The ISS

The idea of a space station was popular in science fiction stories and magazines throughout the 1940s and 1950s. Eventually, it became clear that humans could plausibly live in space for extended periods.

The first basic steps towards a space station were taken in 1969 when two Russian Soyuz vehicles were joined while in space. Various other stations followed. These included the Russian Mir and U.S. Skylab. In 1998, construction began on a truly international effort. The aim was to create a long-term habitat beyond the Earth's atmosphere. The International Space Station (otherwise knows as the ISS) took 10 years to build and was the work of 5 different space agencies and 15 countries.

The ISS is the largest man-made object in space at roughly the size of a football pitch and weighing 460 tonnes. It is classed as a low-orbit satellite; it orbits the Earth at a distance of 250 miles. It is permanently crewed. Most of the work the astronauts carry out is scientific research, although they do spend a lot of time maintaining the station.

Even though the main construction of the ISS was completed in 2011, different agencies continue to add bits to it. These allow modern experiments to be conducted and diverse research to be carried out. By 2020, over 240 people from 19 different countries have been to the ISS and lived and worked within its laboratories.

Because the ISS is in orbit, it travels extremely fast. It is moving through space at 5 miles per second! That means it orbits the Earth every 90 minutes. The crew experience 16 sunrises and sunsets every single day! Being in orbit means that the station is constantly being pulled towards the Earth, but the orbital motion stops it from hitting us. This is the reason why there appears to be no gravity on the ISS; gravity is actually as strong on the ISS as it is on Earth.

The lack of gravitational pull on the ISS means that astronauts are at risk of losing muscle and

bone mass. To counteract this, they have to work out in the gym for at least two hours a day. The living quarters also have six bedrooms, two bathrooms and a 360-degree viewing window. Most astronauts spend 6 months living on the ISS, but in 2017, Peggy Whitson became the person to spend the most time there at 665 days! That's nearly 2 years in space!

It is possible to see the ISS from Earth. Information on the Internet can tell you when it will be overhead. When you spot it, you are actually seeing the incredible array of solar panels reflecting the sunlight. This means it is easiest to see at dawn and dusk.

There are over 50 computers on the space station. They run over 1.5 million lines of code and control 350,000 sensors! These all help to ensure the health and safety of the crew and the station itself.

In 2020, SpaceX became the first private company to send astronauts to the ISS. Bob Behnken and Doug Hurley successfully docked with the ISS on 31st May 2020. They had launched from Cape Canaveral in Florida the day before.

VOCABULARY FOCUS

1. Find a word in the text with a definition closest to "a great deal of variety".
2. Which word means that something could be possibly realistic.
3. Which phrase in the text means that there is always somebody on the station?
4. What does the phrase "truly international effort" tell you about how the ISS was built?
5. What is "maintaining the station"?

VIPERS QUESTIONS

R How many lines of code are needed to run the ISS?

R What kind of story made space stations popular?

I Why is the ISS classed as low-orbit?

S Why do the crew of the ISS experience 16 sunsets each day?

S How do astronauts avoid losing muscle and bone mass?

Answers:

1. Diverse
2. Plausibly
3. Permanently crewed
4. Lots of different countries were involved
5. Making sure the station is working and fixing any parts that are broken

R: 1.5 million

R: Science fiction

I: It orbits at 250 miles which is still close to Earth

S: The ISS is travelling so far it orbits the Earth 16 times each day

S: They work out for two hours each day in the gym