.9

# Fact or Fiction?

Only one of these statements is true. Which is it?

The volcano Olympus Mons on Mars is...

1. The biggest volcano in the solar system.
2. Quite big, but smaller than any of Earth's volcanoes.
3. Very small, the smallest volcano ever found.



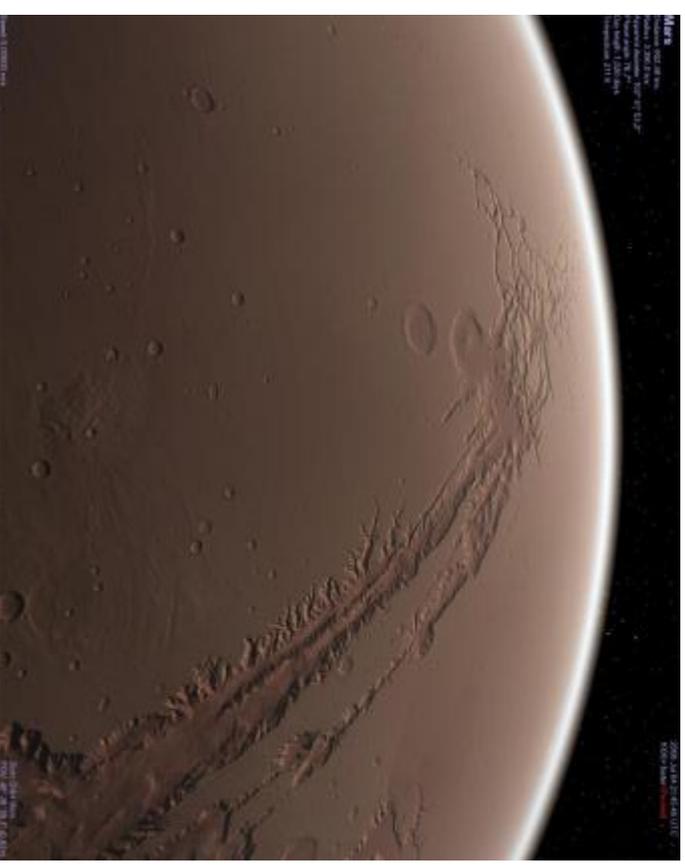
## Q.10

# Fact or Fiction?

Only one of these statements is true. Which is it?

The canyon Valles Marineris on Mars is...

1. Almost as big as the Grand Canyon in the USA at 250 miles long and 1 mile deep.
2. Bigger than the Grand Canyon at 750 miles long and 1 mile deep.
3. Bigger than the Grand Canyon at over 1500 miles long and 5 miles deep.



# Mission to Mars

## The challenge:

You are going to be the first team of astronauts to land on Mars in 2030. You have travelled in a rocket for 7 months and you are now in orbit around Mars.



Mission control have told you that you will be going down to the surface of Mars for 8 hours tomorrow. You need to plan what you are going to take with you.

Because the landing shuttle can't be too heavy you are only allowed to take 6 items. Cut out all of the items on the sheets and decide together what items will your team take? Mission control also wants to know why you need these items more than the others.





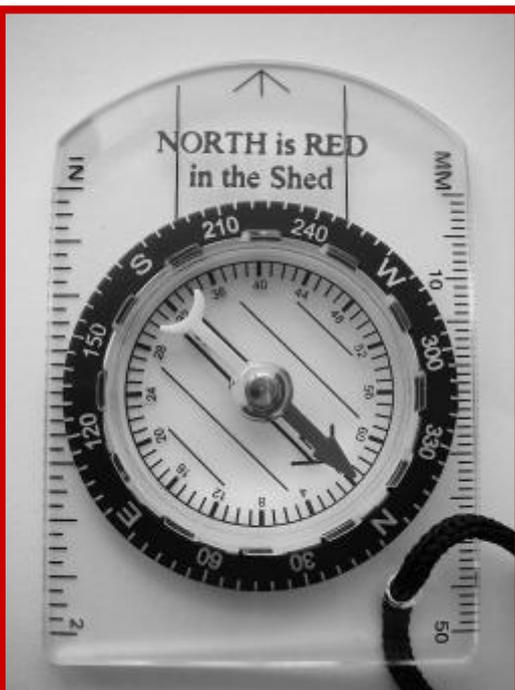
**Bicycle**



**Hiking Boots**



**Drinking Water**



**Compass**



**Digital Camera**



**Spare Oxygen**



**Laptop**



**Pick-axe**



**Watch**



**GPS**



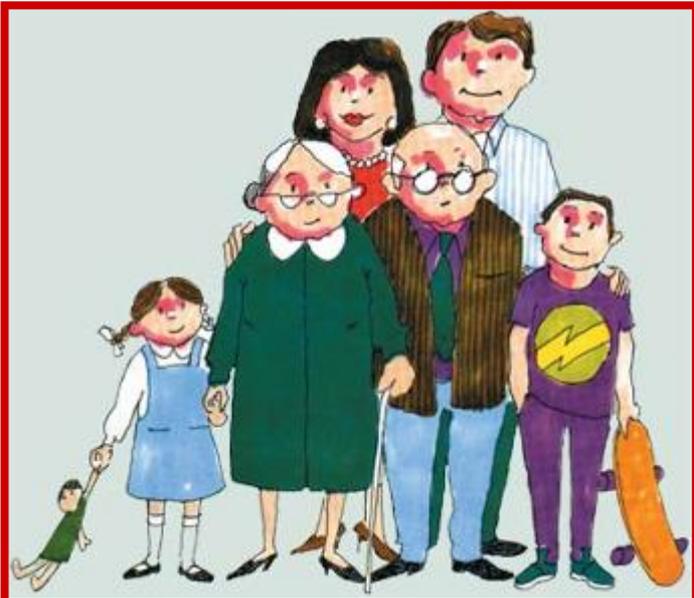
**Dictaphone**



**Solar panels**



**Two-way radio (walkie talkie)**



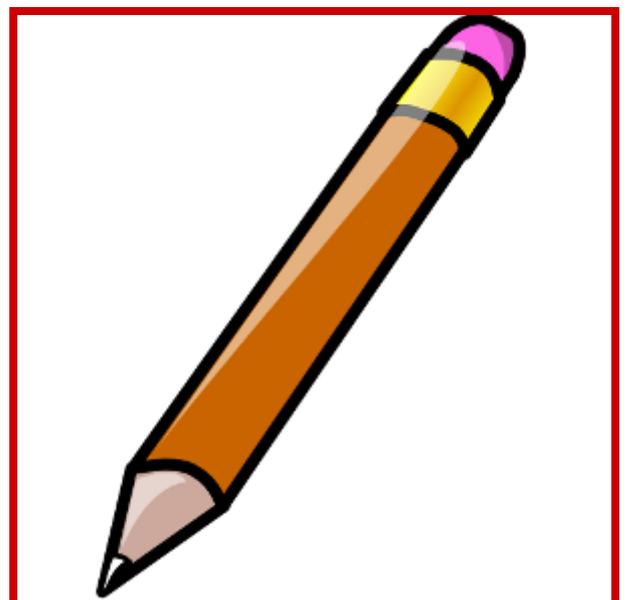
**Family Photo**



**Picnic**



**Biro Pen**



**Pencil**



**Sunglasses**



**Rucksack**



**Space suit**



**Sandwiches**



**Spade**



**Mobile phone**



**Mars Rover**



**Toothbrush**



**Empty Containers**