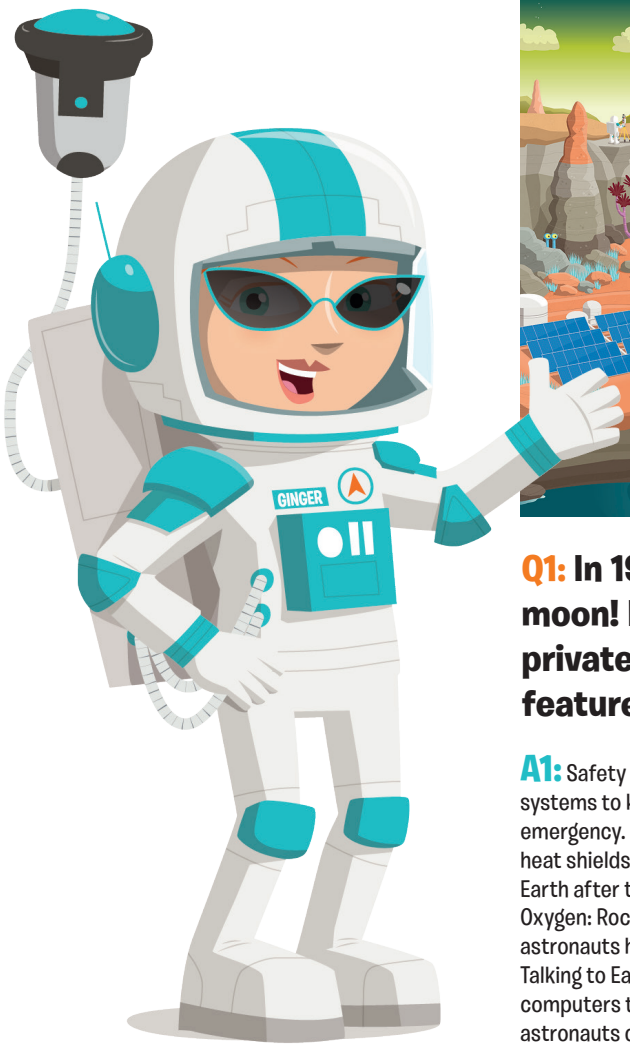
GET KIDS INTO SURVEY™

Q&A

SPACE COLONY



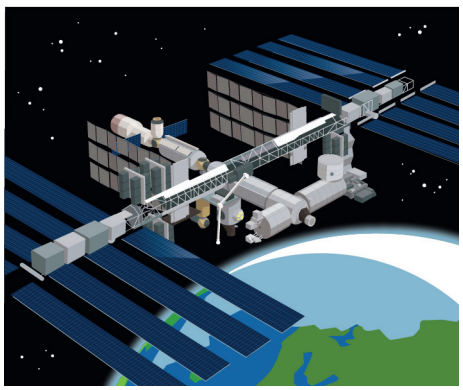
Q1: In 1969, the Apollo 11 mission first took humans to the moon! In the present day some companies are working to privately fly passengers to space! What are some important features of a Rocket?

A1: Safety First: Rockets have special escape systems to keep astronauts safe in case of an emergency. Rockets have big parachutes and heat shields to help them land safely back on Earth after their journey in space.
Oxygen: Rockets have air systems to make sure astronauts have enough oxygen to breathe.
Talking to Earth: Rockets have radios and computers to talk to people on Earth. This way, astronauts can get help or share information about their mission.
Strong and Sturdy: Rockets are built with very strong materials so they can withstand the powerful forces of blasting off into space and coming back down to Earth.
Training Astronauts: Before astronauts go into space, they practise a lot on Earth to learn how everything works. They learn how to use the equipment and what to do in case of an emergency.

Q2: When arriving at the international space station or a new planet, how might geospatial equipment be used to help the vehicle arrive safely?

A2: Just like our sat navs need Global Positioning Systems (GPS) to track a journey, so does a rocket. Helping them navigate to the correct location. Geospatial equipment may include 3D mapping cameras which can create detailed maps of the surface which will be used for landing.

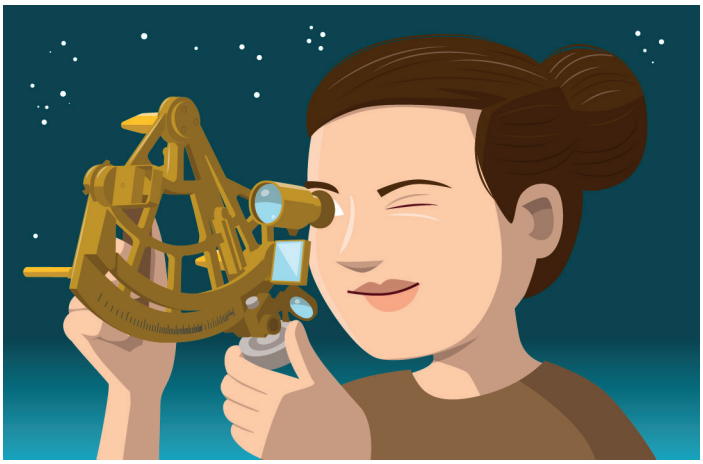
One of our incredible sponsors LaserTech have a long term partnership with NASA! One of their first collaborations involved a modified version of their traffic safety lidar to measure real-time speed and distance when docking at the International Space Station, ensuring they come in at the correct angle and speed to land safely.



Q3: The surveyor in A5 is monitoring the changing shape of the volcano, why is it important to track these changes?

A3: Monitoring the shapes of volcanoes is crucial for predicting eruptions. If there's any ground deformation picked up by using techniques like GPS and InSAR (Interferometric Synthetic Aperture Radar) these can indicate that magma is moving beneath the surface. This can be an early warning sign of a potential eruption.

Picking up these changes straight away can help ensure safety by being able to evacuate populated areas quickly. Understanding these volcanic processes and the environmental impacts mean we can better predict the patterns and possible risks associated with different movements.

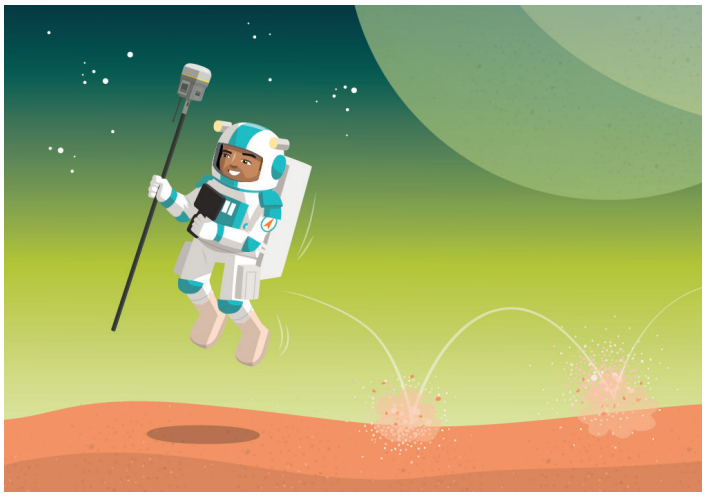


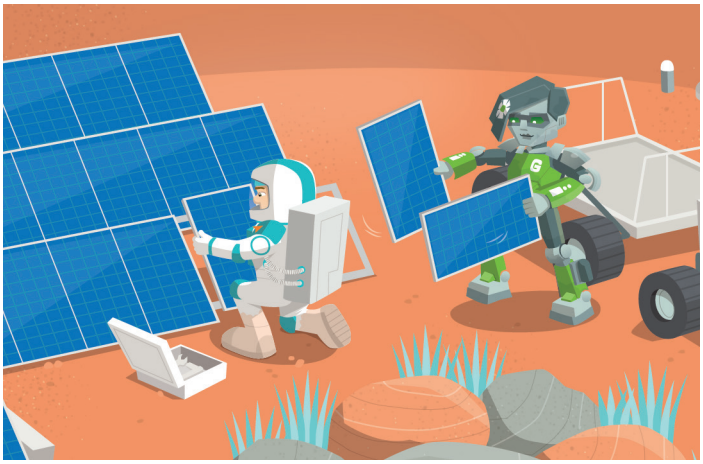
Q4: How did studying the solar system through history help surveyors make maps and find their way?

A4: A long time ago, people used the stars, the sun, and the moon (known as celestial bodies) to help them make maps and find their way. Dating back to approximately 150BC they would look at where these celestial bodies were in the sky to figure out directions and the time. This helped them know exactly where they were on Earth.
They used special tools like the astrolabe, sextant, and quadrant to measure angles and distances between celestial bodies. By using these tools, they could make very accurate maps and charts to help them navigate and explore new places.

Q5: It appears this planet is being colonised, what challenges might the surveyors encounter by creating their new life on a new planet rather than Earth?

A5: Surveying on a new planet presents challenges especially when no humans have been there before. There will be no coordinate system yet so the first job would be establishing reference points to survey by looking for features on the land to base these points off. In doing this there may be problems with the availability of resources like power, water, and materials for constructing infrastructure. This makes exploring this new plant more difficult. Adapting the surveying equipment to unfamiliar conditions will be a major challenge due to the different gravity fields and atmospheric composition, not forgetting the weather!





Q6: In B3 the astronauts are putting out solar panels to make electricity to power stuff. But does the planet of Mars have sunlight 24/7?

A6: Mars, like Earth, has day and night cycles because it rotates on its axis around the sun (fact: it takes 24.6 hours to complete one rotation on its axis, compared to Earth's 24 hour). This means different parts of Mars experience sunlight and darkness at different times, just like we do here on Earth depending on which continent you are on. So, Mars does not stay in sunlight all the time–it has both day and night, and even seasons like us.