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**Level 3 – 8th September, 2022**

## Space travel changes astronauts' DNA

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<https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

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**Please try Levels 0, 1 and 2 (they are easier).**

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# THE ARTICLE

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Scientists have found a new risk to space travel. They have discovered that our DNA can change when going into space. DNA mutations could increase the risk of space travellers getting cancer. The scientists did research on 14 NASA astronauts who took part in the Space Shuttle programme between 1998 and 2001. The astronauts provided blood samples ten days before they went into space and three days after returning to Earth. The blood has been frozen for the past 20 years. Professor David Goukassian said: "Astronauts work in an extreme environment where many factors can result in...mutations." He added: "Space radiation...means there is a risk that...mutations could develop."

Professor Goukassian said his study could be important for the future of space travel. In particular, several nations are working on sending astronauts to Mars. Other countries are preparing to build bases on the moon. There is also a race by commercial companies to start the business of space tourism. Goukassian said there were possible health risks to space travel and to exploring deep space. He said more research was needed to study the harmful effects of space travel on the body. This could be important for NASA's Artemis project. This aims to send people back to the moon for the first time in 50 years. The last time humans went to the moon was during the Apollo 17 mission in December 1972.

Sources: <https://www.dailymail.co.uk/sciencetech/article-11182509/NASA-astronauts-blood-shows-signs-DNA-mutations-spaceflight-monitored.html>  
<https://thehill.com/changing-america/well-being/prevention-cures/3622854-spaceflight-may-increase-the-risk-of-heart-disease-cancer-study/>  
<https://www.universetoday.com/157440/even-short-flights-to-space-cause-cell-mutations-that-could-lead-to-cancer-and-heart-disease/>

# WARM-UPS

**1. DNA:** Students walk around the class and talk to other students about DNA. Change partners often and share your findings.

**2. CHAT:** In pairs / groups, talk about these topics or words from the article. What will the article say about them? What can you say about these words and your life?

scientists / risk / space travel / risk / cancer / research / astronauts / blood / radiation study / the future / Mars / the moon / health risks / space travel / project / Apollo

Have a chat about the topics you liked. Change topics and partners frequently.

**3. SPACE TRAVEL:** Students A **strongly** believe space travel should be banned; Students B **strongly** believe otherwise. Change partners again and talk about your conversations.

**4. SPACE:** What are the pros and cons of these things regarding space? Complete this table with your partner(s). Change partners often and share what you wrote.

	Pros	Cons
Exploration		
Communications Satellites		
Space Travel		
Living on the moon		
Going to Mars		
Leaving it alone		

**5. DNA:** Spend one minute writing down all of the different words you associate with the word "DNA". Share your words with your partner(s) and talk about them. Together, put the words into different categories.

**6. EXPEDITIONS:** Rank these with your partner. Put the best expeditions at the top. Change partners often and share your rankings.

- Space
- The jungle
- Mt Everest
- The Sahara Desert
- The bottom of the ocean
- The South Pole
- Around the world
- Inside a volcano

# VOCABULARY MATCHING

## Paragraph 1

- |               |  |
|---------------|--|
| 1. risk       | a. Grow or cause to grow and become more advanced.                 |
| 2. discovered | b. The action of changing from one form or shape to another.       |
| 3. mutation   | c. A small part of something to show what the whole is like.       |
| 4. cancer     | d. A situation that has danger or might be dangerous.              |
| 5. sample     | e. Very great.   |
| 6. extreme    | f. Find something new after a search or research.                  |
| 7. develop    | g. A (deadly) disease caused by cells in the body growing quickly. |

## Paragraph 2

- |                |   |
|----------------|---|
| 8. several     | h. Travelling through an unfamiliar area to learn about it.   |
| 9. base        | i. A change on something because of an action or other cause.   |
| 10. commercial | j. An important job or task given to a person or group of people, usually involving travelling somewhere. |
| 11. exploring  | k. A place used as a centre of operations by armies or others; a headquarters.                            |
| 12. effect     | l. Has the intention of doing something.  |
| 13. aim        | m. Working to make a profit.  |
| 14. mission    | n. A small number larger than two.  |

# BEFORE READING / LISTENING

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

**1. TRUE / FALSE:** Read the headline. Guess if a-h below are true (T) or false (F).

1. Space in our DNA changes when we travel. **T / F**
2. Researchers tested the blood of 14 astronauts. **T / F**
3. The astronauts gave blood 10 weeks before going into space. **T / F**
4. The astronauts' blood was frozen for 20 years. **T / F**
5. A professor said his research wasn't important for future space travel. **T / F**
6. Many companies are preparing to build moon bases. **T / F**
7. NASA is working on sending people to the moon again. **T / F**
8. The last time anyone went to the moon was in 1972. **T / F**

**2. SYNONYM MATCH:** (The words in **bold** are from the news article.)

- |                     |                  |
|---------------------|------------------|
| 1. <b>found</b>     | a. plans         |
| 2. <b>mutations</b> | b. gave          |
| 3. <b>provided</b>  | c. coming back   |
| 4. <b>samples</b>   | d. a number of   |
| 5. <b>returning</b> | e. changes       |
| 6. <b>several</b>   | f. investigating |
| 7. <b>exploring</b> | g. discovered    |
| 8. <b>harmful</b>   | h. expedition    |
| 9. <b>aims</b>      | i. damaging      |
| 10. <b>mission</b>  | j. specimens     |

**3. PHRASE MATCH:** (Sometimes more than one choice is possible.)

- |                                   |                          |
|-----------------------------------|--------------------------|
| 1. our DNA can change             | a. samples               |
| 2. The astronauts provided blood  | b. astronauts to Mars    |
| 3. The blood has been frozen for  | c. of space travel       |
| 4. Astronauts work in an extreme  | d. could develop         |
| 5. there is a risk that mutations | e. went to the moon      |
| 6. important for the future       | f. when going into space |
| 7. nations are working on sending | g. space                 |
| 8. space                          | h. environment           |
| 9. exploring deep                 | i. tourism               |
| 10. The last time humans          | j. the past 20 years     |

# GAP FILL

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Scientists have found a new (1) \_\_\_\_\_ to space travel. They have discovered that our DNA can change when (2) \_\_\_\_\_ into space. DNA mutations could increase the risk of space travellers getting cancer. The scientists did (3) \_\_\_\_\_ on 14 NASA astronauts who took part in the Space Shuttle programme between 1998 and 2001. The astronauts provided (4) \_\_\_\_\_ samples ten days before they went into space and three days after returning to Earth. The blood has been (5) \_\_\_\_\_ for the past 20 years. Professor David Goukassian said: "Astronauts work in an (6) \_\_\_\_\_ environment where many factors can result (7) \_\_\_\_\_ mutations." He added: "Space radiation...means there is a risk that...mutations could (8) \_\_\_\_\_."

*blood*  
*risk*  
*develop*  
*frozen*  
*in*  
*research*  
*going*  
*extreme*

Professor Goukassian said his study could be (9) \_\_\_\_\_ for the future of space travel. In (10) \_\_\_\_\_, several nations are working on sending astronauts to Mars. Other countries are preparing to build (11) \_\_\_\_\_ on the moon. There is also a race by commercial companies to start the business of space (12) \_\_\_\_\_. Goukassian said there were possible health risks to space travel and to exploring (13) \_\_\_\_\_ space. He said more research was needed to study the (14) \_\_\_\_\_ effects of space travel on the body. This could be important for NASA's Artemis project. This (15) \_\_\_\_\_ to send people back to the moon for the first time in 50 years. The last time humans went to the moon was (16) \_\_\_\_\_ the Apollo 17 mission in December 1972.

*bases*  
*harmful*  
*important*  
*during*  
*deep*  
*particular*  
*aims*  
*tourism*

# LISTENING – Guess the answers. Listen to check.

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

- 1) Scientists have found a new risk \_\_\_\_\_
  - a. to spatial travel
  - b. to space travel
  - c. to space travels
  - d. two space travel
- 2) DNA mutations could increase the risk of space \_\_\_\_\_
  - a. travellers get tin cancer
  - b. travellers get in cancer
  - c. travellers get thing cancer
  - d. travellers getting cancer
- 3) between 1998 and 2001. The astronauts \_\_\_\_\_
  - a. provided bloody samples
  - b. provided blood samples
  - c. provided blooded samples
  - d. provided bloods samples
- 4) three days after returning to Earth. The blood \_\_\_\_\_
  - a. has been froze
  - b. has been freezer
  - c. has been frozen
  - d. has been freezing
- 5) Space radiation...means there is a risk that... \_\_\_\_\_
  - a. mutations could develop
  - b. mutations could develops
  - c. mutations could developer
  - d. mutations could developing
- 6) Professor Goukassian said his study could be important \_\_\_\_\_
  - a. for that future
  - b. for their future
  - c. for a future
  - d. for the future
- 7) astronauts to Mars. Other countries are preparing \_\_\_\_\_
  - a. to build basics
  - b. to build bay sis
  - c. to build basis
  - d. to build bases
- 8) Goukassian said there were possible health risks to space travel and to \_\_\_\_\_
  - a. exploring deeps space
  - b. exploring deep space
  - c. exploring deepen space
  - d. exploring depend space
- 9) He said more research was needed to study the harmful effects of space travel \_\_\_\_\_
  - a. on the embody
  - b. on the bodily
  - c. on the body
  - d. on the broody
- 10) The last time humans went to the moon was during the \_\_\_\_\_
  - a. Apollo 17 missing
  - b. Apollo 17 miss shun
  - c. Apollo 17 mission
  - d. Apollo 17 missive

# LISTENING – Listen and fill in the gaps

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Scientists have found a (1) \_\_\_\_\_ space travel. They have discovered that our DNA can change when going into space. DNA mutations could increase (2) \_\_\_\_\_ space travellers getting cancer. The scientists did research on 14 NASA astronauts who (3) \_\_\_\_\_ the Space Shuttle programme between 1998 and 2001. The astronauts (4) \_\_\_\_\_ ten days before they went into space and three days after returning to Earth. The blood has been (5) \_\_\_\_\_ past 20 years. Professor David Goukassian said: "Astronauts work in an extreme environment where many (6) \_\_\_\_\_ in...mutations." He added: "Space radiation...means there is a risk that...mutations could develop."

Professor Goukassian said his study could be important for (7) \_\_\_\_\_ space travel. In particular, several nations are working on (8) \_\_\_\_\_ Mars. Other countries are preparing to build bases on the moon. There is also a (9) \_\_\_\_\_ companies to start the business of space tourism. Goukassian said there were possible (10) \_\_\_\_\_ space travel and to exploring deep space. He said more research was needed to study the harmful effects of space travel on the body. This could be important for NASA's Artemis project. This (11) \_\_\_\_\_ people back to the moon for the (12) \_\_\_\_\_ 50 years. The last time humans went to the moon was during the Apollo 17 mission in December 1972.



# COMPREHENSION QUESTIONS

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

1. What disease could astronauts get because of changed DNA?
2. What programme did the astronauts in the article take part in?
3. How long was the blood of astronauts frozen for?
4. In what kind of environment do astronauts work?
5. What means there is a risk of mutations developing?
6. What do various countries want to build on the moon?
7. What are commercial companies racing to start?
8. Where might we explore that involve health risks?
9. What is the name of NASA's new project?
10. When was the last time humans walked on the moon?

# MULTIPLE CHOICE - QUIZ

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

- 1) What disease could astronauts get because of changed DNA?
  - a) arthritis
  - b) cancer
  - c) dementia
  - d) heart disease
- 2) What programme did the astronauts in the article take part in?
  - a) an environmental programme
  - b) Reach for the Stars
  - c) CNN
  - d) the Space Shuttle programme
- 3) How long was the blood of astronauts frozen for?
  - a) 20 years
  - b) 12 years
  - c) 10 years
  - d) 2 years
- 4) In what kind of environment do astronauts work?
  - a) a weightless environment
  - b) a challenging environment
  - c) an extreme environment
  - d) a green environment
- 5) What means there is a risk of mutations developing?
  - a) a lack of gravity
  - b) space radiation
  - c) a lack of nutrition
  - d) a lack of exercise
- 6) What do various countries want to build on the moon?
  - a) a monument
  - b) shopping centres
  - c) moon bases
  - d) mines
- 7) What are commercial companies racing to start?
  - a) jet packs
  - b) an F1 circuit
  - c) a space race
  - d) space tourism
- 8) Where might we explore that involve health risks?
  - a) deep space
  - b) the bottom of the ocean
  - c) the inner mind
  - d) our heart
- 9) What is the name of NASA's new project?
  - a) Artemis
  - b) Zeus
  - c) Diana
  - d) Olympus
- 10) When was the last time humans walked on the moon?
  - a) November 1972
  - b) December 1972
  - c) September 1972
  - d) October 1972

# ROLE PLAY

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

## **Role A – Going into Space**

You think going into space is the most exciting expedition. Tell the others three reasons why. Tell them what is wrong with their expeditions. Also, tell the others which is the least attractive of these (and why): the bottom of the ocean, the South Pole or inside a volcano.

## **Role B – The Bottom of the Ocean**

You think the bottom of the ocean is the most exciting expedition. Tell the others three reasons why. Tell them what is wrong with their expeditions. Also, tell the others which is the least attractive of these (and why): going into space, the South Pole or inside a volcano.

## **Role C – The South Pole**

You think the South Pole is the most exciting expedition. Tell the others three reasons why. Tell them what is wrong with their expeditions. Also, tell the others which is the least attractive of these (and why): the bottom of the ocean, going into space or inside a volcano.

## **Role D – Inside a Volcano**

You think inside a volcano is the most exciting expedition. Tell the others three reasons why. Tell them what is wrong with their expeditions. Also, tell the others which is the least attractive of these (and why): the bottom of the ocean, the South Pole or going into space.

# AFTER READING / LISTENING

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

**1. WORD SEARCH:** Look in your dictionary / computer to find collocates, other meanings, information, synonyms ... for the words 'space' and 'DNA'.

space	DNA

- Share your findings with your partners.
- Make questions using the words you found.
- Ask your partner / group your questions.

**2. ARTICLE QUESTIONS:** Look back at the article and write down some questions you would like to ask the class about the text.

- Share your questions with other classmates / groups.
- Ask your partner / group your questions.

**3. GAP FILL:** In pairs / groups, compare your answers to this exercise. Check your answers. Talk about the words from the activity. Were they new, interesting, worth learning...?

**4. VOCABULARY:** Circle any words you do not understand. In groups, pool unknown words and use dictionaries to find their meanings.

**5. TEST EACH OTHER:** Look at the words below. With your partner, try to recall how they were used in the text:

<ul style="list-style-type: none"><li>• new</li><li>• increase</li><li>• 2001</li><li>• three</li><li>• 20</li><li>• result</li></ul>	<ul style="list-style-type: none"><li>• future</li><li>• nations</li><li>• race</li><li>• deep</li><li>• 50</li><li>• 17</li></ul>
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# DNA SURVEY

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Write five GOOD questions about DNA in the table. Do this in pairs. Each student must write the questions on his / her own paper.

When you have finished, interview other students. Write down their answers.

	STUDENT 1 _____	STUDENT 2 _____	STUDENT 3 _____
Q.1.			
Q.2.			
Q.3.			
Q.4.			
Q.5.			

- Now return to your original partner and share and talk about what you found out. Change partners often.
- Make mini-presentations to other groups on your findings.

# DNA AND SPACE DISCUSSION

STUDENT A's QUESTIONS (Do not show these to student B)

1. What did you think when you read the headline?
2. What images are in your mind when you hear the word 'space'?
3. What do you think of space travel?
4. Would you like to be an astronaut?
5. Why are we going into space?
6. What do you know about DNA?
7. What do you think of space tourism?
8. How dangerous is it to change DNA?
9. Would you like to go to Mars?
10. Would you like to live on the moon?

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# DNA AND SPACE DISCUSSION

STUDENT B's QUESTIONS (Do not show these to student A)

11. Did you like reading this article? Why/not?
12. What do you think of when you hear the word 'DNA'?
13. What do you think about what you read?
14. What do you think of astronauts?
15. How do you become an astronaut?
16. How worrying is it that space travel changes DNA?
17. Should we stop going into space?
18. Would you prefer a vacation to a beautiful city or the moon?
19. What will space travel be like in 100 years from now?
20. What questions would you like to ask an astronaut?

## DISCUSSION (Write your own questions)

STUDENT A's QUESTIONS (Do not show these to student B)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

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## DISCUSSION (Write your own questions)

STUDENT B's QUESTIONS (Do not show these to student A)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

# LANGUAGE - CLOZE

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Scientists have found a (1) \_\_\_\_\_ risk to space travel. They have discovered that our DNA can change when going into space. DNA mutations could increase the (2) \_\_\_\_\_ of space travellers getting cancer. The scientists did research on 14 NASA astronauts who (3) \_\_\_\_\_ part in the Space Shuttle programme between 1998 and 2001. The astronauts provided blood (4) \_\_\_\_\_ ten days before they went into space and three days after returning to Earth. The blood has been frozen for the (5) \_\_\_\_\_ 20 years. Professor David Goukassian said: "Astronauts work in an extreme environment where many factors can result (6) \_\_\_\_\_...mutations." He added: "Space radiation...means there is a risk that...mutations could develop."

Professor Goukassian said his study could be important for the future of space travel. (7) \_\_\_\_\_ particular, several nations are working (8) \_\_\_\_\_ sending astronauts to Mars. Other countries are preparing to build bases on the moon. There is also a race by commercial companies to start the business of space (9) \_\_\_\_\_. Goukassian said there were possible health risks to space travel and to exploring (10) \_\_\_\_\_ space. He said more research was needed to study the harmful effects of space travel on the body. This could be important for NASA's Artemis project. This aims to send people back to the moon for the (11) \_\_\_\_\_ time in 50 years. The last time humans went to the moon was (12) \_\_\_\_\_ the Apollo 17 mission in December 1972.

## Put the correct words from the table below in the above article.

- |     |              |             |              |             |
|-----|--------------|-------------|--------------|-------------|
| 1.  | (a) newly    | (b) new     | (c) knew     | (d) news    |
| 2.  | (a) brisk    | (b) risk    | (c) frisk    | (d) risqué  |
| 3.  | (a) gave     | (b) did     | (c) was      | (d) took    |
| 4.  | (a) simples  | (b) samples | (c) sumps    | (d) stamps  |
| 5.  | (a) paste    | (b) parsed  | (c) passed   | (d) past    |
| 6.  | (a) on       | (b) an      | (c) in       | (d) at      |
| 7.  | (a) In       | (b) At      | (c) Of       | (d) By      |
| 8.  | (a) to       | (b) of      | (c) on       | (d) as      |
| 9.  | (a) tourists | (b) tour    | (c) touristy | (d) tourism |
| 10. | (a) deep     | (b) deepen  | (c) deeps    | (d) depth   |
| 11. | (a) first    | (b) last    | (c) once     | (d) just    |
| 12. | (a) during   | (b) filling | (c) inside   | (d) within  |



# SPELLING

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

## Paragraph 1

1. nercaise the risk
2. getting anccer
3. The astronauts provided blood ampsels
4. Astronauts work in an trexmee environment
5. space adirtiaon
6. uttmoians could develop

## Paragraph 2

7. the tufure of space travel
8. In particular, vsreeal nations are working
9. mmreccoail companies
10. polxrenig deep space
11. important for NASA's Artemis rojepct
12. during the Apollo 17 ssiimon

# PUT THE TEXT BACK TOGETHER

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

**Number these lines in the correct order.**

- ( ) frozen for the past 20 years. Professor David Goukassian said: "Astronauts work in an
- ( **1** ) Scientists have found a new risk to space travel. They have discovered that our DNA can change when going
- ( ) Professor Goukassian said his study could be important for the future of space travel. In particular, several
- ( ) into space. DNA mutations could increase the risk of space travellers getting cancer. The scientists did
- ( ) extreme environment where many factors can result in...mutations." He added: "Space
- ( ) research on 14 NASA astronauts who took part in the Space Shuttle programme between 1998 and 2001. The astronauts provided
- ( ) blood samples ten days before they went into space and three days after returning to Earth. The blood has been
- ( ) risks to space travel and to exploring deep space. He said more research was needed to
- ( ) moon. There is also a race by commercial companies to start the business of space tourism. Goukassian said there were possible health
- ( ) nations are working on sending astronauts to Mars. Other countries are preparing to build bases on the
- ( ) study the harmful effects of space travel on the body. This could be important for NASA's Artemis
- ( ) radiation...means there is a risk that...mutations could develop."
- ( ) project. This aims to send people back to the moon for the first time in 50 years. The last
- ( ) time humans went to the moon was during the Apollo 17 mission in December 1972.

# PUT THE WORDS IN THE RIGHT ORDER

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

1. found a new risk to Scientists space travel .
2. DNA when change can going Our into space .
3. the of Increase travellers space risk getting cancer .
4. they before days went Ten into space .
5. is risk There mutations that a could develop .
6. the for It's future important space of travel .
7. working Nations sending on are astronauts to Mars .
8. were possible health risks to There space travel .
9. effects travel space of on Harmful the body .
10. last humans The to went time the moon .

# CIRCLE THE CORRECT WORD (20 PAIRS)

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Scientists have found a new *risky / risk* to space travel. They have discovered that our DNA can change when going *into / onto* space. DNA mutations could increase the risk of space travellers *got / getting* cancer. The scientists did research *in / on* 14 NASA astronauts who took part in the Space Shuttle programme *within / between* 1998 and 2001. The astronauts provided blood samples ten days before they went into space and three days after returning *at / to* Earth. The blood has been *frozen / froze* for the past 20 years. Professor David Goukassian said: "Astronauts work in an *extremely / extreme* environment where many *factors / factories* can result in...mutations." He added: "Space radiation...means there is a risk that...mutations could *envelope / develop*."

Professor Goukassian said his study could be *importance / important* for the future of space travel. In *particular / peculiar*, several nations are working on *sending / shooting* astronauts to Mars. Other countries are *preparations / preparing* to build *bases / basis* on the moon. There is also a race by commercial companies to start the business of space *tourism / tourist*. Goukassian said there were possible health risks to space travel and to exploring *depth / deep* space. He said more research was needed to study the harmful *effects / affects* of space travel on the body. This could be important for NASA's Artemis project. This aims to send people back to the moon for the *first / last* time in 50 years. The last time humans went to the moon was during the Apollo 17 *mission / admission* in December 1972.

**Talk about the connection between each pair of words in italics, and why the correct word is correct.**

# INSERT THE VOWELS (a, e, i, o, u)

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Sc\_\_nt\_sts h\_v\_ f\_\_nd \_ n\_w r\_sk t\_ sp\_c\_ tr\_v\_l.  
Th\_y h\_v\_ d\_sc\_v\_r\_d th\_t \_\_r DN\_ c\_n ch\_ng\_ wh\_n  
g\_\_ng \_nt\_ sp\_c\_. DN\_ m\_t\_t\_\_ns c\_\_ld \_ncr\_\_s\_ th\_  
r\_sk \_f sp\_c\_ tr\_v\_ll\_rs g\_tt\_ng c\_nc\_r. Th\_ sc\_\_nt\_sts  
d\_d r\_s\_\_rch \_n 14 N\_S\_ \_str\_n\_\_ts wh\_ t\_\_k p\_rt \_n  
th\_ Sp\_c\_ Sh\_ttl\_ pr\_gr\_mm\_ b\_tw\_\_n 1998 \_nd 2001.  
Th\_ \_str\_n\_\_ts pr\_v\_d\_d bl\_\_d s\_mpl\_s t\_n d\_ys b\_f\_r\_  
th\_y w\_nt \_nt\_ sp\_c\_ \_nd thr\_\_ d\_ys \_ft\_r r\_t\_rnng  
t\_ \_\_rth. Th\_ bl\_\_d h\_s b\_\_n fr\_z\_n f\_r th\_ p\_st 20  
y\_\_rs. Pr\_f\_ss\_r D\_v\_d G\_\_k\_ss\_\_n s\_\_d: "\_str\_n\_\_ts  
w\_rk \_n \_n \_xtr\_m\_ \_nv\_r\_nm\_nt wh\_r\_ m\_ny f\_ct\_rs  
c\_n r\_s\_lt \_n...m\_t\_t\_\_ns." H\_ \_dd\_d: "Sp\_c\_  
r\_d\_\_t\_\_n...m\_\_ns th\_r\_ \_s \_ r\_sk th\_t...m\_t\_t\_\_ns  
c\_\_ld d\_v\_l\_p."

Pr\_f\_ss\_r G\_\_k\_ss\_\_n s\_\_d h\_s st\_dy c\_\_ld b\_  
\_mp\_rt\_nt f\_r th\_ f\_t\_r\_ \_f sp\_c\_ tr\_v\_l. \_n  
p\_rt\_c\_l\_r, s\_v\_r\_l n\_t\_\_ns \_r\_ w\_rkng \_n s\_ndng  
\_str\_n\_\_ts t\_ M\_rs. \_th\_r c\_\_ntr\_\_s \_r\_ pr\_p\_rng t\_  
b\_\_ld b\_s\_s \_n th\_ m\_\_n. Th\_r\_ \_s \_ls\_ \_ r\_c\_ by  
c\_mm\_rc\_\_l c\_mpn\_\_s t\_ st\_rt th\_ b\_s\_n\_ss \_f sp\_c\_  
t\_\_r\_sm. G\_\_k\_ss\_\_n s\_\_d th\_r\_ w\_r\_ p\_ss\_bl\_ h\_\_lth  
r\_sks t\_ sp\_c\_ tr\_v\_l \_nd t\_ \_xpl\_rng d\_\_p sp\_c\_. H\_  
s\_\_d m\_r\_ r\_s\_\_rch w\_s n\_\_d\_d t\_ st\_dy th\_ h\_rmf\_l  
\_ff\_cts \_f sp\_c\_ tr\_v\_l \_n th\_ b\_dy. Th\_s c\_\_ld b\_  
\_mp\_rt\_nt f\_r N\_S\_'s \_rt\_m\_s pr\_j\_ct. Th\_s \_\_ms t\_  
s\_nd p\_\_pl\_ b\_ck t\_ th\_ m\_\_n f\_r th\_ f\_rst t\_m\_ \_n  
50 y\_\_rs. Th\_ l\_st t\_m\_ h\_m\_ns w\_nt t\_ th\_ m\_\_n  
w\_s d\_rng th\_ \_p\_ll\_ 17 m\_ss\_\_n \_n D\_c\_mb\_r 1972.

# PUNCTUATE THE TEXT AND ADD CAPITALS

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

scientists have found a new risk to space travel they have discovered that our dna can change when going into space dna mutations could increase the risk of space travellers getting cancer the scientists did research on 14 nasa astronauts who took part in the space shuttle programme between 1998 and 2001 the astronauts provided blood samples ten days before they went into space and three days after returning to earth the blood has been frozen for the past 20 years professor david goukassian said astronauts work in an extreme environment where many factors can result in mutations he added space radiation means there is a risk that mutations could develop

professor goukassian said his study could be important for the future of space travel in particular several nations are working on sending astronauts to mars other countries are preparing to build bases on the moon there is also a race by commercial companies to start the business of space tourism goukassian said there were possible health risks to space travel and to exploring deep space he said more research was needed to study the harmful effects of space travel on the body this could be important for nasa's artemis project this aims to send people back to the moon for the first time in 50 years the last time humans went to the moon was during the apollo 17 mission in december 1972

# PUT A SLASH ( / ) WHERE THE SPACES ARE

From <https://breakingnewsenglish.com/2209/220908-astronauts-dna.html>

Scientists have found a new risk to space travel. They have discovered that our DNA can change when going into space. DNA mutations could increase the risk of space travellers getting cancer. The scientists did research on 14 NASA astronauts who took part in the Space Shuttle programme between 1998 and 2001. The astronauts provided blood samples ten days before they went into space and three days after returning to Earth. The blood has been frozen for the past 20 years. Professor David Goukassians said: "Astronauts work in an extreme environment where many factors can result in... mutations." He added: "Space radiation... means there is a risk that... mutations could develop." Professor Goukassians said his study could be important for the future of space travel. In particular, several nations are working on sending astronauts to Mars. Other countries are preparing to build bases on the moon. There is also a race by commercial companies to start the business of space tourism. Goukassians said there were possible health risks to space travel and to exploring deep space. He said more research was needed to study the harmful effects of space travel on the body. This could be important for NASA's Artemis project. This aims to send people back to the moon for the first time in 50 years. The last time humans went to the moon was during the Apollo 17 mission in December 1972.







# HOMework

**1. VOCABULARY EXTENSION:** Choose several of the words from the text. Use a dictionary or Google's search field (or another search engine) to build up more associations / collocations of each word.

**2. INTERNET:** Search the Internet and find out more about this news story. Share what you discover with your partner(s) in the next lesson.

**3. DNA:** Make a poster about DNA. Show your work to your classmates in the next lesson. Did you all have similar things?

**4. SPACE TRAVEL:** Write a magazine article about banning space travel if it changes our DNA. Include imaginary interviews with people who are for and against this.

Read what you wrote to your classmates in the next lesson. Write down any new words and expressions you hear from your partner(s).

**5. WHAT HAPPENED NEXT?** Write a newspaper article about the next stage in this news story. Read what you wrote to your classmates in the next lesson. Give each other feedback on your articles.

**6. LETTER:** Write a letter to an expert on DNA. Ask him/her three questions about it. Give him/her three of your opinions on changing DNA. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

# ANSWERS

## VOCABULARY (p.4)

1. d    2. f    3. b    4. g    5. c    6. e    7. a  
8. n    9. k    10. m    11. h    12. i    13. l    14. j

## TRUE / FALSE (p.5)

- 1 F    2 T    3 F    4 T    5 F    6 F    7 T    8 T

## SYNONYM MATCH (p.5)

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

## COMPREHENSION QUESTIONS (p.9)

1. Cancer
2. The Space Shuttle programme
3. 20 years
4. An extreme environment
5. Space radiation
6. Moon bases
7. Space tourism
8. Deep space
9. Artemis
10. December 1972

## WORDS IN THE RIGHT ORDER (p.19)

1. Scientists found a new risk to space travel.
2. Our DNA can change when going into space.
3. Increase the risk of space travellers getting cancer.
4. Ten days before they went into space.
5. There is a risk that mutations could develop.
6. It's important for the future of space travel.
7. Nations are working on sending astronauts to Mars.
8. There were possible health risks to space travel.
9. Harmful effects of space travel on the body.
10. The last time humans went to the moon.

## MULTIPLE CHOICE - QUIZ (p.10)

1. b    2. d    3. a    4. c    5. b    6. c    7. d    8. a    9. a    10. b

## ALL OTHER EXERCISES

Please check for yourself by looking at the Article on page 2.  
(It's good for your English ;-)