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Level 3 – 20th July, 2020

Scientists attach a camera to a beetle

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<https://breakingnewsenglish.com/2007/200720-beetle-camera.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/2007/200720-beetle-camera.html>

Scientists have developed a tiny camera that can be put on the back of a beetle. The camera can record where the bug goes. This will give the scientists a bug's-eye view of the world. The researchers want to use the camera to explore places never seen before. Researcher Vikram Iyer explained why the camera could be useful. He said: "Insects can traverse rocky environments, which is really challenging for robots to do at this scale. So this system can also help us out by letting us see or collect samples from hard-to-navigate spaces." Mr Iyer is excited to see what the cameras record. He said: "This is the first time that we've had a first-person view from the back of a beetle while it's walking around."

The scientists are from the University of Washington in the USA. They wanted to develop a camera light enough for bugs to wear. It weighs just 250 grams*. Their wireless camera records images at up to five frames per second. A researcher said: "We have created a low-power, low-weight, wireless camera system that can capture a first-person view of what's happening from an actual live insect." He said one of the biggest challenges when making the camera was the battery. It had to be very small and very light, with enough power to last a few hours. The researchers stressed that no beetles were hurt in their tests and that all the insects "lived for at least a year" after the experiments finished.

* Error: The camera weighs 250 milligrams and not 250 grams.

Sources: <https://bgr.com/2020/07/16/coronavirus-spread-at-home-birthday-party-cluster/>
<https://www.bbc.com/news/technology-53445772>
<https://edition.cnn.com/2020/07/15/us/beetle-tiny-cameras-scli-scn-intl/index.html>

WARM-UPS

1. BEETLES: Students walk around the class and talk to other students about beetles. 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?

tiny / beetle / bug / scientist / camera / environment / robot / system / first time / light / wireless / capture / insect / challenge / battery / power / hurt / test / stress

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

3. NO TESTING: Students A **strongly** believe we should not use insects in tests; Students B **strongly** believe it is OK. Change partners again and talk about your conversations.

4. INSECT CAMERA: What would the benefit be of attaching a camera to these insects? What could we see? Complete this table with your partner(s). Change partners often and share what you wrote.

	Benefit?	What Would We See?
Beetles		
Spiders		
Worms		
Ants		
Butterflies		
Cockroaches		

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

6. BUGS: Rank these with your partner. Put the best bugs at the top. Change partners often and share your rankings.

- beetles
- ants
- bees
- butterflies
- worms
- ladybirds
- spiders
- cockroaches

VOCABULARY MATCHING

Paragraph 1

- | | |
|--------------|--|
| 1. developed | a. Travel across or through. |
| 2. view | b. The full range of different levels of people or things, from lowest to highest. |
| 3. explore | c. Created something new. |
| 4. traverse | d. Travel on a desired course after planning a route. |
| 5. scale | e. A sight of something that can be seen by the eye from a particular place. |
| 6. sample | f. Travel in or through an unfamiliar country or area in order to learn about it. |
| 7. navigate | g. A small part or quantity of something to show what the whole thing is like. |

Paragraph 2

- | | |
|---------------|--|
| 8. weigh | h. Not less than. |
| 9. frame | i. Find out how heavy or light someone or something is. |
| 10. capture | j. A single, complete picture in a series forming a movie, television, or video film. |
| 11. challenge | k. A container of cells, in which chemical energy is changed into electricity and used as a source of power. |
| 12. battery | l. A task or situation that tests someone's abilities. |
| 13. last | m. Record in words or pictures. |
| 14. at least | n. Continue to function well or to be in good condition for a set length of time. |

BEFORE READING / LISTENING

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

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

- a. The article said the new camera will give a bug's eye view of the world. **T / F**
- b. The camera will help scientists see places never seen before. **T / F**
- c. The article says tiny robots can get to the same places that beetles can. **T / F**
- d. This is the second time we have had a first-person view from a beetle. **T / F**
- e. The new camera weighs just 25 grams. **T / F**
- f. The new camera can record up to five frames a second. **T / F**
- g. The easiest thing about making the camera was designing the battery. **T / F**
- h. No beetles were harmed during the camera tests. **T / F**

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

- | | |
|------------------------|-------------------|
| 1. developed | a. cross |
| 2. explore | b. catch |
| 3. traverse | c. perspective |
| 4. challenging | d. put on |
| 5. view | e. tests |
| 6. wear | f. travel through |
| 7. images | g. real |
| 8. capture | h. invented |
| 9. actual | i. pictures |
| 10. experiments | j. difficult |

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

- | | |
|--|-----------------------------|
| 1. put on the back | a. frames per second |
| 2. The camera can record | b. seen before |
| 3. explore places never | c. were hurt in their tests |
| 4. Insects can traverse rocky | d. a first-person view |
| 5. This is the first time that we've had | e. where the bug goes |
| 6. a camera light enough | f. making the camera |
| 7. records images at up to five | g. wireless camera system |
| 8. a low-power, low-weight, | h. of a beetle |
| 9. one of the biggest challenges when | i. for bugs to wear |
| 10. The researchers stressed that no beetles | j. environments |

GAP FILL

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Scientists have (1) _____ a tiny camera that can be put on the back of a beetle. The camera can (2) _____ where the bug goes. This will give the scientists a bug's-eye (3) _____ of the world. The researchers want to use the camera to explore (4) _____ never seen before. Researcher Vikram Iyer explained why the camera could be useful. He said: "Insects can traverse (5) _____ environments, which is really challenging for robots to do at this scale. So this system can also help us out by letting us see or collect (6) _____ from hard-to-navigate spaces." Mr Iyer is (7) _____ to see what the cameras record. He said: "This is the first time that we've had a first-person view from the back of a beetle (8) _____ it's walking around."

places
samples
record
while
view
excited
developed
rocky

The scientists are from the University of Washington in the USA. They wanted to develop a camera light enough for (9) _____ to wear. It weighs just 250 grams. Their (10) _____ camera records images at up to five frames per second. A researcher said: "We have created a low- (11) _____, low-weight, wireless camera system that can capture a first-person view of what's happening from an (12) _____ live insect." He said one of the biggest challenges when making the camera was the (13) _____. It had to be very small and very light, with enough power to (14) _____ a few hours. The researchers stressed that no beetles were (15) _____ in their tests and that all the insects "lived for at (16) _____ a year" after the experiments finished.

power
last
actual
least
bugs
hurt
wireless
battery

LISTENING – Guess the answers. Listen to check.

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

- 1) Scientists have developed a tiny camera that can be put on the _____ beetle
 - a. back of a
 - b. buck of a
 - c. beck of a
 - d. book of a
- 2) The researchers want to use the camera to explore places _____
 - a. never scene before
 - b. never screen before
 - c. never seem before
 - d. never seen before
- 3) which is really challenging for robots to do _____
 - a. that this scale
 - b. what this scale
 - c. at this scale
 - d. fact this scale
- 4) So this system can also help us out by letting us see _____
 - a. or collection samples
 - b. nor collect samples
 - c. or collect samples
 - d. or collects samples
- 5) This is the first time that we've had a _____
 - a. fist-person view
 - b. first-people view
 - c. first-person views
 - d. first-person view
- 6) They wanted to develop a camera light enough for _____
 - a. bugs to wearing
 - b. bugs to wear
 - c. bugs to wears
 - d. bugs to where
- 7) Their wireless camera records images at up to five _____
 - a. flames per second
 - b. frame spear second
 - c. flames spare second
 - d. frames per second
- 8) of what's happening from an _____
 - a. actual alive insect
 - b. actual life insect
 - c. actual live insect
 - d. actual liver insect
- 9) He said one of the biggest challenges when making the camera _____
 - a. was the buttery
 - b. was the battery
 - c. was the bettering
 - d. was the battering
- 10) The researchers stressed that no beetles were hurt _____
 - a. in their tastes
 - b. in their tees
 - c. in their trysts
 - d. in their tests

LISTENING – Listen and fill in the gaps

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Scientists have (1) _____ camera that can be put on the back of a beetle. The camera (2) _____ the bug goes. This will give the scientists a bug's-eye view of the world. The researchers want to use the camera to explore places (3) _____. Researcher Vikram Iyer explained why the camera could be useful. He said: "Insects can traverse rocky environments, which (4) _____ for robots to do at this scale. So this system can also help us out by letting us see or (5) _____ hard-to-navigate spaces." Mr Iyer is excited to see what the cameras record. He said: "This is the first time that we've had a first-(6) _____ the back of a beetle while it's walking around."

The scientists are from the University of Washington in the USA. They wanted to (7) _____ light enough for bugs to wear. It weighs just 250 grams. Their wireless camera (8) _____ up to five frames per second. A researcher said: "We have created a low-power, low-weight, wireless camera system (9) _____ a first-person view of what's happening from an actual live insect." He said one of the (10) _____ making the camera was the battery. It had to be very small and very light, with enough (11) _____ a few hours. The researchers stressed that no beetles were hurt in their tests and that all the insects "lived for at (12) _____" after the experiments finished.

COMPREHENSION QUESTIONS

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

1. Where did the article say the camera can record?
2. What places do researchers want to explore?
3. What kind of environments did a researcher say insects can traverse?
4. What did the researcher say insects could collect?
5. What kind of view did the researcher say we would have?
6. Where are the scientists from?
7. How much does the camera weigh?
8. How many frames per second can the camera record?
9. What was the biggest challenge regarding the camera?
10. For how long did the beetles live after the experiments finished?

MULTIPLE CHOICE - QUIZ

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

- 1) Where did the article say the camera can record?
 - a) anything
 - b) where the bug goes
 - c) inside drains
 - d) on the Moon
- 2) What places do researchers want to explore?
 - a) dirty places
 - b) interesting places
 - c) under beds and closets
 - d) places never seen before
- 3) What kind of environments did a researcher say insects can traverse?
 - a) small environments
 - b) crossings
 - c) rocky environments
 - d) wires
- 4) What did the researcher say insects could collect?
 - a) samples
 - b) photos
 - c) food
 - d) other insects
- 5) What kind of view did the researcher say we would have?
 - a) a fantastic view
 - b) a first-person view
 - c) a terrible view
 - d) a sea view
- 6) Where are the scientists from?
 - a) the University of Washington
 - b) the University of Nebraska
 - c) the University of Utah
 - d) the University of Oregon
- 7) How much does the camera weigh?
 - a) 2.5 kilograms
 - b) 2,550 grams
 - c) 250 grams
 - d) 25 grams
- 8) How many frames per second can the camera record?
 - a) 5
 - b) 8
 - c) 10
 - d) 20
- 9) What was the biggest challenge regarding the camera?
 - a) seeing in the dark
 - b) the pixels
 - c) shaking
 - d) making the battery
- 10) For how long did the beetles live after the experiments finished?
 - a) weeks and weeks
 - b) a few months
 - c) at least a year
 - d) about 27 years

ROLE PLAY

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Role A – Beetles

You think beetles are the best insects. Tell the others three reasons why. Tell them what is wrong with their insects. Also, tell the others which is the worst of these (and why): ants, worms or spiders.

Role B – Ants

You think ants are the best insects. Tell the others three reasons why. Tell them what is wrong with their insects. Also, tell the others which is the worst of these (and why): beetles, worms or spiders.

Role C – Worms

You think worms are the best insects. Tell the others three reasons why. Tell them what is wrong with their insects. Also, tell the others which is the worst of these (and why): ants, beetles or spiders.

Role D – Spiders

You think spiders are the best insects. Tell the others three reasons why. Tell them what is wrong with their insects. Also, tell the others which is the worst of these (and why): ants, worms or beetles.

AFTER READING / LISTENING

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

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

beetle	camera
---------------	---------------

- 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">• tiny• explore• useful• really• collect• back	<ul style="list-style-type: none">• wear• 250• low• actual• last• least
---	--

BEETLES SURVEY

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Write five GOOD questions about beetles 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.

BEETLES 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 'beetle'?
3. What do you think of beetles?
4. How useful are beetles?
5. What beetles do you like and dislike?
6. What do you think the camera will record?
7. What is a bug's eye view of the world?
8. What places would you like to see that you've never seen before?
9. What other insects could cameras be put on?
10. Would you like to see a camera travel inside your body?

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BEETLES 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 'camera'?
13. What do you think about what you read?
14. Would you like to wear a tiny camera?
15. Would you like to work as a beetle researcher?
16. How might this technology help beetles?
17. How might this technology help humans?
18. Is it ethical to do use beetles in experiments?
19. What would people see every day if you wore a camera?
20. What questions would you like to ask the researchers?

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/2007/200720-beetle-camera.html>

Scientists have developed a (1) _____ camera that can be put on the back of a beetle. The camera can record where the bug (2) _____. This will give the scientists a bug's-eye view of the world. The researchers want to use the camera to explore places never seen before. Researcher Vikram Iyer explained why the camera could (3) _____ useful. He said: "Insects can traverse rocky environments, which is really challenging for robots to do at this (4) _____. So this system can also help us out by letting us see or (5) _____ samples from hard-to-navigate spaces." Mr Iyer is excited to see what the cameras record. He said: "This is the first time that we've had a first-person (6) _____ from the back of a beetle while it's walking around."

The scientists are from the University of Washington in the USA. They wanted to develop a camera light (7) _____ for bugs to wear. It weighs just 250 grams. Their wireless camera records images at up to five (8) _____ per second. A researcher said: "We have created a low-power, low-weight, wireless camera system that can capture a first-person view of what's happening from an (9) _____ live insect." He said one of (10) _____ biggest challenges when making the camera was the battery. It had to be very small and very light, with enough power to last a few hours. The researchers stressed that no beetles were (11) _____ in their tests and that all the insects "lived for at (12) _____ a year" after the experiments finished.

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

- | | | | | |
|-----|--------------|--------------|---------------|----------------|
| 1. | (a) tinny | (b) tiny | (c) tin | (d) tint |
| 2. | (a) does | (b) goes | (c) hoes | (d) foes |
| 3. | (a) being | (b) been | (c) was | (d) be |
| 4. | (a) ratio | (b) scale | (c) locale | (d) pixel |
| 5. | (a) collate | (b) collect | (c) recollect | (d) collection |
| 6. | (a) watch | (b) see | (c) view | (d) stare |
| 7. | (a) plenty | (b) sample | (c) enough | (d) state |
| 8. | (a) pictures | (b) sketches | (c) frames | (d) cameras |
| 9. | (a) element | (b) entire | (c) exist | (d) actual |
| 10. | (a) the | (b) a | (c) by | (d) some |
| 11. | (a) hurt | (b) harm | (c) injure | (d) damage |
| 12. | (a) last | (b) lost | (c) least | (d) lest |

SPELLING

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Paragraph 1

1. Scientists have eepldoev a tiny camera
2. a s'gbu-yee view of the world
3. use the camera to opelxre places
4. this eytsms can also help us
5. collect lempssa
6. hard-to-eaviantg spaces

Paragraph 2

7. records iegasm at up to five frames per second
8. reaucpt a first-person view
9. from an alutac live insect
10. one of the biggest ncaeshlelg
11. uhogne power to last a few hours
12. after the eexrmepisnt finished

PUT THE TEXT BACK TOGETHER

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Number these lines in the correct order.

- () why the camera could be useful. He said: "Insects can traverse rocky environments, which is really
- () challenging for robots to do at this scale. So this system can also help us out by letting us see or collect
- () samples from hard-to-navigate spaces." Mr Iyer is excited to see what the cameras record. He said: "This
- () use the camera to explore places never seen before. Researcher Vikram Iyer explained
- () The scientists are from the University of Washington in the USA. They wanted to develop a camera light
- () light, with enough power to last a few hours. The researchers stressed that no beetles were hurt in their tests
- () challenges when making the camera was the battery. It had to be very small and very
- (**1**) Scientists have developed a tiny camera that can be put on the back of a beetle. The camera can
- () system that can capture a first-person view of what's happening from an actual live insect." He said one of the biggest
- () is the first time that we've had a first-person view from the back of a beetle while it's walking around."
- () record where the bug goes. This will give the scientists a bug's-eye view of the world. The researchers want to
- () enough for bugs to wear. It weighs just 250 grams. Their wireless camera records images at up
- () to five frames per second. A researcher said: "We have created a low-power, low-weight, wireless camera
- () and that all the insects "lived for at least a year" after the experiments finished.

PUT THE WORDS IN THE RIGHT ORDER

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

1. the bug record where The can goes . camera
2. will scientists bug's-eye give a view . This the
3. never the to places seen . camera Use explore
4. for do Challenging at scale . robots this to
5. what record . cameras to He's excited see the
6. a wanted to develop They camera enough . light
7. five second . frames up at to per Records
8. of what's a view happening . Capture first-person
9. to a hours . With power last few enough
10. lived least year . insects a All for at

CIRCLE THE CORRECT WORD (20 PAIRS)

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Scientists have developed a *tiny / tinny* camera that can be put on the back of a beetle. The camera can record where the bug *going / goes*. This will give the scientists a bug's-eye *view / watch* of the world. The researchers want to use the camera to explore *places / place* never seen before. Researcher Vikram Iyer *explanation / explained* why the camera could be useful. He said: "Insects can *reverse / traverse* rocky environments, which is really challenging for robots to *do / be* at this scale. So this system can also help us *in / out* by letting us see or collect samples from hard-to-navigate spaces." Mr Iyer is *excited / excitement* to see what the cameras record. He said: "This is the first time that we've had a first-person view from the back of a *Beatle / beetle* while it's walking around."

The *scientists / sciences* are from the University of Washington in the USA. They wanted to develop a camera light *plenty / enough* for bugs to wear. It weighs just 250 grams. Their wireless camera records images *to / at* up to five frames *per / pre* second. A researcher said: "We have created a low-power, low-weight, wireless camera system that can *rupture / capture* a first-person view of what's *happening / happen* from an actual live insect." He said one of the biggest *challenge / challenges* when making the camera was the battery. It had to be very small and very light, with enough power to *last / past* a few hours. The researchers stressed that no beetles were *hurt / harm* in their tests and that all the insects "lived for at *last / least* a year" after the experiments finished.

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/2007/200720-beetle-camera.html>

S c__ n t_s t s h_v_ d_v_l_p_d _ t_n y c_m_r_ t_h_t
c_n b_ p_t _n th_ b_c k _f _ b__ t_l_. Th_ c_m_r_
c_n r_c_r d w h_r_ th_ b_g g__ s. Th_s w_l l
g_v_ th_ s c__ n t_s t s _ b_g 's -_y_ v__ w _f th_
w_r l d . Th_ r_s__ r c h_r s w_n t t_ _s_ th_
c_m_r_ t_ _x p_l_r_ p_l_c_s n_v_r s__ n b_f_r_.
R_s__ r c h_r V_k_r_m I_y_r _x p_l__ n_d w h y th_
c_m_r_ c__ l d b_ _s_f_l. H_ s__ d: " I n s_c t s
c_n t_r_v_r s_ r_c k y _n v_r_n m_n t s , w h_c h _s
r__ l l y c_h_l l_n g_n g f_r r_b_t s t_ d_ t th_s s
c_l_. S_ th_s s_y s_t_m c_n _l_s_ h_l p _s __ t b y
l_t t_n g _s s__ _r c_l l_c t s_m p_l_s f_r m h_r d -
t_ - n_v_g_t_ s_p_c_s." M_r I_y_r _s _x_c_t_d t_ s__
w_h_t th_ c_m_r_s r_c_r d. H_ s__ d: " Th_s _s
t_h_ f_r s t t_m_ t_h_t w_'v_ h_d _ f_r s t - p_r s_n
v__ w _f_r m th_ b_c k _f _ b__ t_l_ w_h_l_ t' s
w_l k_n g _r__ n d."

T h_ s c__ n t_s t s _r_ f_r m th_ U n_v_r s_t y _f
W_s h_n g_t_n _n th_ U S A . Th_y w_n t_d t_
d_v_l_p _ c_m_r_ l_g h t _n__ g h f_r b_g s t_ w__
r . I t w__ g h s j_s t 2 5 0 g_r_m s . Th__ r
w_r_l_s s c_m_r_ r_c_r d s _m_g_s _t _p t_ f_v_ f
r_m_s p_r s_c_n d . A r_s__ r c h_r s__ d: " W_
h_v_ c_r__ t_d _ l_w - p_w_r , l_w - w__ g h t ,
w_r_l_s s c_m_r_ s_y s_t_m th_t c_n c_p_t_r_ _ f_r s
t - p_r s_n v__ w _f w_h_t' s h_p_p_n_n g f_r m _n
_c_t__ l l_v_ _n_s_c_t." H_ s__ d _n_ f th_ b_g g_s
t c_h_l l_n g_s w_h_n m_k_n g th_ c_m_r_ w_s th_
b_t t_r y . I t h_d t_ b_ v_r y s_m_l l _n_d v_r y
l_g h t , w_t h _n__ g h p_w_r t_ l_s t _ f_w h__ r
s . Th_ r_s__ r c h_r s s_t_r_s_s_d th_t n_ b__ t_l_s
w_r_ h_r t _n th__ r t_s t s _n_d th_t _l l th_ _n
s_c t s " l_v_d f_r t l__ s t _ y__ r" _f_t_r th_ _x
p_r_m_n t s f_n_s_h_d .

PUNCTUATE THE TEXT AND ADD CAPITALS

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

scientists have developed a tiny camera that can be put on the back of a beetle the camera can record where the bug goes this will give the scientists a bugseye view of the world the researchers want to use the camera to explore places never seen before researcher vikram iyer explained why the camera could be useful he said insects can traverse rocky environments which is really challenging for robots to do at this scale so this system can also help us out by letting us see or collect samples from hardtonavigate spaces mr iyer is excited to see what the cameras record he said this is the first time that weve had a firstperson view from the back of a beetle while its walking around

the scientists are from the university of washington in the usa they wanted to develop a camera light enough for bugs to wear it weighs just 250 grams their wireless camera records images at up to five frames per second a researcher said we have created a lowpower lowweight wireless camera system that can capture a firstperson view of whats happening from an actual live insect he said one of the biggest challenges when making the camera was the battery it had to be very small and very light with enough power to last a few hours the researchers stressed that no beetles were hurt in their tests and that all the insects lived for at least a year after the experiments finished

PUT A SLASH (/) WHERE THE SPACES ARE

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Scientists have developed a tiny camera that can be put on the back of a beetle. The camera can record where the bug goes. This will give the scientist a bug's-eye view of the world. The researchers want to use the camera to explore places never seen before. Researcher Vikram Iyer explained why the camera could be useful. He said: "Insects can traverse rocky environments, which is really challenging for robots to do at this scale. So this system can also help us out by letting us see or collect samples from hard-to-navigate spaces." Mr Iyer is excited to see what the cameras record. He said: "This is the first time that we've had a first-person view from the back of a beetle while it's walking around." The scientists are from the University of Washington in the USA. They wanted to develop a camera light enough for a bug to wear. It weighs just 250 grams. Their wireless cameras record images at up to five frames per second. A researcher said: "We have created a low-power, low-weight, wireless camera system that can capture a first-person view of what's happening from an actual live insect." He said one of the biggest challenges when making the camera was the battery. It had to be very small and very light, with enough power to last a few hours. The researchers stressed that no beetles were hurt in their tests and that all the insects "lived for at least a year" after the experiments finished.

FREE WRITING

From <https://breakingnewsenglish.com/2007/200720-beetle-camera.html>

Write about **beetles** for 10 minutes. Comment on your partner’s paper.

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

4. BUG CAMERAS: Write a magazine article about banning bug cameras because they harm insects. 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 beetles. Ask him/her three questions about them. Give him/her three of your ideas about what we can learn from beetles. 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. f 4. a 5. b 6. g 7. d
8. i 9. j 10. m 11. l 12. k 13. n 14. h

TRUE / FALSE (p.5)

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

SYNONYM MATCH (p.5)

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

COMPREHENSION QUESTIONS (p.9)

1. Where the bug goes
2. Places never seen before
3. Rocky environments
4. Samples
5. A first-person view
6. The University of Washington
7. 250 grams
8. Five
9. Making the battery
10. At least a year

WORDS IN THE RIGHT ORDER (p.20)

1. The camera can record where the bug goes.
2. This will give the scientists a bug's-eye view.
3. Use the camera to explore places never seen.
4. Challenging for robots to do at this scale.
5. He's excited to see what the cameras record.
6. They wanted to develop a camera light enough.
7. Records at up to five frames per second.
8. Capture a first-person view of what's happening.
9. With enough power to last a few hours.
10. All insects lived for at least a year.

MULTIPLE CHOICE - QUIZ (p.10)

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

ALL OTHER EXERCISES

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