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## **Environmentalists worry about synthetic life**

[http://www.breakingnewsenglish.com/1005/100526-synthetic\\_life.html](http://www.breakingnewsenglish.com/1005/100526-synthetic_life.html)

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# THE ARTICLE

From [http://www.BreakingNewsEnglish.com/1005/100526-synthetic\\_life.html](http://www.BreakingNewsEnglish.com/1005/100526-synthetic_life.html)

A scientist who has created a synthetic life form has put the science world in a spin. Geneticist Craig Venter unveiled a major scientific breakthrough last week when he showed the world a new form of life he created in the laboratory. He made his artificial creation from a stem cell, biochemicals and yeast. Dr Venter claims his new organism has DNA that has never existed on Earth before. The cells he made will pave the way for more complex ones. Venter believes manmade life will be an important part of all science in the future. In 2007, he said: "Synthetic [life] is going to become the standard for making anything." He believes it will provide amazing new cures for diseases and help in the fight against climate change.

Environmentalists are up in arms over Venter's work. They believe it is a major threat to our existence. Campaigners are fighting to ban any form of synthetic life from getting into the wild. One campaigner, Jim Thomas, expressed his fears to Britain's 'Independent' newspaper: "Synthetic biology is a high-risk, profit-driven field, building organisms out of parts that are still poorly understood. We know that lab-created life forms can escape and become biological weapons, and that their use threatens existing natural biodiversity," he said. Mr Thomas is worried about what oil companies will do with Mr Venter's work, saying: "Most worrying of all, Craig Venter is handing this powerful technology to the likes of BP and Exxon to hasten the commercialisation of synthetic life-forms."

# WARM-UPS

**1. SYNTHETIC LIFE:** Walk around the class and talk to other students about synthetic life. Change partners often. Sit with your first partner(s) and share your findings.

**2. CHAT:** In pairs / groups, decide which of these topics or words from the article are most interesting and which are most boring.

*life forms / geneticist / breakthroughs / laboratory / cells / the future / cures / environmentalists / existence / the wild / profit / biological weapons / oil companies*

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

**3. HUMAN MADE:** What is good and bad about these synthetic life forms? Complete this table with your partner(s). Change partners and share what you wrote. Change and share again.

Life forms	Good	Bad
Cures for diseases		
New fuels		
Weapons		
To prolong our life		
Grow new limbs		
New products		

**4. PLAYING GOD:** Students A **strongly** believe synthetic life is the same as playing God; Students B **strongly** believe the opposite. Change partners again and talk about your conversations.

**5. THE FUTURE:** What will it be like with synthetic life? Rank these and share your rankings with your partner(s). Put the one most likely to happen at the top. Change partners and share your ratings again.

- a cure for cancer
- new viruses to threaten us
- renewable forms of energy
- robot workers
- new monsters to kill us all
- beautiful new creatures
- the end of world hunger
- we are no longer human

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

Environmentalists worry about synthetic life – 26th May, 2010

# BEFORE READING / LISTENING

From [http://www.BreakingNewsEnglish.com/1005/100526-synthetic\\_life.html](http://www.BreakingNewsEnglish.com/1005/100526-synthetic_life.html)

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

- |   |       |
|---|-------|
| a. A scientist has made a new form of life that never stops spinning.   | T / F |
| b. The scientist, Dr Venter, made the new life form in a laboratory.    | T / F |
| c. The new life form was made using yeast.                              | T / F |
| d. Dr Venter believes synthetic life will help protect the environment. | T / F |
| e. Environmentalists want to keep synthetic life away from nature.      | T / F |
| f. One campaigner said new biological weapons have been made.           | T / F |
| g. The campaigners want oil companies to use Dr Venter's work.          | T / F |
| h. Oil companies will not profit from synthetic life.                   | T / F |

**2. SYNONYM MATCH:** Match the following synonyms from the article.

- |                 |                      |
|-----------------|----------------------|
| 1. synthetic    | a. prepare           |
| 2. in a spin    | b. endangers         |
| 3. unveiled     | c. the natural world |
| 4. pave the way | d. confused          |
| 5. standard     | e. badly             |
| 6. up in arms   | f. norm              |
| 7. the wild     | g. manmade           |
| 8. poorly       | h. accelerate        |
| 9. threatens    | i. made public       |
| 10. hasten      | j. angry             |

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

- |  |                            |
|--|----------------------------|
| 1. put the science world               | a. BP and Exxon            |
| 2. unveiled a major scientific         | b. in arms                 |
| 3. pave the way                        | c. diseases                |
| 4. the standard for                    | d. getting into the wild   |
| 5. new cures for                       | e. of synthetic life-forms |
| 6. Environmentalists are up            | f. breakthrough            |
| 7. a major threat                      | g. making anything         |
| 8. ban any form of synthetic life from | h. in a spin               |
| 9. the likes of                        | i. for more complex ones   |
| 10. the commercialisation              | j. to our existence        |

# WHILE READING / LISTENING

From [http://www.BreakingNewsEnglish.com/1005/100526-synthetic\\_life.html](http://www.BreakingNewsEnglish.com/1005/100526-synthetic_life.html)

**GAP FILL:** Put the words into the gaps in the text.

A scientist who has created a synthetic life form has put the science world in a \_\_\_\_\_. Geneticist Craig Venter unveiled a major scientific \_\_\_\_\_ last week when he showed the world a new form of life he created in the laboratory. He made his artificial creation from a stem cell, biochemicals and \_\_\_\_\_. Dr Venter claims his new organism has DNA that has never \_\_\_\_\_ on Earth before. The cells he made will \_\_\_\_\_ the way for more complex ones. Venter believes manmade life will be an important part of all science in the \_\_\_\_\_. In 2007, he said: "Synthetic [life] is going to become the \_\_\_\_\_ for making anything." He believes it will provide amazing new \_\_\_\_\_ for diseases and help in the fight against climate change.

*future*  
*existed*  
*breakthrough*  
*cures*  
*pave*  
*spin*  
*standard*  
*yeast*

Environmentalists are up in \_\_\_\_\_ over Venter's work. They believe it is a major \_\_\_\_\_ to our existence. Campaigners are fighting to ban any form of synthetic life from getting into the wild. One campaigner, Jim Thomas, expressed his \_\_\_\_\_ to Britain's 'Independent' newspaper: "Synthetic biology is a high-\_\_\_\_\_, profit-\_\_\_\_\_ field, building organisms out of parts that are still poorly understood. We know that lab-created life forms can \_\_\_\_\_ and become biological weapons, and that their use threatens existing \_\_\_\_\_ biodiversity," he said. Mr Thomas is worried about what oil companies will do with Mr Venter's work, saying: "Most worrying of all, Craig Venter is \_\_\_\_\_ this powerful technology to the likes of BP and Exxon to hasten the commercialisation of synthetic life-forms."

*natural*  
*fears*  
*driven*  
*arms*  
*handing*  
*risk*  
*threat*  
*escape*

## LISTENING – Listen and fill in the gaps

From [http://www.BreakingNewsEnglish.com/1005/100526-synthetic\\_life.html](http://www.BreakingNewsEnglish.com/1005/100526-synthetic_life.html)

A scientist who has created a synthetic life form has put the \_\_\_\_\_ . Geneticist Craig Venter unveiled a major \_\_\_\_\_ last week when he showed the world a new form of life he created in the laboratory. He made his artificial creation from a stem cell, biochemicals and yeast. Dr Venter claims \_\_\_\_\_ DNA that has never existed on Earth before. The cells he made will pave the way \_\_\_\_\_. Venter believes manmade life will be an important part of all science in the future. In 2007, he said: "Synthetic [life] is going to \_\_\_\_\_ for making anything." He believes it will provide \_\_\_\_\_ diseases and help in the fight against climate change.

Environmentalists are up in arms over Venter's work. They believe it is a \_\_\_\_\_ existence. Campaigners are fighting to ban any form of synthetic life from \_\_\_\_\_. One campaigner, Jim Thomas, expressed his fears to Britain's 'Independent' newspaper: "Synthetic biology is a high-\_\_\_\_\_, building organisms out of parts that are still poorly understood. We know that lab-created life \_\_\_\_\_ become biological weapons, and that their use threatens existing natural biodiversity," he said. Mr Thomas is worried about \_\_\_\_\_ with Mr Venter's work, saying: "Most worrying of all, Craig Venter is handing this powerful technology to the likes of BP and Exxon to \_\_\_\_\_ of synthetic life-forms."

# AFTER READING / LISTENING

From [http://www.BreakingNewsEnglish.com/1005/100526-synthetic\\_life.html](http://www.BreakingNewsEnglish.com/1005/100526-synthetic_life.html)

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

<b>synthetic</b>	<b>life</b>
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- 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>• spin</li><li>• major</li><li>• stem</li><li>• pave</li><li>• standard</li><li>• fight</li></ul>	<ul style="list-style-type: none"><li>• arms</li><li>• ban</li><li>• fears</li><li>• escape</li><li>• oil</li><li>• likes</li></ul>
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# STUDENT SYNTHETIC LIFE SURVEY

From [http://www.BreakingNewsEnglish.com/1005/100526-synthetic\\_life.html](http://www.BreakingNewsEnglish.com/1005/100526-synthetic_life.html)

Write five GOOD questions about synthetic life 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.



# SYNTHETIC LIFE DISCUSSION

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

- a) What did you think when you read the headline?
- b) What springs to mind when you hear the term 'synthetic life'?
- c) Do you think making new life forms is a good idea?
- d) Why is the scientific world so in a spin about Dr Venter's breakthrough?
- e) What do you think the future will hold with the creation of more complex synthetic life forms?
- f) Do you think we'll create a monster one day?
- g) Will synthetic life forms forever change our world for the better?
- h) Would you agree to the creation of synthetic humans?
- i) Do you think synthetic life forms will help in the fight against climate change?
- j) What synthetic life forms do you hope scientists create?

*Environmentalists worry about synthetic life – 26th May, 2010*  
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# SYNTHETIC LIFE DISCUSSION

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

- a) Did you like reading this article?
- b) Why are environmentalists up in arms over Venter's work?
- c) Do you think his work is a threat to our existence?
- d) What can happen if these synthetic life forms get into the wild?
- e) Do you think all work into synthetic life should be banned?
- f) What benefits could synthetic life bring to science and medicine?
- g) What laws would you make for synthetic life research?
- h) Why is someone worried about the oil companies getting this new technology?
- i) What could go wrong with the commercialization of synthetic life?
- j) What questions would you like to ask Dr Venter?

# LANGUAGE – MULTIPLE CHOICE

From [http://www.BreakingNewsEnglish.com/1005/100526-synthetic\\_life.html](http://www.BreakingNewsEnglish.com/1005/100526-synthetic_life.html)

A scientist who has created a synthetic life form has put the science world in a (1) \_\_\_\_\_. Geneticist Craig Venter unveiled a major scientific (2) \_\_\_\_\_ last week when he showed the world a new form of life he created in the laboratory. He made his artificial creation from a stem cell, biochemicals and (3) \_\_\_\_\_. Dr Venter claims his new organism has DNA that has never existed on Earth before. The cells he made will (4) \_\_\_\_\_ the way for more complex ones. Venter believes manmade life will be an important part of all science in the future. In 2007, he said: "Synthetic [life] is going to become the (5) \_\_\_\_\_ for making anything." He believes it will provide amazing new (6) \_\_\_\_\_ for diseases and help in the fight against climate change.

Environmentalists are up in (7) \_\_\_\_\_ over Venter's work. They believe it is a major threat to our existence. Campaigners are fighting to ban any form of synthetic life from getting into the (8) \_\_\_\_\_. One campaigner, Jim Thomas, expressed his fears to Britain's 'Independent' newspaper: "Synthetic biology is a high-risk, profit-(9)\_\_\_\_\_ field, building organisms out of parts that are still poorly understood. We know that lab-created life forms can escape and become biological weapons, and that their use (10) \_\_\_\_\_ existing natural biodiversity," he said. Mr Thomas is worried about what oil companies will do with Mr Venter's work, saying: "Most worrying of all, Craig Venter is (11) \_\_\_\_\_ this powerful technology to the likes of BP and Exxon to (12) \_\_\_\_\_ the commercialisation of synthetic life-forms."

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

- |     |                  |                 |               |                  |
|-----|------------------|-----------------|---------------|------------------|
| 1.  | (a) revolve      | (b) turn        | (c) circle    | (d) spin         |
| 2.  | (a) breakthrough | (b) breakaway   | (c) breakdown | (d) breakout     |
| 3.  | (a) beast        | (b) yeast       | (c) feast     | (d) least        |
| 4.  | (a) rave         | (b) wave        | (c) pave      | (d) fave         |
| 5.  | (a) standardise  | (b) standards   | (c) standard  | (d) standardised |
| 6.  | (a) cure         | (b) cures       | (c) cured     | (d) curing       |
| 7.  | (a) legs         | (b) heads       | (c) hands     | (d) arms         |
| 8.  | (a) wild         | (b) wildest     | (c) wildfire  | (d) wildebeest   |
| 9.  | (a) cycled       | (b) driven      | (c) flown     | (d) sailed       |
| 10. | (a) threats      | (b) threatening | (c) threaten  | (d) threatens    |
| 11. | (a) heading      | (b) footing     | (c) handing   | (d) arming       |
| 12. | (a) hasten       | (b) baste       | (c) fasten    | (d) taste        |

Environmentalists worry about synthetic life – 26th May, 2010



# 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 synthetic life and Dr Venter. Share what you discover with your partner(s) in the next lesson.

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

**4. ARTIFICIAL:** Write a magazine article about artificial humans. Include imaginary interviews with them.

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. LETTER:** Write a letter to Dr Venter. Ask him three questions about synthetic life. Give him three of your opinions on the dangers it presents. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

# ANSWERS

## TRUE / FALSE:

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

## SYNONYM MATCH:

- |                 |                      |
|-----------------|----------------------|
| 1. synthetic    | a. manmade           |
| 2. in a spin    | b. confused          |
| 3. unveiled     | c. made public       |
| 4. pave the way | d. prepare           |
| 5. standard     | e. norm              |
| 6. up in arms   | f. angry             |
| 7. the wild     | g. the natural world |
| 8. poorly       | h. badly             |
| 9. threatens    | i. endangers         |
| 10. hasten      | j. accelerate        |

## PHRASE MATCH:

- |  |                            |
|--|----------------------------|
| 1. put the science world               | a. in a spin               |
| 2. unveiled a major scientific         | b. breakthrough            |
| 3. pave the way                        | c. for more complex ones   |
| 4. the standard for                    | d. making anything         |
| 5. new cures for                       | e. diseases                |
| 6. Environmentalists are up            | f. in arms                 |
| 7. a major threat                      | g. to our existence        |
| 8. ban any form of synthetic life from | h. getting into the wild   |
| 9. the likes of                        | i. BP and Exxon            |
| 10. the commercialisation              | j. of synthetic life-forms |

## GAP FILL:

### Environmentalists worry about synthetic life

A scientist who has created a synthetic life form has put the science world in a **spin**. Geneticist Craig Venter unveiled a major scientific **breakthrough** last week when he showed the world a new form of life he created in the laboratory. He made his artificial creation from a stem cell, biochemicals and **yeast**. Dr Venter claims his new organism has DNA that has never **existed** on Earth before. The cells he made will **pave** the way for more complex ones. Venter believes manmade life will be an important part of all science in the **future**. In 2007, he said: "Synthetic [life] is going to become the **standard** for making anything." He believes it will provide amazing new **cures** for diseases and help in the fight against climate change.

Environmentalists are up in **arms** over Venter's work. They believe it is a major **threat** to our existence. Campaigners are fighting to ban any form of synthetic life from getting into the wild. One campaigner, Jim Thomas, expressed his **fears** to Britain's 'Independent' newspaper: "Synthetic biology is a high-**risk**, profit-**driven** field, building organisms out of parts that are still poorly understood. We know that lab-created life forms can **escape** and become biological weapons, and that their use threatens existing **natural** biodiversity," he said. Mr Thomas is worried about what oil companies will do with Mr Venter's work, saying: "Most worrying of all, Craig Venter is **handing** this powerful technology to the likes of BP and Exxon to hasten the commercialisation of synthetic life-forms."

## LANGUAGE WORK

- 1 - d    2 - a    3 - b    4 - c    5 - c    6 - b    7 - d    8 - a    9 - b    10 - d    11 - c    12 - a