



Teacher Resource

Life on Mars

Focus Questions

Discuss the BTN story as a class and record the main points of the discussion. Students will then respond to the following:

1. What did the BTN Life on Mars story explain?
2. Travelling at about 77,000 km per hour, how long does it take to get to Mars?
3. Why is the soil red on Mars?
4. What is the name of the NASA Mars rover?
5. What is the average temperature on Mars?
 - a. -23 °C
 - b. -43 °C
 - c. -63 °C
6. Why can't humans breathe on Mars?
7. What is the problem with growing food in Martian soil?
8. What are some possible sources of food on Mars?
9. Why is returning home after a Mars mission difficult?
10. Name three facts you learnt watching the BTN story.

Activity: Quick Mars Quiz

Begin the Life on Mars activity with a quick true or false quiz. Circle the correct answer.

1. Mars is the 4 th planet from the sun	True	False
2. Mars is bigger than Earth	True	False
3. The average temp on Mars is about -63 degrees C	True	False
4. The name of the Mars rover is Procrastination	True	False
5. The rover was named by a NASA astronaut	True	False
6. Scientists have found evidence of water on Mars	True	False
7. Carbon dioxide makes up 95% of the atmosphere on Mars	True	False

Answers: 1 True, 2 False, 3 True, 4 False, the name of the rover is Perseverance, 5 False It was named by a 13-year-old, 6 True, 7 True.

EPISODE 5

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KEY LEARNING

Students will develop a deeper understanding of Mars and the rover, Perseverance, sent to explore the planet. They will investigate 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 involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions.

Activity: Class Discussion

Discuss the BTN Life on Mars story as a class. Ask students to record what they know about Mars. What questions do they have? Use the following questions to help guide discussion:

- Make a list of all the things you know about Mars.
- What does Mars look like?
- How similar are Mars and Earth?
- Describe the location of Mars in relation to Earth and the Sun.
- Why do you think scientists want to explore Mars?
- What might be some of the challenges of exploring it?
- Think of three unanswered questions you have about Mars. Share them with the class.



Activity: Glossary

Students will brainstorm a list of key words that relate to the BTN Life on Mars story. Here are some words to get them started.

ROVER	MISSION	MARTIAN
SOLAR SYSTEM	ATMOSPHERE	RADIATION

Activity: Mars Research

After watching and discussing the BTN Life on Mars story, what questions do students have and what are the gaps in their knowledge? The following KWLH organiser provides students with a framework to explore their knowledge on this topic and consider what they would like to know and learn.

<i>What do I <u>k</u>now?</i>	<i>What do I <u>w</u>ant to know?</i>	<i>What have I <u>l</u>earnt?</i>	<i><u>H</u>ow will I find out?</i>

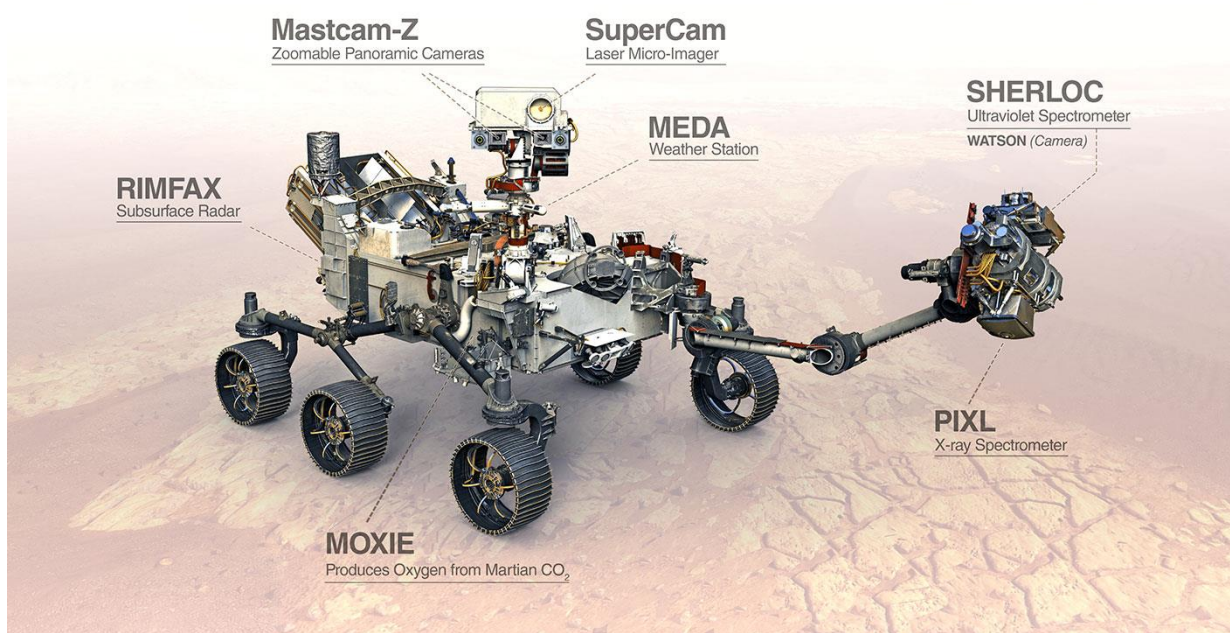
Students will develop their own question/s to research, collecting and recording information from a wide variety of sources. Students may develop their own question to investigate or select one of the questions below.

- What are the challenges of landing a rover on Mars? What is the '7 minutes of terror'? Watch the landing of the [Perseverance rover](#) on Mars.
- Should we put humans on Mars? Explore the pros and cons.
- Using a Venn diagram, explore the similarities and differences between Mars and Earth.
- What have previous space missions discovered about Mars?

Activity: Perseverance Rover – Science Instruments

Students will investigate how the Perseverance rover is collecting information about Mars. Begin by exploring [the rover in 3D](#). They can then look at the rover's science instruments in more detail. They are tools for collecting data about Martian geology, atmosphere and environmental conditions. Ask students to look at the [different instruments](#) on the Mars Perseverance rover and choose one to explore in more detail. Record information about the instrument:

- Main job of the instrument
- Location on the rover
- Size and weight
- Draw a picture of the instrument



Activity: Mars Helicopter

Students will learn more about the [Mars helicopter](#) and its purpose on the mission. They can also explore the [3D model](#) of the helicopter. Here are some questions for them to respond to:

- What is the name of the helicopter?
- The helicopter rode to Mars attached to the _____ of the Perseverance rover.
- Why was Ingenuity included in the mission to Mars?



Further learning

[Make a paper Mars helicopter](#)

[Code a Mars helicopter video game](#)

Activity: Sounds of Mars

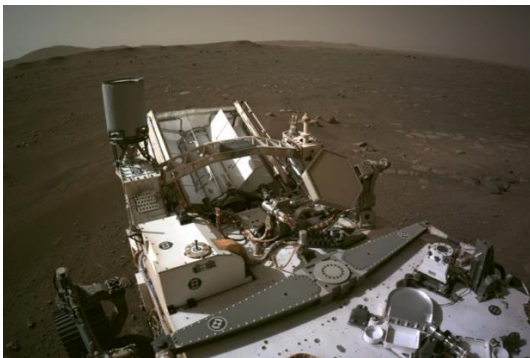
What does Mars actually sound like? The Perseverance rover carries two microphones, that records the sounds of Mars for the first time. The [NASA Sound of Mars](#) playlist allows students to listen to the differences between sounds on Earth versus how they would sound on Mars. Students can [record a greeting](#) and hear how they would sound on Mars. They can explore how sound works and why sound is different on Mars.



Activity: Images of Mars

Students look at the images taken by the Mars rover Perseverance, on its mission, then 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?
- Create a caption for the image.



Activity: Life on Mars

Students will 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?
- Create and advertisement or poster to advertise your colony.



Further Learning

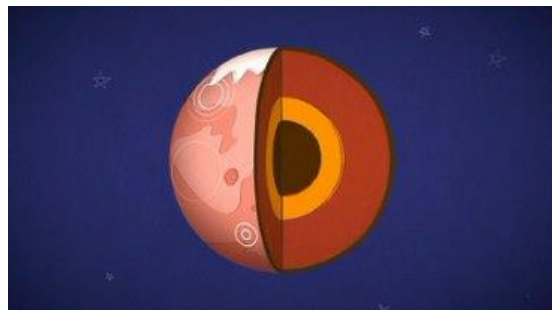
- Write a science fiction story about your journey to Mars and what you found when you arrived.
- Design a system of government for your Mars colony.
- Calculate the cost of a colony on Mars.

BTN Mars Stories

Students can watch one or more of the BTN stories below to learn more about Mars.



[Mars Rovers](#)



[Mars Insight](#)



[Mars Class](#)



[Space Future](#)

Useful Websites

- [Mars 2020 Mission Perseverance Rover](#) – NASA
- [Mars 2020 Mission Overview](#) – NASA
- [Mars touchdown by Perseverance rover shown in thrilling video released by NASA](#) – ABC News
- [Mars rover Perseverance's giant parachute carried a secret message from NASA](#) – ABC News
- [Can life from Earth survive on Mars?](#) – Newsround
- [Mars Rovers](#) – BTN
- [Mars Class](#) - BTN
- [Mars Insight](#) – BTN