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Ready-to-Use English Lessons by Sean Banville

Level 3 – 8th September, 2022

Space travel changes astronauts' DNA

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

Contents

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

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

• new • increase • 2001 • three • 20 • result	• future • nations • race • deep • 50 • 17

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. _____

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_rn_ng 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_rk_ng _n s_nd_ng _str_n__ts t_ M_rs. _th_r c__ntr__s _r_ pr_p_r_ng t_ b__ld b_s_s _n th_ m__n. Th_r_ _s _ls_ _ r_c_ by c_mm_rc__l c_mp_n__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_r_ng 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_r_ng 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 inmutations he added space radiationmeans there is a risk thatmutations 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 nasas 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

Scientistshavefoundanewrisktospacetravel.Theyhavediscoveredth
atourDNAcanchangewhengoingintospace.DNAmutationscouldincre
asetheriskofspacetravellersgettingcancer.Thescientistsdidresearch
on14NASAastronautswhotookpartintheSpaceShuttleprogrammebe
tween1998and2001.Theastronautsprovidedbloodsamplestendaysb
eforetheywentintospaceandthreedaysafterreturningtoEarth.Theblo
odhasbeenfrozenforthepast20years.ProfessorDavidGoukassiansaid
:"Astronautsworkinanextremeenvironmentwheremanyfactorscanr
esultin...mutations."Headded:"Spaceradiation...meansthereisarisk
that...mutationscoulddevelop."ProfessorGoukassiansaidhisstudyco
uldbeimportantforthefutureofspacetravel.Inparticular,severalnatio
nsareworkingonsendingastronautstoMars.Othercountriesareprepar
ingtobuildbasesonthemoon.Thereisalsoaracebycommercialcompan
iestostartthebusinessofspacetourism.Goukassiansaidtherewerepos
siblehealthriskstospacetravelandtoexploringdeepspace.Hesaidmor
eresearchwasneededtostudytheharmfuleffectsofspacetravelontheb
ody.ThiscouldbeimportantforNASA'sArtemisproject.Thisaimstosen
dpeoplebacktothemoonforthefirsttimein50years.Thelasttimehuma
nswenttothemoonwasduringtheApollo17missioninDecember1972.

FREE WRITING

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

Write about **DNA** for 10 minutes. Comment on your partner's paper.

ACADEMIC WRITING

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

We should spend money on helping people on Earth, not going into space. Discuss.

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 ;-)