

## SPACE TECHNOLOGY NEWS

# ONE SMALL WEE FOR MAN



Could we build a place like this on the moon one day using space piddle?

**NEW** research from the European Space Agency has shown that wee (yes, wee) could be used to make concrete on the moon for a lunar base station.

Urea, the main substance in urine, apart from water, is the key. It would help to make a type of lunar concrete easier to mould into the required shape before it sets.

The main ingredient in lunar concrete would be lunar regolith, which is the loose, dusty stuff found on the moon's surface. Adding urea to a mix of lunar regolith and water

would make it less thick to stir, which means astronauts wouldn't need to use as much water.

Being able to use only materials available on the moon when building a lunar base would be really helpful, as it would reduce the need to launch supplies from Earth.

We reckon it sounds like a wee-ly good idea!

## THE RIVERS OF MARS

**SCIENTISTS** have revealed the best evidence to date of the ancient rivers that flowed on Mars.

The team studied new high-resolution satellite images of a rocky Martian cliff face and found that it was formed by flowing rivers more than 3.7 billion years ago – that's around the time life began evolving on Earth. The research makes it more likely that life once existed on Mars.



These layered rocks on Mars were formed by flowing rivers

NASA/JPL-Caltech/  
UoA/Matt Baime

The detailed images were taken 400km from the Martian surface by the Mars Reconnaissance Orbiter spacecraft. They revealed a 200-metre-thick stack of layered rocks within the cliff walls.

The images' detail proved to scientists that the rocks were formed by running water. Scientists reckon these rivers were probably active for tens to hundreds of thousands of years.

### DID YOU KNOW:

When American astronaut Neil Armstrong became the first human to set foot on the moon

on 20 July 1969, he famously said: "That's one small step for man, one giant leap for mankind."

## INTRODUCING INGENUITY

**IN** more Martian news, this special helicopter – the first craft to roam the skies of another planet – has been officially named.

NASA held a contest for American school pupils to come up with a name for their upcoming Mars rover. They selected Perseverance. But then they decided the helicopter accompanying Perseverance ought to have a name too, so they took another look at the 28,000 submissions and chose Ingenuity.

The word means the ability to think of clever new ways of doing something. Vaneeza Rupani, a student at a high school in Alabama, came up with the name.

Perseverance and Ingenuity will leave for the Red Planet in July.



NASA/JPL-Caltech



**GLOSSARY**

**piddle** – Wee or urine

**lunar** – To do with the moon

**lunar regolith** – The loose, dusty stuff from the moon’s surface

**perseverance** – When you carry on or keep trying with something

**ingenuity** – Thinking of creative or new methods

**evolving** – Developing

**high-resolution** – Better quality photographs that show detailed and clear images



**SPACE TECHNOLOGY NEWS**

● Look at the article ‘One small wee for man’.

1. What three ingredients would be in the lunar concrete?

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2. Why does the European Space Agency think wee is a good material to use for building on the moon?

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3. Do you think it is a good idea to build on the moon? Explain why/why not.

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● Look at the article ‘The rivers of Mars’.

4. Explain how the scientists discovered that there used to be flowing rivers on Mars.

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5. Match the measurements to the correct item:

- 3.7 billion years ago
- 200m
- 400km
- 100,000 years

- The thickness of layered rocks within the cliff walls
- Distance the images were taken from by the satellite
- The time the rivers may have been active for
- When the Martian cliff face was formed

6. Why does the discovery of ancient rivers make it more likely that life once existed on Mars?

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● Look at the article 'Introducing Ingenuity'.

7. Match the name to the item:

- Perseverance
- Ingenuity
- Red Planet

- Mars rover
- Special helicopter
- Mars

8a. How did NASA choose the name for the special helicopter?

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8b. Why do you think they chose the name 'Ingenuity'?

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8c. What name would you have given the special helicopter and why?

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9. Explain what Ingenuity will be doing in July.

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● Think about all the stories.

10. These three news stories all involve scientific research into space. Do you think that space research is important? Explain why.

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TEACHER ANSWERS

**AIM OF THE NEWS COMPREHENSIONS:** News reports are unique non-fiction texts. Being real, they naturally engage students, and with the range of topics that are covered, help to develop pupils' knowledge and understanding of the wider world outside the classroom. The reports are ideal for short, focused comprehension or discussion activities. Along with the opportunity to find fascinating facts and appreciate the opinions of those involved, there is plenty to be inferred and deduced to understand in more depth what is being reported. Like authors, journalists play with language, so news 'stories' are rich nuggets of text to investigate and provide the opportunity for literacy programmes.

**TEACHER ANSWER GUIDE:** The teacher answers are intended to provide a quick reference guide. Suggestions are given for the 'Expected response' or starting point that pupils could give. The 'Development' then gives more in-depth ideas that students can work towards as they develop their reading comprehension skills.

For a list of the reading skills used, please email [schools@firstnews.co.uk](mailto:schools@firstnews.co.uk).

SPACE TECHNOLOGY NEWS

● Look at the article 'One small wee for man'.

**Q1. What three ingredients would be in the lunar concrete?**

READING SKILL: FIND AND EXPLAIN INFORMATION (NC2A)

**Expected answer**

Wee, dust and water.

**Developed answer**

Urea, the main substance in urine, lunar regolith (the loose, dusty stuff from the moon's surface) and water.

**Q2. Why does the European Space Agency think wee is a good material to use for building on the moon?**

READING SKILL: Summarise information (NC2e)

**Expected answer**

Research showed that the wee made the concrete mixture easier to stir.

**Developed answer**

Research showed that the wee made the concrete mixture easier to stir and that less water was needed. Fewer supplies would need to be transported from Earth and therefore building on the moon would be easier.

**Q3. Do you think it is a good idea to build on the moon? Explain why/why not.**

READING SKILL: Develop personal ideas from reading News stories (NC 6, 7 & 8)

**Pupil's personal responses**

**An example could be:** Yes, because then we could visit the moon or stay there longer. or No, because it isn't our home and we don't have the resources to live there.

● Look at the article 'The rivers of Mars'.

**Q4. Explain how the scientists discovered that there used to be flowing rivers on Mars.**

READING SKILL: Infer information and justify with evidence from the text (NC 2c and 8)

**Expected answer**

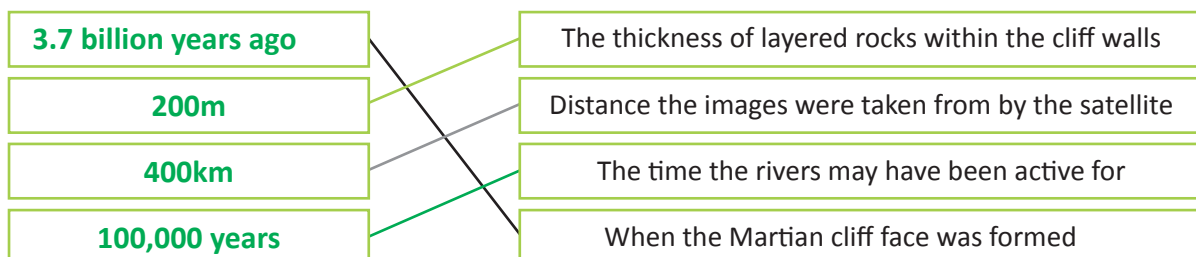
The scientists studied photographs of Mars.

**Developed answer**

The scientists studied photographs of Mars taken by a satellite that showed rocks that were formed by running water.

**Q5. Match the measurements to the correct item**

READING SKILL: Summarise information (NC2e)



**Q6. Why does the discovery of ancient rivers make it more likely that life once existed on Mars?**

READING SKILL: Infer information based on own knowledge (non-text based inference) (NC 6, 7 & 8)

**Expected answer**

Because animals or plants might have lived in the rivers.

**Developed answer**

The discovery that there were once rivers and flowing water on Mars makes it more likely that life once existed on Mars because it is thought sources of life (animals, plants, creatures, living organisms) need water. If there was once water, there could have been life too.

● Look at the article 'Introducing Ingenuity'.

**Q7. Match the name to the item**

READING SKILL: Find and explain information (NC2a)



**Q8.**

READING SKILL: Infer information based on own knowledge (non-text based inference) (NC 6, 7 & 8)

Develop personal ideas from reading News stories (NC 6, 7 & 8)

**8a. How did NASA choose the name for the special helicopter?**

**Expected answer**

A contest in American schools.

**Developed answer**

NASA ran a contest for American school pupils to choose a name for the Mars rover, but then thought the helicopter going with the rover should have a name too, so chose another name from the entries.

**8b. Why do you think they chose the name 'Ingenuity'?**

**Expected answer**

Because it means clever new ways of doing something.

**Developed answer**

Ingenuity means to think of clever ways to do something and the helicopter is a clever new way to explore a planet in space.

**8c. What name would you have given the special helicopter and why?**

**Expected answer**

Personal choice

**Developed answer**

A name and a reason why they have chosen it

**Q9. Explain what Ingenuity will be doing in July.**

READING SKILL: Summarise information (NC2e)

**Expected answer**

Leaving for Mars.

**Developed answer**

In July the special helicopter will be going to Mars with the Mars rover.

● Think about all the stories.

**Q10. These three news stories all involve scientific research into space. Do you think that space research is important?**

**Explain why.**

READING SKILL: develop opinions and provide justification of viewpoints (NC 6, 7 & 8)

**Personal response with a reason.**

**An example answer:** Yes, I think scientific research into space is really important because we can learn about our planet and other planets.