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## **Scientists test WiTricity – wireless electricity**

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**13<sup>th</sup> June, 2007**

## THE ARTICLE

### **Scientists test WiTricity – wireless electricity**

A team of US researchers has come up with an electricity system that does not need wires. This is a breakthrough in what will hopefully be a wireless future. The scientists, from the Massachusetts Institute of Technology, lit a 60-watt light bulb using magnetic fields. In the test, the power source was just two metres away from the light, but the team hopes they will soon be able to send electricity longer distances through the air. They have dubbed their new invention “WiTricity”, or wireless electricity. Although wi-fi has been around for some years now, it has been limited to the transmission of information, especially between computers and modems, printers and scanners. This is the first time electrical appliances have been powered wirelessly.

This new development means that our houses may be free from tangled wires. Gone will be the days of having to unplug the vacuum to go from room to room, and of having countless plugs hidden behind the TV and stereo. The new source of delivering power to gadgets remotely may also reduce the number of fires caused by poor wiring and overloaded sockets. It turns out the concept is not so new. A century ago, inventor Nikola Tesla struck upon the idea of building a huge tower in New York that would wirelessly beam power to the city. Unfortunately, his idea never came to fruition, until today, that is. It will still be a while before we have wireless homes and offices. Safety experts will be checking closely to ensure the power source causes us no harm.

## WARM-UPS

**1. ELECTRICITY:** Walk around the class and talk to other students about electricity – do you have any “electricity stories”? Change partners often. After you finish, sit with your original partner(s) and share what you found out.

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

*researchers / wires / breakthroughs / light bulbs / 'wirelessness' / appliances / developments / vacuums / plugs / wiring / inventors / safety experts / harm*

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

**3. WI-TRICITY:** With your partner(s), decide which of these things you would like to have no power cords. How would 'wirelessness' make using these things better? Change partners and share your findings.

- lamps
- vacuum cleaners
- fridges
- TVs
- computers
- games consoles
- telephones/fax machines
- other \_\_\_\_\_

**4. FUTURE HEADLINES:** Talk about these future headlines with your partner(s). Talk about the stories behind the headlines. Discuss when these headlines might come true:

- Entire language downloaded into the brain in 25 seconds
- London to Sydney in a minute on new SuperJet
- Last office closes. World population now working from home
- DoctorBots arrive – heart surgery via an easy-to-swallow pill
- McDonalds opens first moon restaurant
- iPod becomes latest addition to Antique Technology Museum
- Tech whiz-kid Gill Bates invents replacement to computer

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

**6. QUICK DEBATE:** Students A strongly believe WiTricity will be dangerous – too much electricity in the air; Students B think WiTricity will revolutionize our lives. Change partners often. When you have finished, share your findings.

## BEFORE READING / LISTENING

**1. TRUE / FALSE:** Look at the article's headline and guess whether these sentences are true (T) or false (F):

- a. Scientists have tested a radio that doesn't have wires inside it. T / F
- b. In another test, scientists lit 60 different light bulbs. T / F
- c. Scientists have sent electricity two metres through the air. T / F
- d. Wi-fi is a concept that first originated at the end of last year. T / F
- e. The invention of WiTricity signals the end of vacuum cleaners. T / F
- f. WiTricity may reduce the number of household electrical fires. T / F
- g. An inventor struck upon the idea of WiTricity a hundred years ago. T / F
- h. Wireless offices and homes will be with us before the year is out. T / F

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

- |                 |            |
|-----------------|------------|
| a. come up with | completion |
| b. breakthrough | gadgets    |
| c. dubbed       | spread     |
| d. transmission | jumbled    |
| e. appliances   | faulty     |
| f. tangled      | invented   |
| g. poor         | send out   |
| h. struck upon  | called     |
| i. beam         | revolution |
| j. fruition     | thought of |

**3. PHRASE MATCH:** Match the following phrases from the article (sometimes more than one combination is possible):

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| a. A team of US researchers has come | appliances have been powered        |
| b. a breakthrough in what            | wiring and overloaded sockets       |
| c. lit a                             | from tangled wires                  |
| d. They have dubbed                  | will hopefully be a wireless future |
| e. the first time electrical         | up with an electricity system       |
| f. our houses may be free            | 60-watt light bulb                  |
| g. having countless                  | upon the idea                       |
| h. fires caused by poor              | their new invention "WiTricity"     |
| i. inventor Nikola Tesla struck      | fruition, until today               |
| j. his idea never came to            | plugs hidden behind the TV          |

## WHILE READING / LISTENING

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

### Scientists test WiTricity – wireless electricity

A team of US researchers has \_\_\_\_\_ up with an electricity system that does not need wires. This is a \_\_\_\_\_ in what will hopefully be a wireless future. The scientists, from the Massachusetts Institute of Technology, lit a 60-watt light bulb using magnetic \_\_\_\_\_. In the test, the power \_\_\_\_\_ was just two metres away from the light, but the team hopes they will soon be able to send electricity longer \_\_\_\_\_ through the air. They have \_\_\_\_\_ their new invention “WiTricity”, or wireless electricity. Although wi-fi has been around for some years now, it has been limited to the \_\_\_\_\_ of information, especially between computers and modems, printers and scanners. This is the first time electrical \_\_\_\_\_ have been powered wirelessly.

*appliances*

*fields*

*distances*

*come*

*transmission*

*breakthrough*

*source*

*dubbed*

This new development means that our houses may be free from \_\_\_\_\_ wires. Gone will be the days of having to \_\_\_\_\_ the vacuum to go from room to room, and of having countless \_\_\_\_\_ hidden behind the TV and stereo. The new source of delivering power to gadgets remotely may also reduce the number of fires caused by \_\_\_\_\_ wiring and overloaded sockets. It turns out the concept is not so new. A century ago, inventor Nikola Tesla \_\_\_\_\_ upon the idea of building a huge tower in New York that would wirelessly \_\_\_\_\_ power to the city. Unfortunately, his idea never came to \_\_\_\_\_, until today, that is. It will still be a while before we have wireless homes and offices. Safety experts will be checking closely to \_\_\_\_\_ the power source causes us no harm.

*beam*

*unplug*

*struck*

*plugs*

*ensure*

*tangled*

*poor*

*fruition*

## LISTENING

Listen and fill in the spaces.

### Scientists test WiTricity – wireless electricity

A team of US researchers \_\_\_\_\_ electricity system that does not need wires. This is a breakthrough in \_\_\_\_\_ a wireless future. The scientists, from the Massachusetts Institute of Technology, lit a 60-watt light bulb \_\_\_\_\_. In the test, the power source was just two metres away from the light, but the team hopes they will soon be able to send electricity longer distances through the air. They \_\_\_\_\_ invention “WiTricity”, or wireless electricity. Although wi-fi has been around for some years now, it has been limited to the \_\_\_\_\_, especially between computers and modems, printers and scanners. This is the first time electrical \_\_\_\_\_ powered wirelessly.

This new development means that our houses may be \_\_\_\_\_ wires. Gone will be the days of having to \_\_\_\_\_ to go from room to room, and of having \_\_\_\_\_ behind the TV and stereo. The new source of delivering power to gadgets remotely may also reduce the number of fires caused \_\_\_\_\_ overloaded sockets. It turns out the concept is not so new. A century ago, inventor Nikola Tesla \_\_\_\_\_ of building a huge tower in New York that would wirelessly beam power to the city. Unfortunately, his idea never \_\_\_\_\_ today, that is. It will still be a while before we have wireless homes and offices. Safety experts will be checking closely to ensure the power source \_\_\_\_\_.

## AFTER READING / LISTENING

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

electricity	system

- 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 exactly how these were used in the text:

<ul style="list-style-type: none"><li>• come up with</li><li>• future</li><li>• source</li><li>• dubbed</li><li>• transmission</li><li>• powered</li></ul>	<ul style="list-style-type: none"><li>• tangled</li><li>• countless</li><li>• overloaded</li><li>• beam</li><li>• fruition</li><li>• ensure</li></ul>
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## STUDENT WI-TRICITY SURVEY

Write five GOOD questions about WI-TRICITY 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.



## DISCUSSION

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

- a) What did you think when you read the headline?
- b) What do you think about the idea of WiTricity?
- c) Is your room full of plugs, cables and wires?
- d) How much of a breakthrough do you think WiTricity is?
- e) Do you think WiTricity means we will be living in a science fiction world?
- f) Will WiTricity make your daily life easier?
- g) What else would you like to send through the air, besides electricity?
- h) Do you already make use of wi-fi devices?
- i) What do you think of the name "WiTricity"?
- j) Do you think WiTricity will result in people using less power?



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

- a) Did you like reading this article?
- b) Do you have problems moving your vacuum cleaner around the house?
- c) Do you ever get fed up with electric wires?
- d) How many plugs do you think there are in your house?
- e) Would you sleep better at night knowing WiTricity has reduced the risk of electrical fires?
- f) Why do you think Nikola Tesla's idea of wireless electricity never came to fruition?
- g) What would you call your autobiography and why?
- h) Are you looking forward to the age of wireless homes and offices?
- i) Do you think WiTricity could cause problems to your health?
- j) Did you like this discussion?

**AFTER DISCUSSION:** Join another partner / group and tell them what you talked about.

- a) What was the most interesting thing you heard?
- b) Was there a question you didn't like?
- c) Was there something you totally disagreed with?
- d) What did you like talking about?
- e) Which was the most difficult question?

## **SPEAKING**

### **ROLE PLAY:**

Your government wants to give \$100,000,000 to a company to research WiTricity. Should the company get the money?

Team up with classmates who have the same role as you. Develop your roles and discuss ideas and “strategies”.

#### **Role A – WI-TRICITY INVENTOR**

You think your invention is one of the greatest ever. It will revolutionize the way we live. There will be huge energy savings. Fewer people will die in house fires. Old and disabled people will be able to move around more.

THINK OF MORE REASONS WHY YOU SHOULD GET THE CASH

#### **Role B – OLD PERSON**

You can't wait for WiTricity. You have great trouble bending down to put plugs in sockets. You have tripped over wires many times and broken bones. There was nearly an electrical fire in your house last year.

THINK OF MORE REASONS WHY WI-TRICITY WILL HELP YOU

#### **Role C – SAFETY EXPERT**

You are 100% convinced that WiTricity is a huge danger. The amount of electricity in the air will cause many health problems. It will also cause more fires as the WiTricity builds up in heat patches. The idea should be abandoned.

THINK OF MORE REASONS WHY WI-TRICITY IS BAD

#### **Role D – ENVIRONMENTALIST**

You think the government should not waste money on making the lives of rich people more comfortable. This will only encourage laziness and poor health. This grant should go to aid poor people in developing countries.

THINK OF REASONS WHY THE INVENTORS SHOULD NOT GET THE CASH

Change roles and repeat the role play. Comment in groups about the differences between the two role plays.

In pairs / groups, discuss whether you really believe in what you said while you were in your roles.

## LANGUAGE

**CORRECT WORD:** Put the correct words from a–d below in the article.

### Scientists test WiTricity – wireless electricity

A team of US researchers has come (1) \_\_\_\_\_ with an electricity system that does not need wires. This is a breakthrough (2) \_\_\_\_\_ what will hopefully be a wireless future. The scientists, from the Massachusetts Institute of Technology, (3) \_\_\_\_\_ a 60-watt light bulb using magnetic fields. In the test, the power source was just two metres away from the light, but the team hopes they will soon be able to send electricity longer distances through the air. They have (4) \_\_\_\_\_ their new invention “WiTricity”, or wireless electricity. Although wi-fi has been around for (5) \_\_\_\_\_ years now, it has been limited to the transmission of information, especially between computers and modems, printers and scanners. This is the first time electrical appliances have been powered (6) \_\_\_\_\_.

This new development means that our houses may be free from tangled wires. (7) \_\_\_\_\_ will be the days of having to unplug the vacuum to go from room to room, and of having (8) \_\_\_\_\_ plugs hidden behind the TV and stereo. The new source of delivering power to gadgets remotely may also reduce the number of fires caused by (9) \_\_\_\_\_ wiring and overloaded sockets. It turns out the concept is not so new. A century ago, inventor Nikola Tesla struck (10) \_\_\_\_\_ the idea of building a huge tower in New York that would wirelessly beam power to the city. Unfortunately, his idea never came to (11) \_\_\_\_\_, until today, that is. It will still be a while before we have wireless homes and offices. Safety experts will be checking closely to (12) \_\_\_\_\_ the power source causes us no harm.

- |     |                |                |               |             |
|-----|----------------|----------------|---------------|-------------|
| 1.  | (a) down       | (b) up         | (c) over      | (d) under   |
| 2.  | (a) in         | (b) on         | (c) out       | (d) by      |
| 3.  | (a) match      | (b) lamp       | (c) lit       | (d) light   |
| 4.  | (a) duped      | (b) dabbled    | (c) daubed    | (d) dubbed  |
| 5.  | (a) few        | (b) sometime   | (c) some      | (d) any     |
| 6.  | (a) wired      | (b) wirelessly | (c) wireless  | (d) wires   |
| 7.  | (a) Been       | (b) Gone       | (c) Went      | (d) Going   |
| 8.  | (a) countless  | (b) counting   | (c) countable | (d) counted |
| 9.  | (a) destitute  | (b) broke      | (c) meager    | (d) poor    |
| 10. | (a) upon       | (b) gold       | (c) in        | (d) up      |
| 11. | (a) fruitiness | (b) fruitful   | (c) fruition  | (d) fruity  |
| 12. | (a) pleasure   | (b) censure    | (c) reassure  | (d) ensure  |



## **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 more information about wireless electricity. Talk about what you discover with your partner(s) in the next lesson.

**3. MODERN TECHNOLOGY POSTER:** Make a poster about the different kinds of modern technology you think will be with us soon. Show your poster to your class in the next lesson. Vote on the best one(s).

**4. MAGAZINE ARTICLE:** Write a magazine article about wireless electricity. Discuss the merits of having wireless homes and offices.

Read what you wrote to your classmates in the next lesson. Which article was best and why?

**5. LETTER:** Write a letter to the MIT researchers. Ask them three questions about WiTricity. Give them three suggestions about what other things they could invent to make our lives better. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

## ANSWERS

### TRUE / FALSE:

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

### SYNONYM MATCH:

- |                 |            |
|-----------------|------------|
| a. come up with | invented   |
| b. breakthrough | revolution |
| c. dubbed       | called     |
| d. transmission | spread     |
| e. appliances   | gadgets    |
| f. tangled      | jumbled    |
| g. poor         | faulty     |
| h. struck upon  | thought of |
| i. beam         | send out   |
| j. fruition     | completion |

### PHRASE MATCH:

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| a. A team of US researchers has come | up with an electricity system       |
| b. a breakthrough in what            | will hopefully be a wireless future |
| c. lit a                             | 60-watt light bulb                  |
| d. They have dubbed                  | their new invention "WiTricity"     |
| e. the first time electrical         | appliances have been powered        |
| f. our houses may be free            | from tangled wires                  |
| g. having countless                  | plugs hidden behind the TV          |
| h. fires caused by poor              | wiring and overloaded sockets       |
| i. inventor Nikola Tesla struck      | upon the idea                       |
| j. his idea never came to            | fruition, until today               |

### GAP FILL:

#### Scientists test WiTricity – wireless electricity

A team of US researchers has **come** up with an electricity system that does not need wires. This is a **breakthrough** in what will hopefully be a wireless future. The scientists, from the Massachusetts Institute of Technology, lit a 60-watt light bulb using magnetic **fields**. In the test, the power **source** was just two metres away from the light, but the team hopes they will soon be able to send electricity longer **distances** through the air. They have **dubbed** their new invention "WiTricity", or wireless electricity. Although wi-fi has been around for some years now, it has been limited to the **transmission** of information, especially between computers and modems, printers and scanners. This is the first time electrical **appliances** have been powered wirelessly.

This new development means that our houses may be free from **tangled** wires. Gone will be the days of having to **unplug** the vacuum to go from room to room, and of having countless **plugs** hidden behind the TV and stereo. The new source of delivering power to gadgets remotely may also reduce the number of fires caused by **poor** wiring and overloaded sockets. It turns out the concept is not so new. A century ago, inventor Nikola Tesla **struck** upon the idea of building a huge tower in New York that would wirelessly **beam** power to the city. Unfortunately, his idea never came to **fruition**, until today, that is. It will still be a while before we have wireless homes and offices. Safety experts will be checking closely to **ensure** the power source causes us no harm.

### LANGUAGE WORK

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