

UNIT 8: Radio Frequencies (II)

GET READY!

1. Listen and complete the text. Use the following words:

lifestyle · function · allow · channel · range · reuse · bandwidth

THE HERALD TIMES

Technology & (1) _____

Dear Tech Editor,

We all use cell phones every day. But no one can tell me how these networks actually (2) _____. Can you?

— Sam Thompson

Dear Sam:

Great question. (3) _____ me to explain.

Cell phones use radio waves to transmit sound. When someone makes a call, a phone uses a pair of frequencies called a (4) _____. This is called full-duplex, and it allows both parties to speak and listen simultaneously. Each area has a limited number of channels available at a time. For example, the (5) _____ bandwidth of a cell tower might be between 800–1200 MHz.

To allow multiple connections at once, a city or region is divided into a hexagonal grid. Each cell has a cell site with an antenna. And these antennas each have a limited (6) _____.

Cells can share frequencies as long as they are not adjacent. That system is called frequency (7) _____. And even when a phone leaves its coverage area, it can still connect to a roaming partner's cells.

Hope that helps! — *Tech Ed.*

2. Complete the summary:

Wireless networks use _____ frequencies to _____ and receive audio. Without them, wired communication would be the only available telephone connection.

3. Discuss in pairs

- What is a wireless network?
- How do mobile phones communicate?

USEFUL LANGUAGE

A wireless network is a system that...

It allows devices to...

Mobile phones communicate by...

They use radio frequencies to...

The signal is transmitted to...

The network connects...

LISTENING

4. Listen to a conversation between a reporter and an electrical engineer. Choose the correct answers.

1) What is the conversation mainly about?

- A) Problems with mobile phones
- B) How wireless networks work
- C) How to install antennas

2) What is true about cells?

- A) They each contain a single channel.
- B) They are capable of containing unlimited bandwidth.
- C) They consist of two frequencies.
- D) They are arranged in a hexagonal grid.

3) Which concept does the reporter identify incorrectly?

- A) channels
- B) base stations
- C) antennas
- D) bandwidth

SPEAKING

5. Complete the conversation using the phrases below.

That's correct. · *Wireless networks use radio frequencies to transmit and receive audio.*

· *Every city is made up of different cells on a hexagonal grid.* · *Very good!* ·

It uses two frequencies: one for speaking, and one for listening.

Conversation:

A: Can you tell me how wireless networks work?

B: Sure. _____

A: I see. Do they use cell sites to transmit?

B: _____

A: In other words, they're all adjacent to one another.

B: _____

A: Do you know what a full-duplex system is?

B: _____

A: No, I don't. Please inform me.

B: _____

A: That pair of frequencies is called a channel, right?

B: _____

6. Take roles and act it out.

Student A	Student B
<p>You are a reporter. Talk to Student B about:</p> <ul style="list-style-type: none">• wireless networks• the purpose of different components• the relationships between components <p>You must use at least 2 technical verbs: <i>transmit · receive · connect · process · control</i></p> <p>⚠ Do NOT use: make · do · have</p>	<p>You are an electrical engineer. Talk to Student A.</p> <p>You must:</p> <ul style="list-style-type: none">• explain clearly• use at least 3 technical verbs• give at least 1 example <p>Suggested verbs: <i>transmit · receive · process · convert · coordinate · connect · control</i></p> <p>⚠ Do NOT use: make · do · have</p>