

5

The Space Race



Reading

Read the article about the International Space Station and decide if the statements are true (T) or false (F).

- 1 Nations have always shared information on space programmes. T/F
- 2 The countries hope to save money by working together. T/F
- 3 The space station trains young people to become astronauts. T/F
- 4 The crew begin each day by checking all the station's equipment. T/F
- 5 The crew have a lot of leisure time in the evenings. T/F
- 6 Even a very small piece of food could harm the equipment. T/F
- 7 The crew have to eat their toothpaste to save water. T/F
- 8 The price of a ticket to the space station is quite affordable. T/F



SPACE

The final frontier

There was a time, not so long ago, when space exploration was a battleground where nations fought to be the first to make new breakthroughs in space. Once, countries such as the Soviet Union and the US kept all their space research secrets to themselves to prevent the 'other side' from winning the space race. But now all that has changed.

It all changed because the countries involved in space research and exploration realised that working alone is just too expensive. Working together and cooperating means they can all make progress, so some of the countries involved in leading space research decided to set up a space station together. The International Space Station is run by space agencies from Russia, the US, Europe, Japan and Canada.

The aim of the ISS is for the astronauts on the station to carry out experiments in such fields as physics, astronomy and meteorology. Work on board the station involves testing space equipment and it will help to prepare for space missions to the Moon and Mars. In addition, the station is involved in educational programmes and encourages young people to become interested in science and space.

So what is life like aboard a huge floating space laboratory? What do the crew of six do every day while the space station hurtles round the Earth's orbit 15 times a day at 17,227 mph? Well, the one thing the crew know for certain is that every day is going to be a busy one. Firstly, as the crew is responsible for all the maintenance on the station the day begins with an inspection of the whole station. As well as carrying out their duties and conducting experiments, each crew member has to exercise several hours a day to counter the effects of weightlessness, and have regular medical checks, too. By the time their working day is over, the crew don't have much time to themselves before they have to sleep.

It's not easy living in a weightless environment. Food is sealed in individual vacuum-packed plastic bags and only has to be heated to be ready for crew member to eat. When eating, the astronauts have to be very careful not to create crumbs that would float off into equipment and damage it. Drinks come in powdered form and are then mixed with water and sipped from a plastic bag with a straw. Even one drop of water floating around could cause damage to systems. There are no showers on the station, so the crew use a little water and wet wipes. They also have shampoo that doesn't need rinsing off and edible toothpaste, so water is not wasted.

All in all, it can be quite stressful living on the space station, but fascinating and exciting, too. If you think it is likely that you would enjoy a trip to the ISS, then it is possible to arrange it. The only drawback is that tickets cost \$40 million. So far, seven people have dug deep into their pockets to travel into outer space to visit the ISS and see for themselves the work of the astronauts and experience life outside Earth.

DICTIONARY CORNER

1 Choose the correct word or phrase.

- Millions of years ago, a huge asteroid hit the Earth and was ultimately responsible **of** / **for** the dinosaurs becoming extinct.
- In the film *Armageddon*, the heroes didn't have much time **to save** / **for saving** the Earth from an asteroid.
- In the *Star Wars* series of films, the heroes fight to prevent the evil Emperor **to take** / **from taking** over the universe.
- Do you think most people are ready for aliens **visit** / **to visit** the Earth?
- Do you think it **have** / **is** likely that aliens will visit the Earth?
- The astronauts' mission involved **living** / **to live** in the space station for a month.

2 Complete the text using the words from the box.

involved • likely • prepared • prevent • responsible • time

On the Moon

In 1969, the first astronauts from Earth landed on the Moon. They had (1) _____ for the trip carefully and knew that their mission (2) _____ doing things that had never been done before. The astronauts wore special heavy boots to (3) _____ them from floating off into space. On the Moon, they had (4) _____ to collect Moon rocks and soil samples before returning to Earth. Those brave people, and others after them, are (5) _____ for much of the knowledge we now have about how the Moon was formed. It is (6) _____ that scientists will continue to learn more about how the galaxy was formed by studying the data brought back from the Moon.

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Grammar 1



will and be going to

Look again at *Grammar database 9* page 184 before doing these exercises.

1 Match to make sentences.

2025 Moon Mission

INFORMATION SHEET

- | | |
|---|--|
| 1 The most dangerous part of the trip | a will turn on the spaceship's special solar batteries. |
| 2 There is no oxygen on the Moon, so the astronauts | b will be collected and placed in special bags. |
| 3 The Moon's gravity is different from the Earth's, so the astronauts | c will be the landing. |
| 4 Moving around on the Moon's surface | d will wear special spacesuits so they can breathe. |
| 5 Rocks and soil samples | e will probably make the astronauts feel tired easily. |
| 6 As soon as the astronauts can see the Sun, they | f will wear special heavy boots to prevent them from floating off into space. |

2 Choose the correct word or phrase.

- 1 We will / We're going to visit a planetarium next week!
- 2 Is Dan going to / Will Dan buy a telescope at the weekend?
- 3 Will / Shall I call you when I get back?
- 4 Will / Shall you help me with my physics homework?
- 5 Look out! You're going to / You'll stand on your binoculars!

3 Complete the replies using either will or the correct form of be going to. Use short forms (I'm, I'll, etc) where possible.

- 1 'Have you made any plans for when you leave school?'
'Yes. _____ (I/be) an astronomer.'
- 2 'Do you know how to do the physics homework?'
'No, I don't. _____ (you/help) me?'
- 3 'Do you have any plans for the weekend?'
'Yes! _____ (we/go) camping in the mountains so we can see the comet.'
- 4 'Have you decided what you're going to buy Karen for her birthday?'
'Well, since she likes astronomy, _____ (I/get) her a book about Mars.'
- 5 'Does Sindy have any plans for her science project yet?'
'She's decided _____ (she/not/do) a science project after all.'

4 There is a mistake in each sentence. Rewrite the sentences using the correct form of will, be going to or shall.

- 1 Shall you help me with my science project? _____
- 2 We are going to visit the Science Centre tomorrow? _____
- 3 Will I bring my new telescope to your house so we can see the comet? _____
- 4 I will study astronomy at university. _____
- 5 Am I going to help you build your model spaceship? _____

5 Read the information. Then complete the email using one word or a short form (I'll, won't, etc).

Come and visit the new Planetarium at the MUSEUM OF NATURAL HISTORY!

VISITORSCAN

- ☞ examine our collection of Moon rocks and asteroids
- ☞ look at the sky through our roof telescope (if the weather is clear)
- ☞ watch a 3D film about the universe in our unique Sky Theatre
- ☞ see a meteor shower (usually in June/July only)
- ☞ find out how much you weigh on the Moon and other planets
- ☞ visit our Interplanetary Gift Shop to find an unusual souvenir of your visit
- ☞ take part in our special contest (if you are under 12 years old)

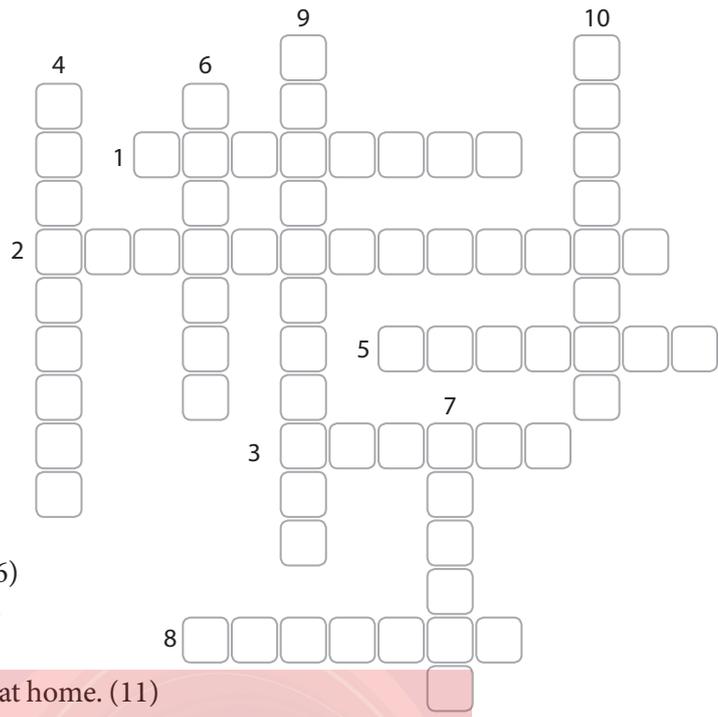
write
reply
send

When we go to the Planetarium next week on our school trip, we're going to (1) _____ some Moon rocks and asteroids and watch a 3D film about the universe in the Sky Theatre. (2) _____ also going to find out how much we weigh on the Moon and other planets. I (3) _____ be able to take part in the special contest because I'm 14 years old but (4) _____ definitely going to visit the Interplanetary Gift Shop to buy some souvenirs. If it isn't cloudy, I'll (5) _____ able to look at the sky through the roof telescope, but because we're visiting the Planetarium in May, I'm probably (6) _____ going to be able to see a meteor shower.

DICTIONARY CORNER

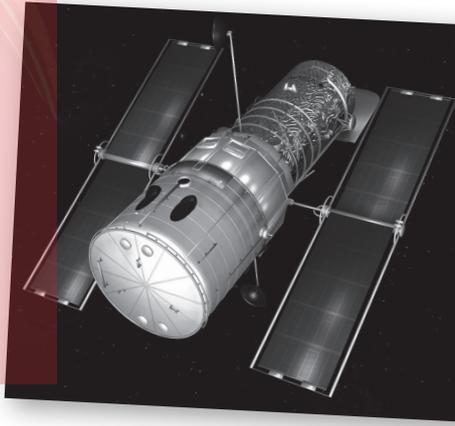
1 Do the crossword.

- 1 what scientists do to find out something new about a topic (8)
- 2 After something (eg a crime, an accident) has happened, we carry out this. (13)
- 3 to create something for the first time (6)
- 4 machines and tools that we use to do jobs (9)
- 5 A mobile phone needs one of these to work. (7)
- 6 to improve something which already exists (7)
- 7 Without this, a car wouldn't go anywhere! (6)
- 8 a piece of equipment that does a specific job (eg a fridge) (7)
- 9 Without this, we couldn't turn on the lights at home. (11)
- 10 to find something which existed but no-one knew about before (8)



2 Choose the correct word.

The Hubble Space Telescope
 Ever since Hans Lippershey (1) **invented** / **discovered** the telescope, they have been used to reveal the secrets of the stars. Although the Hubble telescope is not the first space telescope, it is one of the most important telescopes ever built and vital for (2) **research** / **investigation** in astrophysics. Hubble is used to take pictures of the most distant objects in the universe and has helped scientists to (3) **develop** / **discover** how fast the universe is expanding.
 The telescope doesn't have its own (4) **engine** / **machine**, so it was carried into space on a space shuttle in 1990. It is a very sophisticated piece of (5) **machine** / **equipment** and astronauts sometimes have to go and repair it in space. The first mission was to repair the telescope's mirror. Despite being one of the finest mirrors ever (6) **developed** / **discovered**, it wasn't quite perfect. It took seven astronauts ten days to repair it.
 Hubble gets its (7) **electricity** / **battery** to power all the (8) **machines** / **engines** on the telescope from solar panels that store the power in a nickel-hydrogen (9) **battery** / **electricity**.



Grammar 2



Present simple and present continuous to talk about the future

Look again at *Grammar database 10* page 185 before doing these exercises.

1 Put the verbs into the present simple to complete the dialogue.

- Interviewer:** We're lucky to have the chance to interview scientist Dr Robert Jones. Dr Jones, can you tell us a few things about Planetary Science Spacecraft missions?
- Dr Jones:** I'd be happy to! In two years, the satellite *Europa Orbiter* (1) _____ (**take off**) and (2) _____ (**start**) its mission: to measure the thickness of the surface ice of Europa and to try to detect whether there is a liquid ocean underneath.

Interviewer: What will happen next?

Dr Jones: Well, if our findings (3) _____ (**show**) that there is a liquid ocean, we'll send hydrobots, which are like submarines, there to melt through the ice and explore the underwater world.

Interviewer: That's fascinating, Dr Jones. Are there any other interesting projects planned for the future?

Dr Jones: Well, some have already started, and the time for their missions to start is near. There's the Stardust satellite, for example, whose mission is to study comets. One year from now, on 2 January, *Stardust* (4) _____ (**fly**) close to Comet Wild-2 and (5) _____ (**send**) dust particles from it back to Earth.

Interviewer: Thank you, Doctor, and we hope all the missions are successful.

Dr Jones: Thank you too. But remember, even if the missions (6) _____ (**not go**) as planned, we'll still learn something from our mistakes – that's science!

2 Look at the schedule and answer the questions.

Example: When do they take off?

They take off at seven o'clock on
Thursday morning.

1 When do they arrive at the space station?

2 What are they doing on Saturday?

3 When are they checking the spaceship engine?

4 What are they doing on Monday afternoon?

5 When do they land?

Mission to the Space Station

SCHEDULE

Thursday 07:00 – take off

Friday 03:00 – arrive at space station

Saturday – test new computer equipment

Sunday – check spaceship engine

Monday 12:00 – return to Earth

Tuesday 08:00 – land

3 Complete the email using the correct tense, present simple or present continuous. Use short forms where possible.

write
 reply
 send

Hi Dora,

Thanks for saying you'll feed the dog while (1) _____ (**I/be**) on the space station next week. (2) _____ (**I/only/stay**) in space for three days now, not four, so I'll be back on Monday. I think (3) _____ (**we/land**) back on Earth at about six o'clock in the morning, so I should be home by lunchtime. If (4) _____ (**you/not/be**) there, I'll call you to get the keys. Let me know when (5) _____ (**you/get**) this. I check my email all the time in space. There's not much else to do up here!

Quick check

4 Choose the correct answer.

- 1 Which is correct?
prevent someone **to do** / **from doing**
- 2 Which word means to create something which has never existed before? **invent** / **discover**
- 3 Which word do we use with *I* when making offers and suggestions in the question form?
Will / **Shall**
- 4 Which form is more informal?
will / **be going to**
- 5 There are two negative forms of *he is doing*.
What are they?
_____ and _____

Writing

1 Read the letter and choose the best word or phrase.

2 Choose the correct answer.

Why did Eleanor write the letter?

- a to register for the programmes
- b to ask for more information about the programmes

3 Tick (✓) all the points Eleanor asked about in her letter.

- a the ages of students taking part in the programmes _____
- b if her little sister in primary school could take part _____
- c how many field trips there will be _____
- d what kinds of things students would do _____
- e how to register for the programmes _____
- f how much the programmes cost _____
- g if she could register for only a part of the programmes _____

Dear Mr Planetarium Director,

(1) *I've / I have* just read a newspaper article about the Planetarium's new educational programmes and would like to take part in them. (2) *However, / But,* I (3) *want you to give me / would like* some additional information first.

I (4) *want to ask you to / wonder if you could* inform me how old someone must be to take part in the programmes. I would be interested in knowing if students from both primary and secondary schools are able to attend.

(5) *Could / Can* you also give me further information about the kinds of things students will do, including whether the programmes include field trips or just activities inside the Planetarium?

(6) *I would be grateful if you could / Please* let me know how much the programmes cost and whether it is possible to register for only a part of the programmes.

Please write back soon!

Regards,
Eleanor

Listening

5



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For each question, there are three pictures and a short recording. Listen and choose the correct answer, A, B or C.

1 What is she going to buy?



A B C

2 What has he lost?



A B C

3 What did she enjoy the most?



A B C

4 What was he using?



A B C

5 What are they probably going to do tomorrow?



A B C