Life aboard the International Space Station

Level 3 • Advanced

1. **Warmer**

1. Write five things (key words only) onto the word wheel that you think of when you read the words ‘space station’.

![Word wheel with space station in the center]

2. Share your ideas in class.

2. **Key words**

Fill the gaps in the sentences using these key words from the text. Are the key words nouns, verbs or adjectives? Check your answers by finding them in the article and seeing how they are used in context.

- wake
- subtle
- panoramic
- contrails
- speck
- orbit
- queasy
- hone
- anchor
- waste
- dock
- evoke

1. a very small spot or mark ___________________
2. if a spacecraft does this, it joins to another spacecraft while they are still in space ___________________
3. not obvious, and therefore difficult to notice ___________________
4. to improve a skill or talent that is already well developed ___________________
5. to fix something firmly somewhere ___________________
6. feeling that you are going to vomit ___________________
7. to gradually become thinner and weaker over a period of time ___________________
8. this kind of view allows you to see a large area of land or sea around you ___________________
9. artificial clouds created by an aircraft ___________________
10. the track that appears in the water behind a moving boat ___________________
11. to move around a large object in space such as a planet ___________________
12. to bring a particular emotion, idea or memory into your mind ___________________
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It’s ten years since the first crew entered the International Space Station 220 miles above Earth. But what is it like aboard a big tin can travelling at 17,500mph?

Ian Sample
24 October, 2010

1 At 6.41pm this Thursday, a small bright light will appear low in the night sky before vanishing in the darkness. Few people will notice and even fewer will care, but for a handful of souls that speck on the horizon is a place called home. What looks like a wandering star in the heavens is sunlight reflecting off the International Space Station.

2 With more than a decade of construction now coming to an end, astronauts can finally look forward to using the space station to the full. If the experiences of those who helped build and man the station are anything to go by, they are in for an extraordinary time. “I still can’t believe what I’ve seen sometimes,” says Piers Sellers, a NASA astronaut, who took part in the most recent shuttle mission to the station in May. “Often it all comes back to me in dreams.”

3 Next week, NASA will commemorate ten years of life on the space station (the first residents arrived on 2 November 2000), but fewer than 200 people have first-hand knowledge of life on board. It takes two days to get to the space station. The station flies at an altitude of 220 miles or so (that’s more than 30 times the cruising height of a jumbo jet), but is travelling at a speed of 17,500mph. Before astronauts can clamber aboard, they first have to chase it down and pull alongside.

4 The shuttle approaches the space station from below. The docking procedure is as slow and cautious as you might expect given the price tags of the spacecraft involved: $1.7bn (£1.1bn) for a shuttle and around $100bn (£64bn) for the space station. Once they are locked together it takes half an hour or so to equalize the pressure and finally open hatches that separate the two crews. “You see these pale faces on the other side and they’re always excited to see you. Sometimes it’s been three months since they’ve seen anyone else,” says Sellers.

5 In all, the living space on the station amounts to the equivalent of roughly one-and-a-half Boeing 747s. Storage facilities, laboratories and siderooms give astronauts room to go about their business, do experiments and operate the space station’s two robotic arms. The space station has a permanent crew of six and there is a subtle art to moving around without crashing into anything.

6 In time, people hone the skill and can fly down the length of the station, straight as an arrow, without touching anything, except with their fingertips. People sit in mid air, tapping away at a computer, with only a toe hooked under a wall strap to anchor themselves.

7 Living in a weightless environment does curious things to the body. On their first day or two in space, some astronauts feel queasy. Many astronauts lose much of their sense of smell. Taste is another casualty. “Nothing tastes like it does on Earth. It all tastes like cardboard,” says Sellers. “We get through gallons of Tabasco sauce.”

8 With no gravity exerting itself on the body, both bones and muscles begin to waste. For every month in space, astronauts lose around 2% of their bone mass. On long stays aboard the space station, crews spend at least two hours a day exercising.

9 It takes the space station one and a half hours to fly around the planet, making for 16 complete laps a day. For those on board, the visual effect is spectacular. After 45 minutes of daylight, a dark line appears on the planet, dividing Earth into night and day. For a couple of seconds, the space station is bathed in a coppery light and then complete darkness. Another 45 minutes later, and just as abruptly, the sun rises to fill the station with brilliant light again.

10 It is the sight of our planet that takes the breath away. On board, the best vantage point is from the cupola whose six windows look down on...
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a panoramic view of Earth. But for the really exceptional vistas, you need to step outside. Space walkers see whole continents, mountain ranges, cities, aircraft contrails and the wakes of ships crossing the oceans.

11 Most shuttle missions take astronauts to the space station for two weeks or so, during which every working day is intense. As soon as the wake-up music begins, printers start chattering out instructions for the day ahead. Almost every hour is scheduled, with crew members’ tasks and the tools they will need planned by logistics experts on the ground making sure no one gets in anyone’s way.

12 Short visits to the space station are easier to cope with psychologically than longer ones. Frank de Winne, a Belgian astronaut and former test pilot, spent nine days on the space station in 2002 and returned for a six-month trip last year, when he became the first European commander of the space station. “If you are there for a week or two, you are basically on a high the whole time. It’s not the same when you’re there for six months. Things that are difficult in the short term, such as not having a shower or any fresh fruit, become part of normal life. The things you really miss are close contact with your wife, your kids and your family and friends,” he says. The crews are not completely cut off from those back home and use email and the station’s phone to get in touch when there is time.

13 The space station will be orbiting Earth for at least another five years; probably much longer – possibly until 2028. For those who built the space station, seeing its bright light shooting across the sky at night evokes feelings few others will understand. “You can go out on a quiet night and see it flying over and you think, my goodness, I was there, I helped put that together,” says Sellers. “Everybody here feels they own a little piece of it. It’s a lasting achievement.”

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3 Comprehension check

Choose the best answer according to the information in the article.

1. How long has it taken to build the International Space Station (ISS)?
   a. just under ten years
   b. more than ten years
   c. 24 months

2. How much has it cost to build?
   a. one hundred billion US dollars
   b. one billion US dollars
   c. sixty-four billion US dollars

3. If the shuttle docks on the ISS at 11am, when will the astronauts be inside the space station?
   a. 10am the next morning
   b. around 2pm
   c. 11.30am at the earliest

4. What happens to people’s sense of smell and taste on board the ISS?
   a. They lose most of it.
   b. They lose 2% of it.
   c. They can only taste very salty food.

5. How many times does the ISS fly around Earth each week?
   a. 16
   b. 45
   c. 112

6. The best views of Earth can be seen from ...
   a. the cupola
   b. outside the ISS
   c. the shuttle

7. Most astronauts stay on the ISS for ...
   a. ... two weeks
   b. ... six months
   c. ... two years

8. How does Sellers feel when he sees the ISS up in the night sky?
   a. queasy
   b. sad
   c. proud
Collocations

Make word pairs from the article by matching a word from the left with one from the right. The first one is done for you.

1. wandering a. height
2. first-hand b. art
3. cruising c. facilities
4. docking d. achievement
5. pale e. star
6. storage f. walkers
7. subtle g. procedure
8. weightless h. light
9. Tabasco i. faces
10. coppery j. environment
11. space k. knowledge
12. lasting l. sauce

Summarizing and retelling

Summarize, recreate and retell the article using all the collocations (word pairs) from Exercise 4.

Discussion

How do you think working on the space station would be different to otherwise temporarily working away from home, e.g., working for two weeks in a foreign country?

If you were to spend one month on the space station, which personal items would you want to take with you?

Webquest

Go to NASA’s official ISS website to find out more information about the ISS

Here you can read about current missions, crew members and expeditions, watch videos, see images, and find out where to see the ISS in the night sky.
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KEY

2 Key words
1. speck (n)
2. dock (v)
3. subtle (adj)
4. hone (v)
5. anchor (v)
6. queasy (adj)
7. waste (v)
8. panoramic (adj)
9. contrails (n)
10. wake (n)
11. orbit (v)
12. evoke (v)

4 Collocations
1. e
2. k
3. a
4. g
5. i
6. c
7. b
8. j
9. l
10. h
11. f
12. d

3 Comprehension check
1. b
2. a
3. c
4. a
5. c
6. b
7. a
8. c