THE ARTICLE

From https://breakingnewsenglish.com/2105/210512-microchips.html

Computers, tablets and smartphones can do more and more things these days. Fifteen years ago, they were not powerful enough to store movies or play high-definition games. Computer chip technology has advanced at a fast rate. We can now stream movies on our smartphones and store huge amounts of data. IBM has announced it has made a significant breakthrough in microchip power. It has created chips that improve performance by 45 per cent. Its new chips also use 75 per cent less energy. This is good for the environment, and means batteries will be more energy efficient. The technology could quadruple mobile phone battery life. We might only need to charge our phones every four days.

IBM has greatly improved its microchips by reducing their size. The tech giant has created a two-nanometre chip. Computer engineers use nanometres to measure the size of chips. One nanometre is just a billionth of a metre. A chip that is 2nm in size is incredibly small. IBM says its 2nm processor can store 50 billion transistors on "a chip the size of a fingernail". Computer expert Peter Rudden said: "We have seen semiconductor manufacturers moving from 14nm to 10nm to 7nm, with 7nm being a real challenge for some." He said IBM's new chip could advance artificial intelligence (AI). The chips could also let data centres store more information. Data centres use one per cent of the world's electricity.

Sources: https://www.**computerweekly.com**/news/252500454/IBM-Another-chip-in-the-wall
https://www.**bbc.com**/news/technology-57009930
https://edition.**cnn.com**/2021/05/06/tech/ibm-semiconductor-two-nanometer/index.html

WARM-UPS

1. MICROCHIPS: Students walk around the class and talk to other students about microchips. 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?

> computers / tablets / smartphones / games / microchip / performance / energy / chip size / giant / engineers / measure / processor / fingernail / manufacturer / electricity

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

3. TECHNOLOGY: Students A **strongly** believe technology makes our life better; Students B **strongly** believe it doesn't. Change partners again and talk about your conversations.

4. THE FUTURE: What do you think of these companies? What will they be like in the future? Complete this table with your partner(s). Change partners often and share what you wrote.

	What I Think	The Future
IBM		
Apple		
Tesla		
Huawei		
Google		
Microsoft		

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

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

- Tablets
- Laptop computer
- Smartphone
- E-readers
- USB Flash drives
- Speakers
- Television
- Digital photo frame

VOCABULARY MATCHING

Paragraph 1

1.	store	a.	Extremely large; enormous.
2.	advanced	b.	Keep something somewhere for future use.
3.	huge	c.	A sudden, dramatic, and important discovery or development.
4.	breakthrough	d.	Getting maximum productivity with minimum wasted effort or expense.
5.	efficient	e.	Make or cause to make progress.
6.	quadruple	f.	Fill something with electrical energy in a battery or battery-operated device.
7.	charge	g.	Increase or be increased by four times.

Paragraph 2

8.	improved	h.	A very, very, very large company.
9.	giant	i.	A person who has a lot of knowledge skill in a particular area.
10.	measure	j.	Make or become better.
11.	incredibly	k.	Find the size, amount, or degree of something.
12.	expert	l.	A person or company that makes goods for sale.
13.	manufacturer	m.	Extremely or unusually.
14.	artificial	n.	Made by people rather than occurring naturally, especially as a copy of something natural.

BEFORE READING / LISTENING

From https://breakingnewsenglish.com/2105/210512-microchips.html

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

1. The article says computers were not so powerful 50 years ago. **T / F**
2. The article says we can store huge movies on our smartphones. **T / F**
3. IBM's new chip uses 75% less energy. **T / F**
4. The new chip means we only need four days to charge our phones. **T / F**
5. IBM has created a giant chip. **T / F**
6. Computer engineers measure microchip sizes in nanometres. **T / F**
7. The new chips could lead to advances in artificial intelligence. **T / F**
8. Data centres use more than one percent of the world's electricity. **T / F**

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

1. these days	a. tiny
2. advanced	b. made
3. huge	c. keep
4. created	d. very large
5. improve	e. specialist
6. reducing	f. moved forward
7. small	g. makers
8. expert	h. boost
9. manufacturers	i. cutting
10. store	j. nowadays

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

1. smartphones can do more and more	a. mobile phone battery life
2. they were not powerful	b. a fast rate
3. chip technology has advanced at	c. intelligence
4. it has made a significant	d. measure the size
5. The technology could quadruple	e. enough
6. improved its microchips by	f. of a fingernail
7. engineers use nanometres to	g. things these days
8. on a chip the size	h. reducing their size
9. artificial	i. world's electricity
10. use one per cent of the	j. breakthrough

COMPREHENSION QUESTIONS

From https://breakingnewsenglish.com/2105/210512-microchips.html

1. What does the article say tablets and smartphones can do these days?

2. How much data does the article say we can store on our smartphones?

3. How much less energy do the new chips use?

4. What could the new chips do to mobile phone battery life?

5. How often might we be charging our mobile phones?

6. What is the size of IBM's new chip?

7. How many transistors could IBM put on a fingernail-sized chip?

8. Who is Peter Rudden?

9. What could the new chips allow data centres to store?

10. How much of the world's energy do data centres use?

AFTER READING / LISTENING

From https://breakingnewsenglish.com/2105/210512-microchips.html

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

micro	**chip**

- 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:

• tablets • rate • huge • 45 • batteries • four	• greatly • measure • 50 • moving • advance • one

MICROCHIPS 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 'micro'?
3. What do you think of computers and smartphones?
4. How important is your smartphone to you?
5. How much better is your smartphone now than 10 years ago?
6. What do you need your smartphone for?
7. What do you know about microchips?
8. What do you know about the tech giant IBM?
9. What could our phones do with lots more power?
10. How much do you like technology?

IBM makes 'next-generation' microchip – 12th May, 2021
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MICROCHIPS 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 'chip'?
13. What do you think about what you read?
14. What do you know about microchips?
15. What does a computer engineer do all day?
16. What is the world's best technology company?
17. What new technology would you like to see?
18. What do you think of artificial intelligence?
19. Why do data centres use so much electricity?
20. What questions would you like to ask IBM's engineers?