

Teacher Resource

NASA Fossils

Episode 26
10th September 2019

Focus Questions

1. Briefly summarise the BTN *NASA Fossils* story.
2. Why is there a team of NASA and European Space Agency (ESA) scientists exploring the desert in WA?
3. Where is the Pilbara? Find using Google Maps.
4. What does NASA and the ESA want to send to Mars next year?
 - a. Humans
 - b. Robotic rovers
 - c. Animals
5. What will they do on their mission to Mars?
6. Complete the following sentence. Some rocks found in the Pilbara hold the _____ remains of Earth's first living things.
7. What is the age of some of the rocks that they're studying?
8. What do stromatolites look like?
9. What are stromatolites evidence of?
10. Illustrate an aspect of the *NASA Fossils* story.

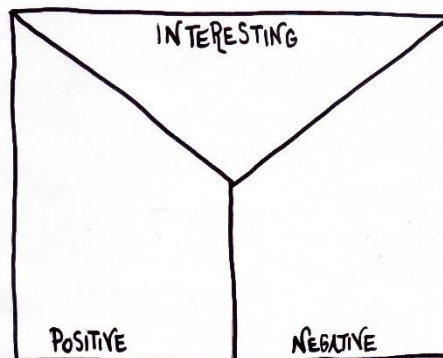
Activity

Note Taking

Students take notes while watching the BTN story. After watching the story, students reflect on and organise the information into three categories.

What information was...?

- Positive
- Negative or
- Interesting



Activity

Class Discussion

After watching the BTN *NASA Fossils* story hold a class discussion. Here are some discussion starters:

- What do you know about Mars?
- Why are space scientists looking for clues about Mars in the Australian outback?
- What did they discover?
- What did you learn watching the BTN story?
- What was surprising?

Key Learning

Students will develop a deeper understanding of Mars. They will investigate how Mars compares to Earth and what life would be like on Mars.

Curriculum

Science - Year 5

The Earth is part of a system of planets orbiting around a star (the sun).

Scientific knowledge is used to solve problems and inform personal and community decisions.

Science – Years 5 & 6

With guidance, pose clarifying questions and make predictions about scientific investigations.

Science – Year 7

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available.

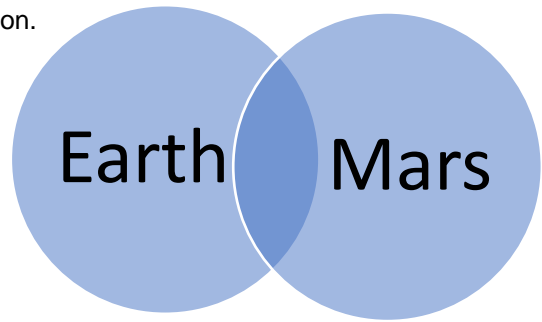
Activity

Profile of Mars

Create a profile of Mars using a range of sources of information.

The following questions will help guide students' research:

- When and who discovered Mars?
- How was it named?
- How big is Mars?
- Where is Mars in the Solar System?
- What does Mars look like? Describe using words and pictures.
- List 10 interesting facts about Mars.



Use a Venn diagram to compare and contrast Mars with Earth. Compare and contrast the size of the planets, the distance from the Sun and its physical features.

Activity

Mars research

Define: What do I want to know?

Key questions to research

Students can choose one or more of the following questions/statements or come up with their own:

- What are the geological features of Mars?
- Was there ever life on Mars?
- Which features are found on both Earth and Mars?
- Should we be putting humans on Mars? Explore the pros and cons.

Locate: Where do I find the information?

What resources will help answer my questions? (Internet, people, resource centre, organisations, print). Discuss with students what a reliable source is.

Select: What information is important for the investigation?

Students may need support to sort through and select relevant information.

Organise: How do I make sense of the information?

Students can organise their research by creating main headings from their questions. Write each heading on a separate piece of paper. Record the information found for each question.

Present: How do we let others know about this information?

Each group needs to discuss then decide on the best way to present the information. Possibilities could include:

- A 'Did You Know' Facts sheet
- Infographic
- [Prezi](#) presentation

Evaluate: What have we learnt?

Each group reflects on what they have learnt about Mars during their investigation. Students will reflect on their learning and respond to the following.

- What I learned...
- What I found surprising...

Activity

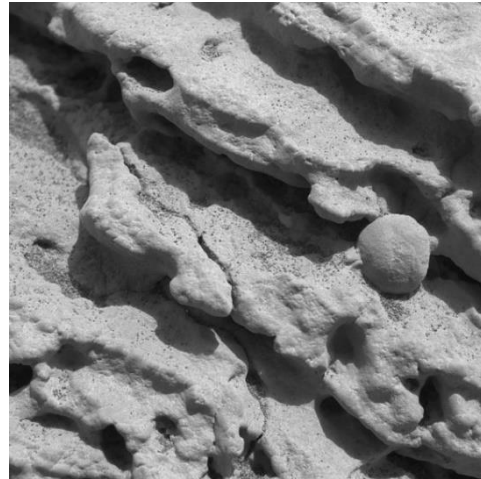
Images of Mars

Students look at the photographs of the surface of Mars and respond to the following questions:

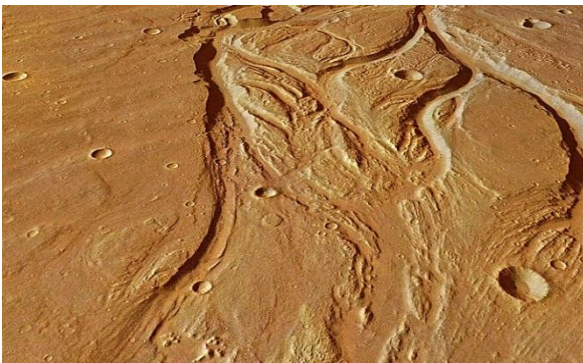
- Describe the image. What can you see?
- What does the image tell you about Mars?
- How is it similar to Earth?
- What was surprising about the image?
- What questions do you have about the image?



[Link to image](#)



[Link to image](#)



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Activity

Life on Mars

Students will investigate what it would be like to live on Mars and what would be needed to sustain human life. Begin with a class brainstorm using the following questions to guide discussion:

- *What do you think it would be like to live on Mars?*
- *What are the benefits of having a space settlement on Mars?*
- *When planning for life on Mars what are some important things to think about?*

Students will then need to research conditions on Mars, so they can plan and design a settlement on Mars that will sustain human life. The following questions can help guide students' research:

- What are the conditions like on Mars?

- What needs to be considered when planning a colony on Mars? For example:
 - Water supply
 - Atmosphere (air supply)
 - Temperature
 - Food production
 - Gravity
 - Waste management
- What materials could be used to build a space settlement?

Activity

Mars 2020 Mission

The BTN story explained why space scientists were exploring outback Western Australia looking for clues to help them plan the Mars 2020 rover mission. Students can find out more about the NASA mission [here](#). NASA are also running a competition to name the next Mars rover. Find how to enter [here](#). There are four goals for the mission. Students can choose one of the science goals to explore in more detail.



**SCIENCE GOAL 1:
Determine
Whether Life Ever
Arose on Mars**



**SCIENCE GOAL 2:
Characterize the
Climate of Mars**



**SCIENCE GOAL 3:
Characterize the
Geology of Mars**



**SCIENCE GOAL 4:
Prepare for
Human
Exploration**

Useful Websites

The Greatest Treasure Hunt - ABC News

<https://www.abc.net.au/news/2019-09-01/nasa-in-western-australia-looking-for-clues-to-mars-mission/11452250>

Mars 2020 Mission – NASA

<https://mars.nasa.gov/mars2020/>

Scientists Explore Outback as Testbed for Mars – NASA

<https://mars.nasa.gov/news/8505/scientists-explore-outback-as-testbed-for-mars/>

Mars Facts – NASA

<https://mars.nasa.gov/all-about-mars/facts/>