

**Monday's Spelling Task ~ Words ending in cious and tious**

<b>Words that sound like shus ending in cious or tious ending</b>	<p>Not many common words end like this. If the root word ends in -ce, the /ʃ/ sound is usually spelt as c – e.g. vice – vicious, grace – gracious, space – spacious, malice – malicious.</p> <p>Exception: anxious.</p>	conscious, precious, suspicious, delicious, vicious, spacious, gracious, ferocious, malicious, tenacious, ambitious, cautious, infectious, nutritious, pretentious, fictitious, superstitious, fractious, anxious
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1. I was \_\_\_\_\_ of the time – I was running late.
2. You have to be \_\_\_\_\_ when using tools.
3. There was an \_\_\_\_\_ disease spreading through the valley.
4. He was acting in a \_\_\_\_\_ manner towards others.
5. This room is very \_\_\_\_\_; I could fit 3 sofas in it!
6. The story he told me was \_\_\_\_\_, as it was all made up.
7. The detective was \_\_\_\_\_ of the criminal.
8. That cake is very \_\_\_\_\_ but not very \_\_\_\_\_.
9. My necklace is \_\_\_\_\_, so I keep it in a box.
10. That dog is a \_\_\_\_\_ beast!
11. You have to be \_\_\_\_\_, if you want to succeed in life!
12. The young boy was very \_\_\_\_\_ about the race.

Write a paragraph using as many cious and tious words as you can! Try and make it as silly as possible!

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## NASA Space Launch



SPACE

NASA astronauts Douglas Hurley, left, and Robert Behnken, wearing SpaceX spacesuits during a rehearsal for the launch. Picture: AFP/NASA/Bill Ingalls

A rocket ship built by Elon Musk's SpaceX company thundered away from Earth with two Americans on Saturday, beginning a new era in commercial\* space travel and putting the US back in the business of launching astronauts into orbit from home soil for the first time in nearly a decade.

NASA's Doug Hurley and Bob Behnken rode skyward aboard a white-and-black, bullet-shaped Dragon capsule on top of a Falcon 9 rocket, lifting off at 3.22 pm local time from the same launch pad used to send Apollo crews to the Moon 50 years ago. Minutes later, they slipped safely into orbit.

The capsule, which the astronauts named Endeavour, docked safely at the International Space Station on Monday morning Australian time. The flight was to lift off on Thursday morning Australian time but was rescheduled because of thunderclouds.



The SpaceX Crew Dragon capsule on the Falcon 9 rocket before the weather forced the delay of the launch on May 27, 2020. Picture: AFP/NASA TV

NASA astronauts Hurley and Behnken flew to the ISS aboard a SpaceX Dragon crew capsule completely different to NASA's old Apollo spacecraft. Instead of a mess of switches and knobs inside, for instance, there are touchscreens.

### Reflection questions...

- 1) Why is this a momentous event?
- 2) Why do the astronauts have to be brave?
- 3) Estimate how many people watched the event live.

## The SpaceX Dragon crew capsule

The SpaceX Dragon crew capsule has successfully docked at the International Space Station.

**Nosecone:**  
Covers docking hatch to ISS.

**Engine pods:**  
Four pairs of SuperDraco engines provide escape system.

**Trunk Section:**



**SpaceX Falcon 9 Rocket:**

Lifting off from Launch Pad 39A atop a specially instrumented Falcon 9 rocket, Crew Dragon will accelerate its two passengers to approximately 27,580 km/h.



**Draco Maneuvering Thrusters:**  
Used for apogee/perigee maneuvers, orbit adjustment, and attitude control.

**Umbilical connections to trunk**



### THE ASTRONAUTS



Pictures: SpaceX, NASA

**Douglas G. Hurley**  
• Demo-2 Spacecraft Commander  
• Responsible for activities such as launch, landing and recovery



**Robert L. Behnken**  
• Demo-2 Joint Operations Commander  
• Responsible for activities such as rendezvous, docking and undocking, as well as Demo-2 activities while the spacecraft is docked to the ISS.

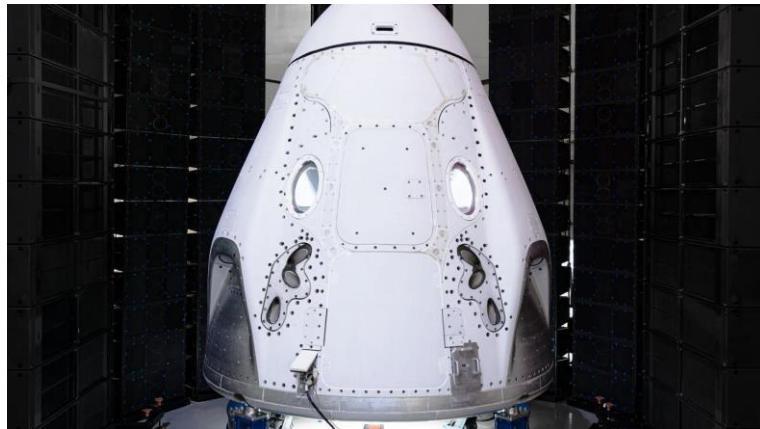
It was the first astronaut launch from Florida, US, since the space shuttle program closed in 2011, and the first US-made capsule to carry people into orbit since the Apollo-Soyuz mission in 1975.

The SpaceX Falcon 9 rocket – with the crew capsule on top – launched from the same pad used for both of those earlier missions.

Russia's Soyuz capsules, still in use after more than 50 years, have kept NASA astronauts flying to the space station. While reliable, the Soyuz looks dated compared with the sleek Dragon.

### Reflection questions...

- 1) How fast will the rocket travel?
- 2) How many years since the last rocket launch?
- 3) What are the astronaut's roles?



The SpaceX Crew Dragon capsule waiting for lift-off at Kennedy Space Center in Cape Canaveral, Florida, US. Picture: SpaceX/AP



"We want it to not only be as safe and reliable as you'd expect from the most advanced spacecraft in the world ... we also want it to look amazing and look beautiful," said Benji Reed, a SpaceX mission director.

SpaceX and Boeing, NASA's other commercial crew provider, opted for capsules from the start.

There was no need for another flying machine like the shuttle, which was built to carry big satellites and space station parts, said retired NASA manager Steve Payne.

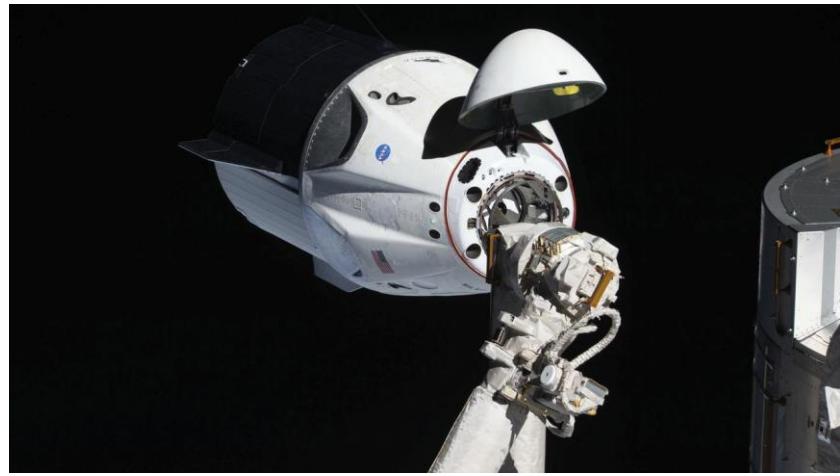
"What we're trying to do now is just taxi service up and down, and you don't need the huge semi\* anymore. You can use a sedan\*," Payne said.

"Yes, wings are nice. They give you more options as to where to land and a little more control," said Payne, a former Navy fighter pilot. "But they're not absolutely necessary. And since we're trying to make this inexpensive and reusable and as simple as we can make it so that it's cost effective, capsules work."

SpaceX based its crew capsule on its long-running reusable cargo capsule, also named Dragon.

### Reflection questions...

- 1) What do you know about forces from your science lessons?
- 2) Why is the shape of the flying machine important?
- 3) How much do you think it cost to build?



An uncrewed SpaceX Crew Dragon spacecraft, with its nose cone open to expose the docking mechanism, approaches the International Space Station's Harmony module in March 2019.  
Picture: NASA/AP

It means the end of space station missions with old-fashioned splashdowns in the ocean. The two astronauts were involved in the new capsule's development over the past five years, offering suggestions to benefit not just themselves but future crews.

"Our goal through this entire process is to not turn the spacecraft into Bob and Doug's excellent machine, with a bunch of things that only Doug likes or only Bob likes," Behnken said.

Although the fully automated Dragon has four seats lined up in a row, only the centre two were occupied for this especially risky test flight. A test dummy soloed on last year's Dragon crew capsule debut.



NASA astronaut Douglas Hurley waving on a monitor in firing room four during suit-up at the Neil A. Armstrong Operations and Checkout Building during the launch attempt on May 27.  
Picture: AFP/NASA/Jeff Kowsky

#### GLOSSARY

- **commercial:** a paid service by a company, rather than by NASA or other government agency
- **semi:** as in a big, semi-trailer truck
- **sedan:** style of medium-sized car with four doors and a boot

## **EXTRA READING**

<https://www.kidsnews.com.au/space/spacex-plans-for-superhigh-space-orbit-for-paying-tourists-in-last-quarter-of-2021/news-story/703061d80515564e4f3660586cfb322e>

## **QUICK QUIZ**

- 1. How does the Dragon capsule get up into space?**
  
- 2. Where are the astronauts going?**
  
- 3. What are the astronauts' names?**
  
- 4. Why is it newsworthy that this launch is in the US?**
  
- 5. How many seats are in the Dragon capsule?**
  
- 6. What jobs do the two astronauts have to do on the mission?**
  
- 7. What do you already know about the company called Boeing?**
  
- 8. Would you like to be an astronaut? Explain giving several reasons and use evidence from the text.**
  
- 9. How does it make you feel to watch or read about humans going into space?**

## Food Fit for Spaceflight

### **Introduction**

Nutrition has played a critical role throughout the history of exploration, and space exploration is no exception. Astronauts may spend months aboard the International Space Station or several years on a mission to another planet so it is absolutely critical that they have adequate nutrition on board.

Essential nutrients must be available in the spaceflight food system which is extremely different today from how it was during the first space missions. The early Mercury programme (1961–1963) included food packaged in bite-sized cubes, freeze-dried powders and semi-liquid foods in aluminium tubes. The menu today is composed mainly of packaged foods that are freeze-dried and thermostabilised (canned), with very few fresh foods. However, the crew members do plan their own menus with the assistance of a dietitian, and an effort is made to include all of the nutrients needed for working in the space environment. Refrigerators, freezers and a microwave convection oven are now found on some spacecraft allowing there to be a more extensive menu including a variety of fresh foods.

The astronauts must consume sufficient energy (calories) whilst in space for optimal work performance and good health. Vitamins and minerals can be particularly important, including calcium and vitamin D due to their beneficial effect on bone. Astronauts can be prone to poor bone health due to the weightlessness of the environment and the loss of any weight-bearing exercise which we take for granted every day on Earth where gravity is present.

### **Problem**

How can I provide the next team of astronauts with a healthy, varied and nutritionally balanced menu that is appetising, appealing, easy to eat and creates the fewest amount of crumbs whilst in a micro-gravity environment?

### **Observation**

Astronauts must consume enough energy (calories) every day so they can maintain their energy level and good health. Many astronauts simply do not consume enough calories due to a variety of reasons including lack of time, unappetising menu, adverse reactions to food eaten, and potential difficulties with actually eating and then digesting the food available. Menu variety with crew exposed to healthier and tastier foods has been shown to decrease stress during a space mission and therefore lead to a less stressed, healthier crew who perform to the best of their ability.

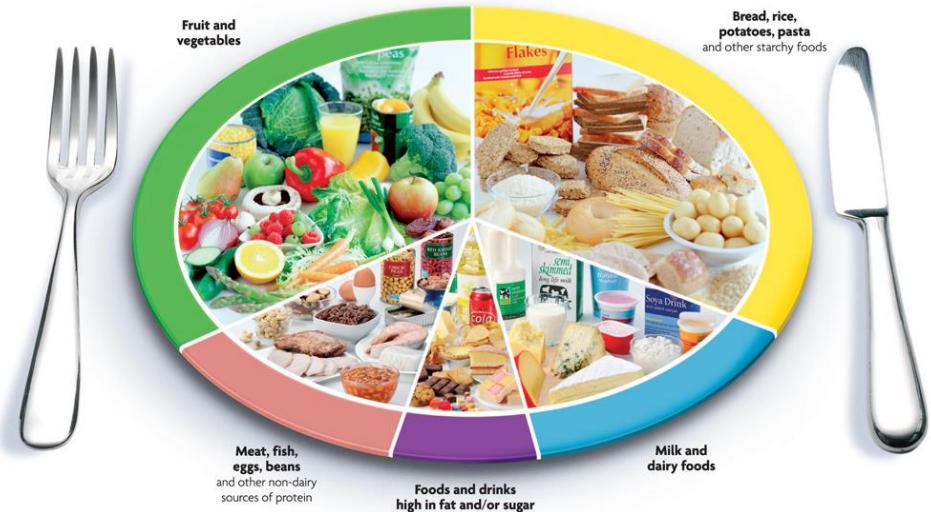
Nutrition is essential to maintain important functions of the body, skeletal and muscle condition, and hydration status of all space crews on their space mission, all of which are especially important for extended-duration missions.

The provision of a variety of foods that are tasty and stimulate the senses when on a space mission will enhance food intake by the crew. However, spacecraft are limited by the amount of food storage space they can contain, as well as the weight restrictions to physically launch the aircraft into space.

Let's think about your in-flight menu record

Think about the macro and micro-nutrients and list which of these are the most important to astronauts and why. State which of these (if any) must be eaten in different amounts compared to the requirements on earth and state the reason for this difference.

Investigate the eatwell plate at: <http://www.eatwell.gov.uk/healthydiet/eatwellplate/>



Do you think that your team of astronauts will remain fit and healthy for the duration of their mission if they were to eat foods from your menu plan for the mission duration?

What are some of the healthy choices that you made and why?

What are some of the unhealthy choices that you made and what were the reasons behind these choices?

If you were to become an astronaut would you be happy to eat your menu for 3 months? If not, why not, and what would you change about it?

When you were putting together your menu did you think about how the astronauts will eat your foods? Will they be squeezed out of toothpaste-type tubes, can they be eaten from a spoon-bag or is there another method?

Read and think about the following questions

- What is a nutrient?
- How does a macro-nutrient differ from a micro-nutrient?
- Why do some people require more nutrients than others?
- Why do some people take supplements?
- Do astronauts in space need different nutrients to us here on Earth?

Think about your own diet. Are there any nutrients that you feel you should be having more of? Are there any nutrients that you eat too much of?

What can we do to find out exactly what is in the foods that we eat?

<b>Nutrition</b>	The study of food consumption.
<b>Nutritionally balanced foods</b>	Foods containing the correct nutrients in the right amounts for optimum health.
<b>Macronutrients</b>	Make up the majority of the diet supplying energy and the essential nutrients as carbohydrate, protein and fat.
<b>Micronutrients</b>	Include vitamins and trace minerals that are needed by the body in small amounts.
<b>Eatwell plate</b>	Pictorial representation showing the types and proportions of foods we need to have a healthy and well-balanced diet.
<b>Calories</b>	Unit used to measure food energy.
<b>Micro-gravity environment</b>	An environment in which the effects of gravity are greatly reduced.
<b>Graphic design</b>	The process of designing visual information that stimulates the sight.

## Quiz

**Answer the following questions about the Food fit for spaceflight activity**

1. Many astronauts do not consume enough calories whilst on a space mission. What are some of the reasons for this?
2. Why are crumbs bad news for astronauts?
3. Astronauts can often lose their sense of smell and taste when in the spacecraft for long periods of time. How can this effect be minimised or overcome?
4. How does the food eaten on present day space missions differ from that of the earliest missions?
5. What are the different types of food available to astronauts on the spacecraft?
6. What do astronauts use to eat from?
7. Why is it important that astronauts eat at least one meal of the day together?
8. Why is nutrition so important for astronauts in space?
9. What is the limiting factor affecting an astronauts food requirement in space?
10. Why are food labels so important?

## Quiz Answers

1. **Many astronauts do not consume enough calories whilst on a space mission. What are some of the reasons for this?**

Many astronauts do not consume enough calories due to a variety of reasons including lack of time, unappetising menu, adverse reactions to food eaten, and potential difficulties with actually eating and then digesting the food available.

2. **Why are crumbs bad news for astronauts?**

Crumbs can float around the spacecraft and cause possible damage to expensive machinery and equipment.

3. **Astronauts can often lose their sense of smell and taste when in the spacecraft for long periods of time. How can this effect be minimised or overcome?**

Through the provision of a variety of foods that are tasty and stimulate the senses when on a space mission. Menu variety with crew exposed to healthier and tastier foods has been shown to decrease the stress during a space mission and therefore lead to a less stressed, healthier crew who perform to the best of their ability.

4. **How does the food eaten on present day space missions differ from that of the earliest missions?**

Space food systems have evolved as space programmes have developed. The early Mercury programme (1961-1963) included food packaged in bite-sized cubes, freeze-dried powders and semi-liquid foods stuffed into aluminium tubes. Later space missions had hot water to re-hydrate foods improving their taste and quality, as well as enabling the use of actual utensils to eat with making the overall action of eating closer to the experience of eating on Earth. Today, astronauts needn't worry too much as 'proper' food is sent up to space that has been designed by a dietitian and can be eaten from individual food trays.

5. **What are the different types of food available to astronauts on the spacecraft?**

- a) Rehydratable food – water is removed from the food during packaging, e.g. hot cereal such as oatmeal.
- b) Thermostabilised food – heat processed so the food can be stored at room temperature, e.g. tuna fish.
- c) Intermediate moisture food – preserved by taking some water out of the product while leaving enough to maintain the soft texture, e.g. dried apricots.
- d) Natural form food – ready to eat, packaged in flexible pouches with a naturally long shelf-life, e.g. nuts.
- e) Irradiated food – cooked and packaged in flexible foil pouches and sterilized by ionizing radiation so they can be kept at room temperature, e.g. beef steak.
- f) Frozen food – quick frozen to prevent a build up of large ice crystals and maintain the original texture of the food so that it tastes fresh, e.g. casserole.
- g) Fresh food – neither processed nor artificially preserved. Must be eaten within the first 2-3 days of the mission or they will spoil, e.g. apple.
- h) Refrigerated food – foods that require cold or cool temperatures to prevent spoilage, e.g. sour cream.

**6. What do astronauts use to eat from?**

Astronauts use special trays in space because of the special micro-gravity environment. These trays are designed to hold everything in place while food is being prepared and eaten. On the spacecraft, the trays used have straps on the back so that the astronauts can attach them to either the wall or their leg in order to hold them in place. They also use Velcro to attach the food and drink packages. Utensils (including knife, fork, spoon and sometimes most importantly scissors) can be held in place using magnets or Velcro straps. The food trays have special compartments to hold special bowl-like containers which snap into place and hold the food in the tray.

**7. Why is it important that astronauts eat at least one meal of the day together?**

Evidence shows that it is not just about basic nutrition and what to eat that is important to astronauts but also the psychosocial benefits of eating together with the rest of the crew for interaction and morale boosting effects.

**8. Why is nutrition so important for astronauts in space?**

Nutrition is essential to maintain important functions of the body, skeletal and muscle condition, and hydration status of all space crews on their space mission, all of which are especially important for extended-duration missions.

**9. What is the limiting factor affecting an astronauts food requirement in space?**

Space. Spacecraft have a limited amount of food storage space they can contain, as well as the weight restrictions to physically launch the aircraft into space.

**10. Why are food labels so important?**

Food labels can give you advice on a particular food to help you make healthier, safer and more informed choices.

**Tuesday's Spelling Task ~ Words ending in cious and tious**

Find the spellings in the wordsearch below!

Q G Y Y S J S Z E L K Q I A S C P T S T R G S S S	AMBITION
F K H T C A Z U L Z T U I O O Q J C P Z R K K U E	ANXIOUS
S K L O F B E I O G I R P N K T A J A A D C F O H	CAUTIOUS
S U P E R S T I T I O U S R L L X G C N L K N I L	CONSCIOUS
O P O Q M O M L X E C C H K E B Z I I M G M T X C	DELICIOUS
V R U I O B O R J I I O T G L C O D O S S I T N F	FEROCIOUS
G Y N F C N M A U O V L R Q N U I E U E N V S A L	FRACTIOUS
N X O E S I Q O U Q Y S O E S R Z O S Y K P D B X	GRACIOUS
Y T J S Q U V S T N U X B K F C A S U T C V Y L C	MALICIOUS
W X O E Z W S U H O F S C D N R S F U S C O Q Z H	NUTRITIOUS
P W O B I X W P I C H V Y P U X W L P W N C W O C	PRECIOUS
K A A I M W P T I J D X Q Y T S K F S Z A O K A M	SPACIOUS
O N M A N D I P E C Z F A F R U C J M G R V V F X	SUPERSTITIOUS
U C J G W B Y U H W I N L J I O V I E X H J G H R	SUSPICIOUS
S U B H M D W D G A O O M N T I Q H S W Q N N F R	VICIOUS
R S W A H G X T I E J Z U E I C L B J Q D Z W T K	
S K B W I S B L J X W X F S O I S U O I T U A C Q	
H L S E U R X D G L G D L V U L U T Z A V Y S Z S	
L B V Y O P Z N D F C L Z G S A O O F X C V B X S	
H Y P T Z S B I O C N A M Q E M F R A C T I O U S	
Q I M Z L G U B P A F Y Q W R L O C K N V H E L T	
N S K G D S B Q G Q N U I B Q O W E J K Q O N F V	
S U O I C I L E D G Q O Y X I A F I P V Z I Q V A	
R S L V J K H V D B Q E G M J F M W E B K B W I X	
Z A H Y I X F P L Q W F T M N D X P S G T W W C C	
conscious, precious, suspicious, delicious, vicious, spacious, gracious, ferocious, malicious, tenacious, ambitious, cautious, infectious, nutritious, pretentious, fictitious, superstitious, fractious, anxious	

**Super SPAG challenge:**

1. Write a sentence using a 'tious' word and a colon.
2. Write a passive sentence including a 'cious' word.
3. Write a sentence using speech that includes 2 words from today's spelling bank.

a) \_\_\_\_\_

b) \_\_\_\_\_

Is it just as important for a spacecraft to 'look amazing' as it is to be safe and reliable?

Why a spacecraft should look amazing...	Why a spacecraft should be safe and reliable...

I agree/disagree with Benji Reed that a spacecraft should look amazing as well as be safe and reliable because...

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## Wednesday's Spelling Task ~ Words ending in cious and tious

# -tious and -cious Word Endings

Rewrite these sentences and change the underlined noun into an adjective by adding the suffix -cious or -tious.

1. The bully was very mean and malice.

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2. Mum was suspicion that the deal was too good to be true.

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3. You need to be caution when you are crossing the road.

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4. The decision about the goal was quite contention.

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5. My auntie is very superstition and will not walk under a ladder.

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6. Some diseases can be highly infection.

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7. Fruit and vegetables are very nutrition.

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8. Linda's new flat was quite space.

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What is a noun? \_\_\_\_\_

What is an adjective? \_\_\_\_\_

Write down other examples of words with the suffic -tious and -cious that you come across in your reading.

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# Fancy a Trip to Space?

**It's not as easy as it looks.**

**By Amelia Redwing**

**F**amily and friends look on with a mixture of fear, anticipation and wonder as the Soyuz rocket blasts off into space with its crew of three bound for the International Space Station (ISS). In the same journey time that it would take a car to go from Manchester to Cornwall, the astronauts will travel into our atmosphere to start their stay on the International Space Station. They will eat, sleep and work in space, they will orbit our home planet every 90 minutes and they will bring back vital information about man's ability to live beyond the Earth.

This opportunity of a lifetime does not come easily – as well as already being a graduate of Sandhurst military academy and a trained army pilot with 3,000 flying hours to his name, UK astronaut Tim Peake trained for six years to be an astronaut. During this time he had to learn Russian, live in a cave for a week and spend 12 days deep under the sea. All this for just six months on the ISS.



But what a six months! In that time Peake will learn to sleep strapped to a wall, observe our planet from space, see the sun rise and set 16 times a day, travel at 5 miles per second and may even get the chance to do a space walk. The astronauts and cosmonauts (as the Russian space crew are called) also perform vital experiments for the scientists back on earth as well as exercising for two hours per day to try to keep their bodies in top condition.

The astronauts themselves are an experiment. By monitoring their health and bodily functions, we can learn more about the effects on the human body of being in space long term.

It is easy for human muscle to stay in good condition on Earth because gravity provides resistance. As our body works to overcome the resistance, our muscles build and stay in condition. Similarly, impact on our bones, such as walking, running or lifting keeps them dense and strong. All this disappears in space where the astronauts are living in microgravity\*.



Things literally float around, the astronauts are weightless as is anything on the space station with them. Unchecked, a human body in space would begin to waste away very quickly, losing both bone and muscle mass. Even with the specialised exercises that the astronauts do every day, they are often weak and unable to walk when they return to 1G\* conditions on Earth. Canadian Astronaut Chris Hadfield stated that it took him around 18 months to return to his former fitness after a few months in space.

So with six years of training before you go and a year and a half to recover – is going to space worth the effort? Clearly the brave men and women who continue to be pioneers for the human spirit of adventure think so.

As far back as 1609, in a letter to astronomer Galileo, Johannes Kepler dreamed of travelling to the stars:

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***'Ships and sails proper  
for the heavenly air  
should be fashioned.  
Then there will also  
be people, who do not  
shrink from the dreary  
vastness of space.'***

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It seems we have truly fulfilled that vision with the astronauts and cosmonauts who are prepared to train, study and put their bodies through all sorts of risks and discomfort in order to bring the human race a step nearer to exploring our solar system and beyond.

## This is what you're in for!

- As the spacecraft takes off, you would feel a force of 4G, which is four times Earth's gravity. You could become unconscious. Modern rockets try to minimise this risk by putting most of the pressure through the astronaut's chest.
- Once underway, you would probably find yourself feeling nauseous and possibly vomiting.
- Two days into a space journey, your face will swell up. Fluid inside the body is naturally forced upwards against gravity on Earth. Once in zero gravity, the body still pushes everything up, but there's no gravity to balance it out. So liquids tend to 'pool' in the head.
- One week in and you will begin to lose muscle and bone mass – better tie yourself to the treadmill!
- With 16 sunrises and sunsets a day, two weeks in you'll probably find you are having problems sleeping.
- After a year in space, there is some evidence to show that your immune system becomes weaker.
- You may arrive home weak, sleep deprived, unable to walk properly and susceptible to infections.

Still want to go?



\*microgravity = very little gravity

\*1G = the normal strength of Earth's gravity

# Fancy a Trip to Space? Comprehension Questions

1.

Why do you think family and friends of the astronauts would have a mixture of emotions as they watch the rocket take off?

3 marks

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2.

Why did the writer compare the journey to the International Space Station (ISS) with a car journey?

2 marks

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3.

Why is becoming an astronaut difficult?

3 marks

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4.

Name three things the astronauts and cosmonauts will do and experience while on board the ISS.

3 marks

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5.

How are the astronauts an experiment?

1 mark

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6.

What happens to bone and muscle in space and why?

4 marks

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7.	What condition are astronauts in when they return from several months on the ISS?	3 marks
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8.	Look at the 'This is what you're in for!' section on page 2. Describe what might happen to a person's health on the journey to the ISS and while they are living there.	5 marks
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9.	Do you think it is worth all the effort it takes to go to the ISS?	5 marks
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**Thursday's Spelling Task ~ Words ending in cious and tious**

Choose the correct noun from word bank below. Turn the noun into an adjective by adding the suffix -cious or -tious and insert the adjective into the correct sentence below.

Word Bank				
grace	suspicion	malice	space	contention
superstition	ambition	nutrition	caution	infection

1. The bully was very mean and \_\_\_\_\_.
2. Mum was \_\_\_\_\_ that the deal was too good to be true.
3. You need to be \_\_\_\_\_ when you are crossing the road.
4. The decision about the goal was quite \_\_\_\_\_.
5. My auntie is very \_\_\_\_\_ and will not walk under a ladder.
6. Some diseases can be highly \_\_\_\_\_.
7. Fruit and vegetables are very \_\_\_\_\_.
8. The \_\_\_\_\_ contestants auditioned in the talent show.
9. Linda's new flat was quite \_\_\_\_\_.
10. After coming second in the talent show, the \_\_\_\_\_ loser shook the winner's hand.

Make a list of words you have come across while looking at the spellings - tious and -cious

**-tious**

**-cious**

## The International Space Station Comprehension

It is the most complex international scientific and engineering project in history and the largest structure humans have ever put into space. This high-flying satellite is a laboratory for new technologies and an observation platform for astronomical, geological, and environmental research. As a permanently occupied outpost in outer space, it serves as a stepping-stone for further space exploration. This includes Mars, which NASA is now stating is its goal for human space exploration.

The space station flies at an average altitude of 248 miles above Earth. It circles the globe every 90 minutes at a speed of about 17,500 mph. It takes the space station one and a half hours to fly around the planet, making 16 complete orbits a day. For those on board, the visual effect is spectacular. When they open the covers over the windows, the light can be so blinding that astronauts must reach for their sunglasses. But 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. About 45 minutes later, and just as abruptly, the sun rises to fill the station with brilliant light again.

Five different space agencies representing 15 countries built the \$100-billion International Space Station and continue to currently operate it as of 2016.

It was also planned to provide transportation, maintenance, and act as a staging base for possible future missions to the Moon, Mars and asteroids. The ISS provides a platform to conduct scientific research. Small unmanned spacecraft can provide platforms for zero gravity and exposure to space, but the space station offers a long-term environment where studies can be performed over periods that exceed the capabilities of manned spacecraft.

The ISS simplifies individual experiments by eliminating the need for separate rocket launches and research staff. The wide variety of research fields includes astrology, human research, space medicine, life science, physical science, space weather, and meteorology. Scientists on Earth have access to the crew's data and can modify experiments or launch new ones, which are benefits generally unavailable on unmanned spacecraft. Crews fly individual expeditions lasting several months, providing approximately 160-man-hours per week of labour with a crew of 6.

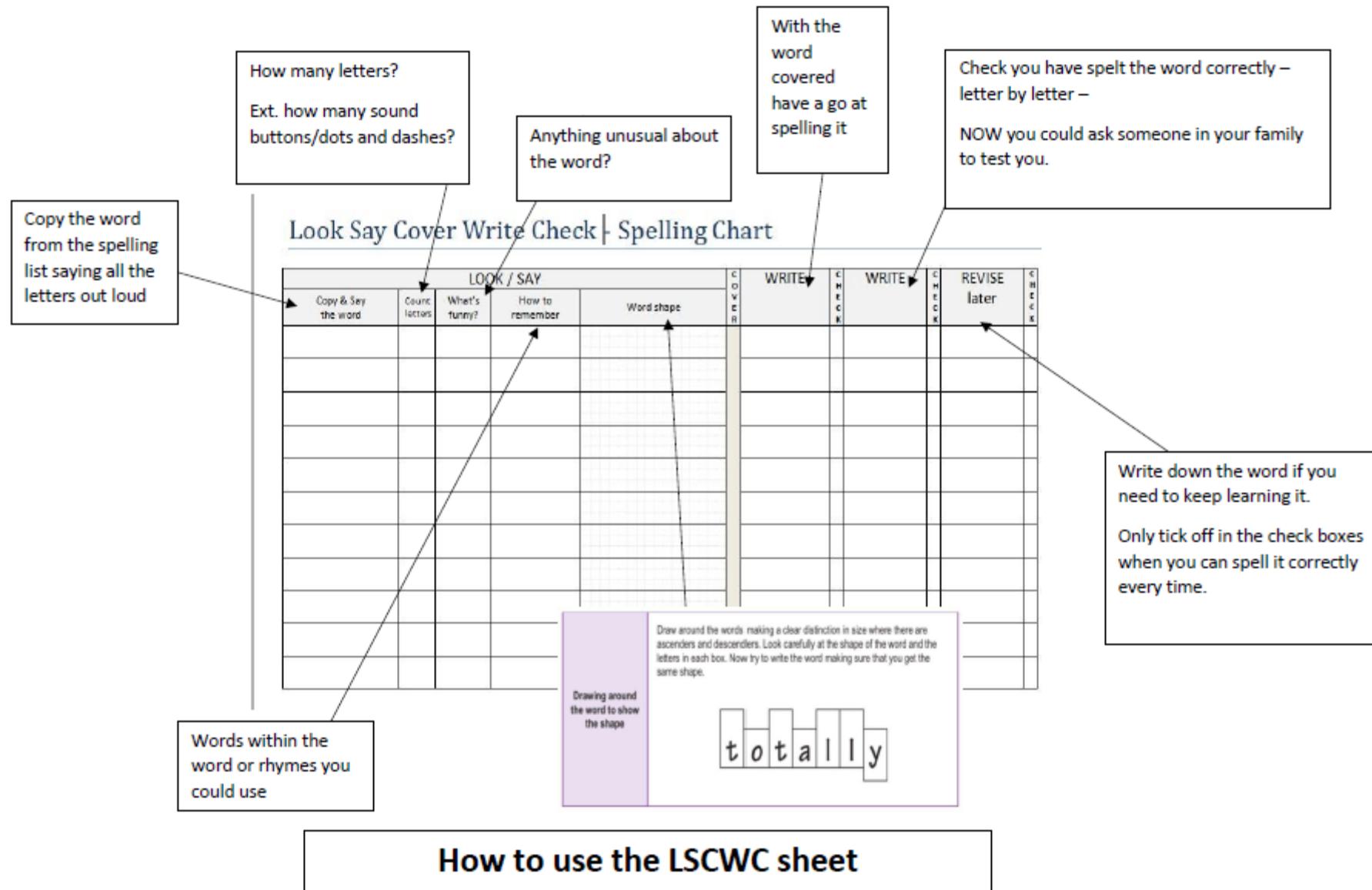
It takes a two-day journey dictated by speed and altitude to get to the space station. Before astronauts can get aboard the station, they first have to chase it down and pull alongside. To accomplish this, it needs 900 tons of solid rocket fuel and half a million gallons of liquid oxygen and liquid hydrogen to burn in the main engine.

The space station will be orbiting Earth for at least another five years, but probably much longer. Of the agencies that pay for it, only one agency has yet to finalize plans to keep it in orbit until 2020. Further moves are in place to keep the station flying until 2028.

For those who built the space station, and the thousands of support staff at agencies around the world, seeing its bright light shooting across the sky at night evokes feelings many others would be able to understand.

- 1) The space station flies at an average altitude of:
- A:** 150 miles above Earth
  - B:** 200 miles above Earth
  - C:** 248 miles above Earth
  - D:** 350 miles above Earth
- 2) The International Space Station circles the globe about every:
- A:** 90 minutes
  - B:** 2 hours
  - C:** 1 day
  - D:** 2 days
- 3) The International Space Station travels at a speed of approximately:
- A:** 5,000 mph
  - B:** 10,000 mph
  - C:** 15,000 mph
  - D:** 17,500 mph
- 4) The two-day journey to get to the International Space Station is determined by which of the following?
- A:** Speed and altitude
  - B:** Time and distance
  - C:** Atmosphere and pressure
  - D:** Gravity and force
- 5) The International Space Station simplifies individual experiments by eliminating the need for which of the following?
- A:** Fuel and energy consumption
  - B:** Experimentation
  - C:** Rocket launches and research
  - D:** Safety guidelines and protocol
- 6) Plans are in motion to keep the International Space Station orbiting Earth until the year
- A:** 2018
  - B:** 2020
  - C:** 2021
  - D:** 2028

## **Friday's Spelling Task ~ Words ending in cious and tious**



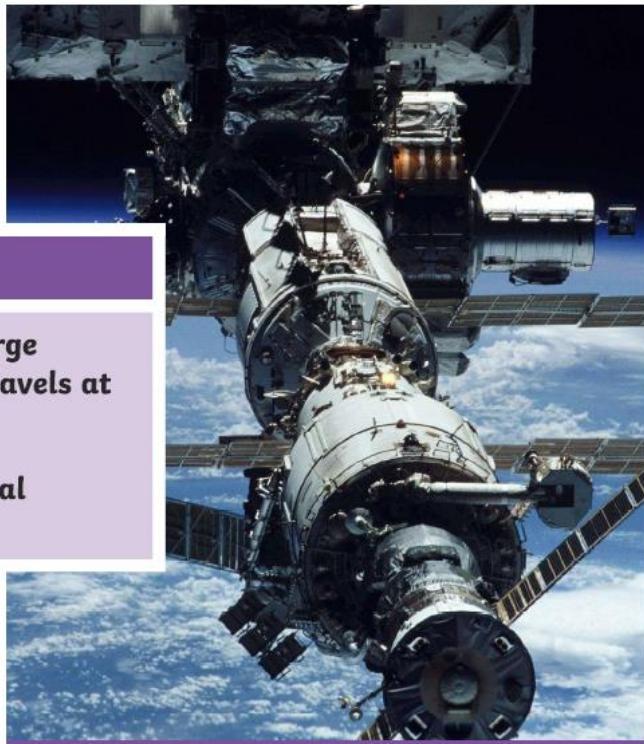
# Look Say Cover Write Check | Spelling Chart

# Daily News

Science UK News

20<sup>th</sup> May 2020

## Children Grow Seeds That Have Been to Space



### What is the ISS?

- The International Space Station (ISS) is a large spacecraft that orbits around the Earth. It travels at more than 17 000mph.
- Astronauts live onboard and use it as a special laboratory to investigate more about space.

### Scientists exploring space and school children have teamed up to grow space lettuce!

600 000 school children were invited by Tim Peake, the British astronaut to help grow space seeds. This was to help research whether lettuce seeds that travelled into space could be grown back on Earth.

To help them find an answer, one million seeds of **rocket** were rocketed into space. They then spent six months on board the International Space Station (ISS).

Dr Jake Chandler, a scientist involved in the project, said that sending seeds to space was crucial to "growing plants that support human exploration of space, Mars and other worlds."

When the space seeds returned to Earth, they were given to children to look after. The seeds were grown for 35 days and their growth was **monitored**. To keep the experiment a fair test, the children were given two different packets of seeds. One was red, the other was blue. Only one packet contained the seeds from space.

Once the children measured the plants' growth and recorded their data, they sent it off to be examined. The results varied from school to school. **Generally**, the space seeds grew less well.

Scientists think this could be for several reasons. When the seeds were on board the ISS, they absorbed 100 times more **radiation** than the ones on Earth. They might also have been

**Photo:** The International Space Station.

affected by the vibrations of the rocket. Either or both of these things could have affected the seeds, and therefore the growth of the plants, once they were back on Earth.

Although the space seeds did not grow as well as those which never went into space, it is still good news. This is because, despite all they had been through, the plants were still able to grow. Dr Jake Chandler thinks that because the seeds survived, "eating home-grown salad on Mars may be one small step closer."

### Glossary

**rocket** A lettuce leaf often added to salads.

**monitored** To be observed.

**generally** Most of the time.

**radiation** Energy that moves from one place to another, such as cosmic rays.

## Children Grow Seeds That Have Been to Space

# Questions

1. How fast is the ISS travelling?

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2. How was the experiment kept a fair test?

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3. 'Once the children measured the plants growth and recorded their data.' Tick the word that is closest to 'data' in this sentence.

- Opinions
- Thoughts
- Results
- Ideas

4. 'Generally, the space seeds grew less well.' This suggests that...

- All the space seeds grew less well.
- All of the Earth seeds grew better.
- There were a small number of space seeds that grew better.
- There were a small number of Earth seeds that grew better.

5. Put a tick in each box to show whether the statement is true or false.

	True	False
The children grew the seeds in space.		
The space seeds grew less well generally.		
Only adults grew the seeds.		
The seeds wouldn't grow.		

6. Summarise the key information in this story in 15 words or fewer.

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# Answers

1. How fast is the ISS travelling?

**More than 17 000mph**

2. How was the experiment kept a fair test?

**Accept any reasonable answer referring to the use of two packets of seeds, e.g. The children were given the two different packets of seeds. Only one had been to space.**

3. 'Once the children measured the plants growth and recorded their data.' Tick the word that is closest to 'data' in this sentence.

- Opinions
- Thoughts
- Results
- Ideas

4. 'Generally, the space seeds grew less well.' This suggests that...

- All the space seeds grew less well.
- All of the Earth seeds grew better.
- There were a small number of space seeds that grew better.
- There were a small number of Earth seeds that grew better.

5. Put a tick in each box to show whether the statement is true or false.

	True	False
The children grew the seeds in space.		✓
The space seeds grew less well generally.	✓	
Only adults grew the seeds.		✓
The seeds wouldn't grow.		✓

6. Summarise the key information in this story in 15 words or fewer.

**Accept any reasonable answer that refers to the text, e.g. Seeds that have travelled to space have been able to be grown back on Earth.**