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Level 3 – 1st April, 2020

Astronaut pee could help build moon bases

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<https://breakingnewsenglish.com/2004/200401-moon-bases.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/2004/200401-moon-bases.html>

New materials could be used to make buildings on the Moon. Scientists from Holland, Italy, Norway and Spain say a new kind of concrete could be made with moon dust and the urine passed by astronauts. The scientists said there is a chemical compound in human urine called urea. This could help things stick together to make a kind of concrete. Scientists would use 3D printers to create the construction material. Three of the world's main space agencies could start using this technique to make buildings for a permanent moon base. NASA, the European Space Agency (ESA) and the China National Space Administration are all interested in colonizing the Moon with research stations.

Using astronaut pee and moon dust could save scientists a lot of money. It costs about \$10,000 to transport 0.45kg of materials from Earth to the Moon. The urine and moon dust alternative would be a much cheaper way of constructing things. A scientist said: "We have seen that a waste product, such as the urine of the personnel who occupy the moon bases, could be used." She added: "The actual water in the urine could be used for the mixture, together with [water] that can be obtained on the Moon, or a combination of both." Scientists say another source of water on the Moon is in the ice that exists in some areas. The scientists say they need to do more tests to find the best building material.

Sources: <https://www.eurasiareview.com/27032020-astronaut-urine-to-build-moon-bases/>
<https://www.cnet.com/news/astronauts-could-use-their-own-pee-to-build-future-moon-habitats/>
https://www.eurekalert.org/pub_releases/2020-03/f-sf-aut032720.php

WARM-UPS

1. MOON BASES: Students walk around the class and talk to other students about moon bases. 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?

materials / buildings / concrete / astronauts / chemical / printers / technique / moon / a lot of money / transport / moon dust / waste / combination / water / building material

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

3. NECESSARY: Students A **strongly** believe moon bases are necessary; Students B **strongly** believe they aren't. Change partners again and talk about your conversations.

4. MOON LIFE: What would these things be like of the Moon? What are the good and bad things about them? Complete this table with your partner(s). Change partners often and share what you wrote.

	What Life Would Be Like	Good Things	Bad Things
Cooking			
Exercise			
Social life			
Hobbies			
Work			
Medicine			

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

6. BUILDINGS: Rank these with your partner. Put the most important buildings to have on a moon base at the top. Change partners often and share your rankings.

- Gym
- Hospital
- Library
- Restaurant
- Hotel
- Kitchen
- Swimming pool
- Hobby room

VOCABULARY MATCHING

Paragraph 1

- | | |
|-----------------|----------------------------------------------------------------------------------------------------------------|
| 1. concrete | a. The building of something. |
| 2. urine | b. Going to a place to take over and control it. |
| 3. compound | c. A building material made from a mixture of sand, cement, and water, that sticks stones and bricks together. |
| 4. construction | d. Something that is made up of two or more things. |
| 5. main | e. The yellowy water that comes out of our body after drinking. |
| 6. permanent | f. Most important. |
| 7. colonizing | g. Lasting or intended to last or remain unchanged for a long, long time. |

Paragraph 2

- | | |
|----------------|-----------------------------------------------------------------------|
| 8. save | h. Of one or more things available as another possibility. |
| 9. alternative | i. The things that come out of our body and go down the toilet. |
| 10. waste | j. A place, person, or thing from where something comes from. |
| 11. personnel | k. Keep something by not using it. |
| 12. mixture | l. Be found somewhere, especially in a particular place or situation. |
| 13. source | m. Things that are made by combining two or more things. |
| 14. exists | n. People who work in a company or organisation. |

BEFORE READING / LISTENING

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

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

- a. Scientists from the US said urine could be used in concrete on the Moon. **T / F**
- b. The scientists said human urine contains a chemical called rine. **T / F**
- c. Scientists would use 3D printers on the Moon to make concrete. **T / F**
- d. A space agency in China is interested in colonizing the Moon. **T / F**
- e. Using urine to make concrete would help to save money. **T / F**
- f. It costs \$10,000 to transport 45kg of materials to the Moon. **T / F**
- g. A scientist said water from moon ice could be added to the concrete. **T / F**
- h. Scientists say they have finished testing for the best building material. **T / F**

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

- | | |
|------------------------|----------------|
| 1. kind | a. occurs |
| 2. compound | b. building |
| 3. stick | c. substitute |
| 4. construction | d. settling on |
| 5. colonizing | e. mixture |
| 6. transport | f. staff |
| 7. alternative | g. type |
| 8. personnel | h. got |
| 9. obtained | i. fasten |
| 10. exists | j. take |

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

- | | |
|---------------------------------------|------------------------|
| 1. New materials could be used | a. compound |
| 2. a chemical | b. of water |
| 3. help things stick | c. dust |
| 4. make buildings for a permanent | d. to make buildings |
| 5. interested in | e. things |
| 6. moon | f. moon base |
| 7. a much cheaper way of constructing | g. more tests |
| 8. a combination | h. colonizing the Moon |
| 9. another source | i. of both |
| 10. scientists say they need to do | j. together |

GAP FILL

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

New (1) _____ could be used to make buildings on the Moon. Scientists from Holland, Italy, Norway and Spain say a new kind of concrete could be made with moon dust and the urine (2) _____ by astronauts. The scientists said there is a chemical (3) _____ in human urine called urea. This could help things stick together to make a (4) _____ of concrete. Scientists would use 3D printers to create the construction material. Three of the world's (5) _____ space agencies could start using this (6) _____ to make buildings for a (7) _____ moon base. NASA, the European Space Agency (ESA) and the China National Space Administration are all interested in colonizing the Moon with research (8) _____.

compound
technique
stations
materials
main
permanent
passed
kind

Using astronaut pee and moon dust could (9) _____ scientists a lot of money. It costs about \$10,000 to transport 0.45kg of materials from Earth to the Moon. The urine and moon dust (10) _____ would be a much cheaper way of constructing things. A scientist said: "We have seen that a (11) _____ product, such as the urine of the (12) _____ who occupy the moon bases, could be used." She added: "The actual water in the urine could be used for the (13) _____, together with [water] that can be obtained on the Moon, or a combination of (14) _____." Scientists say another source of water on the Moon is in the ice that (15) _____ in some areas. The scientists say they need to do more (16) _____ to find the best building material.

waste
mixture
tests
save
personnel
exists
alternative
both

LISTENING – Guess the answers. Listen to check.

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

- 1) New materials could be used to make buildings _____
 - a. in the Moon
 - b. on the Moon
 - c. at the Moon
 - d. up the Moon
- 2) concrete could be made with moon dust and the urine _____
 - a. past by astronauts
 - b. pasted by astronauts
 - c. parsed by astronauts
 - d. passed by astronauts
- 3) The scientists said there is a chemical compound _____
 - a. in human urine
 - b. on humane urine
 - c. in humanly urine
 - d. on human urine
- 4) agencies could start using this technique to make buildings for a _____
 - a. permanence moon base
 - b. permanent moon base
 - c. permanently moon base
 - d. per man ant moon base
- 5) are all interested in colonizing the Moon _____
 - a. with research stations
 - b. within research stations
 - c. wither research stations
 - d. without research stations
- 6) The urine and moon dust alternative would be a _____
 - a. much cheapo ways
 - b. much cheap per way
 - c. much cheaper way
 - d. much cheaper ways
- 7) We have seen that a waste product, such as the urine _____
 - a. of the personal
 - b. of the personally
 - c. of the personnel
 - d. of the purse tunnel
- 8) The actual water in the urine could be used _____
 - a. for then mixture
 - b. for them mixture
 - c. for they mixture
 - d. for the mixture
- 9) water on the Moon is in the ice that exists _____
 - a. in some area
 - b. in some areas
 - c. in some arenas
 - d. in some auras
- 10) The scientists say they need to do more tests to find the _____
 - a. best built-in material
 - b. best building material
 - c. best build in material
 - d. best bill din material

LISTENING – Listen and fill in the gaps

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

New (1) _____ used to make buildings on the Moon. Scientists from Holland, Italy, Norway and Spain say a (2) _____ concrete could be made with moon dust and the urine passed by astronauts. The scientists said there is (3) _____ in human urine called urea. This could help things stick together to make a kind of concrete. Scientists would use 3D printers (4) _____ construction material. Three of the world's (5) _____ could start using this technique to make buildings for a permanent moon base. NASA, the European Space Agency (ESA) and the China National Space Administration (6) _____ in colonizing the Moon with research stations.

Using (7) _____ moon dust could save scientists a lot of money. It costs about \$10,000 to transport 0.45kg of materials from Earth to the Moon. The urine and moon dust (8) _____ a much cheaper way of constructing things. A scientist said: "We have seen that a waste product, such as the urine (9) _____ who occupy the moon bases, could be used." She added: "The actual water in the urine could be used (10) _____, together with [water] that can be obtained on the Moon, or a (11) _____." Scientists say another source of water on the Moon is in the ice that exists in some areas. The scientists say they need to (12) _____ to find the best building material.

COMPREHENSION QUESTIONS

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

1. How many countries are the scientists from?
2. What did scientists mix the urine with on the Moon?
3. What would scientists use to create the construction material?
4. How many space agencies are interested in colonizing the Moon?
5. What kind of stations do the space agencies want to put on the Moon?
6. What could astronaut pee and moon dust save?
7. How much material can be transported to the Moon for \$10,000?
8. Who said a waste product could be used to make the concrete?
9. What is another source of water on the Moon?
10. What do the scientists need to do more of?

MULTIPLE CHOICE - QUIZ

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

- 1) How many countries are the scientists from?
 - a) 6
 - b) 3
 - c) 4
 - d) 2
- 2) What did scientists mix the urine with on the Moon?
 - a) moon dust
 - b) rocks
 - c) chemicals
 - d) water
- 3) What would scientists use to create the construction material?
 - a) 3D printers
 - b) a concrete mixer
 - c) a shovel
 - d) computers
- 4) How many space agencies are interested in colonizing the Moon?
 - a) 2
 - b) 3
 - c) 4
 - d) 5
- 5) What kind of stations do the space agencies want to put on the Moon?
 - a) gas stations
 - b) health stations
 - c) train stations
 - d) research stations
- 6) What could astronaut pee and moon dust save?
 - a) the environment
 - b) money
 - c) time
 - d) energy
- 7) How much material can be transported to the Moon for \$10,000?
 - a) 0.45kg
 - b) 0.54kg
 - c) 0.4kg
 - d) 0.5kg
- 8) Who said a waste product could be used to make the concrete?
 - a) an astronaut
 - b) a printer maker
 - c) a scientist
 - d) a concrete expert
- 9) What is another source of water on the Moon?
 - a) underground reservoirs
 - b) clouds
 - c) rivers
 - d) ice
- 10) What do the scientists need to do more of?
 - a) tests
 - b) exercise
 - c) plan
 - d) build

ROLE PLAY

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

Role A – Gym

You think a gym is the most important thing to have on a moon base. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): library, swimming pool or hotel.

Role B – Library

You think a library is the most important thing to have on a moon base. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): gym, swimming pool or hotel.

Role C – Swimming Pool

You think a swimming pool is the most important thing to have on a moon base. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): library, gym or hotel.

Role D – Hotel

You think a hotel is the most important thing to have on a moon base. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): library, swimming pool or gym.

AFTER READING / LISTENING

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

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

moon	base
-------------	-------------

- 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">• passed• compound• stick• 3D• start• research	<ul style="list-style-type: none">• save• much• waste• added• obtained• find
---------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------

MOON BASES SURVEY

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

Write five GOOD questions about moon bases 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.

MOON BASES 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 'moon'?
3. What do you think of the new idea?
4. Would you like to live on a moon base?
5. Do you think concrete made with pee would smell?
6. Why do scientists want to build moon bases?
7. What would you do on the Moon?
8. What do you know about NASA?
9. What challenges are there with building on the Moon?
10. What other things could be used to make concrete on the Moon?

Astronaut pee could help build moon bases – 1st April, 2020
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MOON BASES 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 'base'?
13. What do you think about what you read?
14. What do you think water on the Moon is like?
15. What would a moon town be like?
16. What kind of people become astronauts?
17. What do astronauts do every day?
18. What three things would you take to a moon base?
19. What buildings do you think will be on the Moon one day?
20. What questions would you like to ask the scientists?

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/2004/200401-moon-bases.html>

New materials could be used to (1) _____ buildings on the Moon. Scientists from Holland, Italy, Norway and Spain say a new (2) _____ of concrete could be made with moon dust and the urine passed by astronauts. The scientists said there is a chemical compound (3) _____ human urine called urea. This could help things stick together to make a kind of concrete. Scientists would use 3D printers to create the construction (4) _____. Three of the world's main space agencies could start using this technique to make buildings (5) _____ a permanent moon base. NASA, the European Space Agency (ESA) and the China National Space Administration are all interested in colonizing the Moon (6) _____ research stations.

Using astronaut pee and moon (7) _____ could save scientists a lot of money. It costs about \$10,000 to transport 0.45kg of materials from Earth to the Moon. The urine and moon dust alternative would (8) _____ a much cheaper way of constructing things. A scientist said: "We have seen that a (9) _____ product, such as the urine of the personnel who occupy the moon bases, could be used." She added: "The actual water in the urine could be used for the mixture, (10) _____ with [water] that can be obtained on the Moon, or a combination of both." Scientists say another source of water on the Moon is in the ice that (11) _____ in some areas. The scientists say they need to do more tests to find (12) _____ best building material.

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

- | | | | | |
|-----|-------------|--------------|-------------|--------------|
| 1. | (a) make | (b) making | (c) made | (d) makes |
| 2. | (a) kindred | (b) kindly | (c) kind | (d) kinds |
| 3. | (a) at | (b) by | (c) in | (d) of |
| 4. | (a) moot | (b) mental | (c) martial | (d) material |
| 5. | (a) for | (b) so | (c) which | (d) each |
| 6. | (a) to | (b) with | (c) up | (d) so |
| 7. | (a) dusted | (b) dusting | (c) dusty | (d) dust |
| 8. | (a) do | (b) be | (c) fix | (d) stick |
| 9. | (a) rubbish | (b) garbage | (c) waste | (d) trash |
| 10. | (a) plus | (b) together | (c) group | (d) same |
| 11. | (a) execs | (b) excites | (c) exits | (d) exists |
| 12. | (a) a | (b) the | (c) whole | (d) all |

SPELLING

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

Paragraph 1

1. a new kind of necoterc
2. the iuren passed by astronauts
3. there is a cecmhial compound
4. create the nucstoirtcno material
5. using this tiequcneh to make buildings
6. ozinlnigo the Moon

Paragraph 2

7. save iesitnscst a lot of money
8. the Inopensre who occupy the moon bases
9. inucntogstcr things
10. a wstea product
11. a otbnaomiinc of both
12. another orsecu of water on the Moon

PUT THE TEXT BACK TOGETHER

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

Number these lines in the correct order.

- (**1**) New materials could be used to make buildings on the Moon. Scientists from Holland, Italy,
- () China National Space Administration are all interested in colonizing the Moon with research stations.
- () using this technique to make buildings for a permanent moon base. NASA, the European Space Agency (ESA) and the
- () urea. This could help things stick together to make a kind of concrete. Scientists would use 3D
- () of both." Scientists say another source of water on the Moon is in the ice that exists in some
- () the moon bases, could be used." She added: "The actual water in the urine could be used for the
- () printers to create the construction material. Three of the world's main space agencies could start
- () Using astronaut pee and moon dust could save scientists a lot of money. It costs about \$10,000 to
- () Norway and Spain say a new kind of concrete could be made with moon dust and the urine passed
- () areas. The scientists say they need to do more tests to find the best building material.
- () way of constructing things. A scientist said: "We have seen that a waste product, such as the urine of the personnel who occupy
- () by astronauts. The scientists said there is a chemical compound in human urine called
- () mixture, together with [water] that can be obtained on the Moon, or a combination
- () transport 0.45kg of materials from Earth to the Moon. The urine and moon dust alternative would be a much cheaper

PUT THE WORDS IN THE RIGHT ORDER

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

1. materials New to buildings . used could make be
2. be A concrete of made . new kind could
3. is in human urine . chemical compound a There
4. agencies this using could start Space technique .
5. moon colonizing in with the research Interested stations .
6. scientists Dust money . save could lot a of
7. moon The occupy personnel the who bases .
8. could Actual the urine used . water in be
9. that the In exists ice areas . some in
10. find material . to the More tests best building

CIRCLE THE CORRECT WORD (20 PAIRS)

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

New materials could be used to make *building / buildings* on the Moon. Scientists from Holland, Italy, Norway and Spain say a new *kind / kinds* of concrete could be made with moon dust and the urine *past / passed* by astronauts. The scientists said there is a chemical *combine / compound* in human urine called urea. This could help things *stuck / stick* together to make a kind of concrete. Scientists would use 3D printers *for / to* create the construction material. Three of the world's *mane / main* space agencies could start using this *technique / technical* to make buildings for a *permanent / permanence* moon base. NASA, the European Space Agency (ESA) and the China National Space Administration are all interested *on / in* colonizing the Moon with research stations.

Using astronaut pee and moon *dusty / dust* could save scientists a lot of money. It costs about \$10,000 to transport 0.45kg *of / off* materials from Earth to the Moon. The urine and moon dust *alternatively / alternative* would be a much cheaper way of *construction / constructing* things. A scientist said: "We have seen that a *waste / haste* product, such as the urine of the *personnel / personal* who occupy the moon bases, could be used." She added: "The actual water *on / in* the urine could be used for the mixture, together with [water] that can *be / have* obtained on the Moon, or a combination of both." Scientists say another *source / sauce* of water on the Moon is in the ice that exists in some areas. The scientists say they need to do more *tests / test* to find the best building material.

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/2004/200401-moon-bases.html>

N_w m_t_r__ l_s c__ l_d b__ s_d t_ m_k_ b__ l_d_n g
s _n th_ M__ n. S c__ n_t_s_t_s fr_m H_l_l_n_d, I
t_l_y, N_r_w_y _n_d S p__ n s_y _ n_w k_n_d _f
c_n_c_r_t_ c__ l_d b_ m_d_ w_th m__ n d_s_t _n_d t
h__ r_n_ p_s_s_d b_y _s_t_r_n__ t_s. Th_ s c__ n_t_s_t
s s__ d th_r__ s _ c_h_m_c_l c_m_p__ n_d _n h_m_n
_r_n_ c_l_l_d _r__. Th_s c__ l_d h_l_p th_n_g_s s
t_c_k t_g_th_r t_ m_k_ _ k_n_d _f c_n_c_r_t_. S c__
n_t_s_t_s w__ l_d _s_ 3D p_r_n_t_r_s t_ c_r__ t_ th_
c_n_s_t_r_c_t__ n m_t_r__ l. Th_r__ _f th_ w_r_l_d's
m__ n s_p_c_ _n_d_s_t_r__ s c__ l_d s_t_r_t _s_n_g t
h_s t_c_h_n_q__ t_ m_k_ b__ l_d_n_g_s fr_ _ p_r
m_n_n_t m__ n b_s_. N A S A, th_ E_r_p__ n S
p_c_ A_g_n_c_y (E S A) _n_d th_ C_h_n_ N_t__ n_l S
p_c_ A_d_m_n_s_t_r_t__ n _r_ _l_l _n_t_r_s_t_d _n
c_l_n_z_n_g th_ m__ n w_th r_s__ r_c_h s_t_t__ n_s.

U_s_n_g _s_t_r_n__ t p__ _n_d m__ n d_s_t c__ l_d
s_v_ s c__ n_t_s_t_s _ l_t _f m_n_y. I_t c_s_t_s b__
t \$10,000 t_ t_r_n_s_p_r_t 0.45kg _f m_t_r__
l_s fr_m E_r_t_h t_ th_ M__ n. Th__ r_n_ _n_d
m__ n d_s_t _l_t_r_n_t_v_ w__ l_d b__ m_c_h c_h__
p_r_w_y _f c_n_s_t_r_c_t_n_g th_n_g_s. A s c__ n_t_s
t s__ d: "W_h_v_ s__ n th_t _ w_s_t_p_r_d_c_t,
s_c_h _s th_ _r_n_ _f th_ p_r_s_n_n_l w_h_ _c_c_p_y
th_ m__ n b_s_s, c__ l_d b__ s_d." S_h__ d_d_d:
"Th__ c_t__ l w_t_r _n th_ _r_n_ c__ l_d b__ s_d
fr th_ m_x_t_r_, t_g_th_r w_th [w_t_r] th_t
c_n b__ b_t__ n_d _n th_ M__ n, _r_ _c_m_b_n_t__ n
_f b_th_." S c__ n_t_s_t_s s_y _n_th_r s__ r_c_ _f
w_t_r _n th_ M__ n _s _n th_ _c_ th_t _x_s_t_s _n
s_m__ r__ s. Th_ s c__ n_t_s_t_s s_y th_y n__ d t_
d_ m_r_ t_s_t_s t_ f_n_d th_ b_s_t b__ l_d_n_g
m_t_r__ l.

PUNCTUATE THE TEXT AND ADD CAPITALS

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

new materials could be used to make buildings on the moon scientists from holland italy norway and spain say a new kind of concrete could be made with moon dust and the urine passed by astronauts the scientists said there is a chemical compound in human urine called urea this could help things stick together to make a kind of concrete scientists would use 3d printers to create the construction material three of the worlds main space agencies could start using this technique to make buildings for a permanent moon base nasa the european space agency esa and the china national space administration are all interested in colonizing the Moon with research stations

using astronaut pee and moon dust could save scientists a lot of money it costs about 10000 to transport 045kg of materials from earth to the moon the urine and moon dust alternative would be a much cheaper way of constructing things a scientist said we have seen that a waste product such as the urine of the personnel who occupy the moon bases could be used she added the actual water in the urine could be used for the mixture together with water that can be obtained on the moon or a combination of both scientists say another source of water on the moon is in the ice that exists in some areas the scientists say they need to do more tests to find the best building material

PUT A SLASH (/) WHERE THE SPACES ARE

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

New materials could be used to make buildings on the Moon. Scientists from Holland, Italy, Norway and Spain say a new kind of concrete could be made with moon dust and the urine passed by astronauts. The scientists said there is a chemical compound in human urine called urea. This could help things stick together to make a kind of concrete. Scientists would use 3D printers to create the construction material. Three of the world's main space agencies could start using this technique to make buildings for a permanent moon base. NASA, the European Space Agency (ESA) and the China National Space Administration are all interested in colonizing the Moon with research stations. Using astronaut pee and moon dust could save scientists a lot of money. It costs about \$10,000 to transport 0.45 kg of materials from Earth to the Moon. The urine and moon dust alternative would be a much cheaper way of constructing things. A scientist said: "We have seen that a waste product, such as the urine of the personnel who occupy the moon bases, could be used." She added: "The actual water in the urine could be used for the mixture, together with [water] that can be obtained on the Moon, or a combination of both." Scientists say another source of water on the Moon is the ice that exists in some areas. The scientists say they need to do more tests to find the best building material.

ACADEMIC WRITING

From <https://breakingnewsenglish.com/2004/200401-moon-bases.html>

Moon bases will be very, very, very important in the future. 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. THE MOON: Make a poster about the Moon. Show your work to your classmates in the next lesson. Did you all have similar things?

4. MOON BASES: Write a magazine article about the importance of building moon bases. 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 moon bases. Ask him/her three questions about them. Give him/her three of your ideas on moon bases. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

ANSWERS

VOCABULARY (p.4)

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

TRUE / FALSE (p.5)

- a F b F c T d T e T f F g T h F

SYNONYM MATCH (p.5)

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

COMPREHENSION QUESTIONS (p.9)

- Four
- Moon dust
- 3D printers
- Three
- Research stations
- Money
- 0.45kg
- A scientist
- Ice
- Test

WORDS IN THE RIGHT ORDER (p.20)

- New materials could be used to make buildings.
- A new kind of concrete could be made.
- There is a chemical compound in human urine.
- Space agencies could start using this technique.
- Interested in colonizing the Moon with research stations.
- Dust could save scientists a lot of money.
- The personnel who occupy the moon bases.
- Actual water in the urine could be used.
- In the ice that exists in some areas.
- More tests to find the best building material.

MULTIPLE CHOICE - QUIZ (p.10)

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

ALL OTHER EXERCISES

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