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WEB & WIRELESS TECH

Hedy Lamarr

The Hollywood Star Who Helped Invent WiFi

The Actress Who Was Also an Inventor

Hedy Lamarr was born in Austria in 1914. She became a famous Hollywood movie star. Most people knew her face from the big screen. But Hedy had a secret hobby: she loved to **invent** things in her free time. She taught herself how machines and signals worked.

During World War II, Hedy worked with a music composer named George Antheil. Some torpedoes, which are underwater weapons, were guided by radio signals. An enemy could block or scramble those signals. This is called **jamming**. Hedy's idea was to make the signal hop quickly from one **radio frequency** to another. A signal that keeps hopping is very hard to jam.

This idea is called frequency hopping. Many years later, engineers used the same idea to build WiFi, Bluetooth, and GPS. Because of this, some people call Hedy Lamarr 'the mother of WiFi.' In 2014 she was added to the National Inventors Hall of Fame.

WORDS TO KNOW

- **invent:** To create something brand new that did not exist before.
- **radio frequency:** A channel that a radio signal travels on through the air.
- **jamming:** Blocking or scrambling a radio signal so a message cannot get through.

Part 1 • Reading Comprehension

1. What two jobs did Hedy Lamarr have?

2. Who did Hedy work with to create her invention?

3. What did frequency hopping stop the enemy from doing?

4. Name one modern technology that uses Hedy's idea.

Follow the Hop

A radio using frequency hopping hops between channels (radio frequencies) in a repeating pattern. The pattern is: 2, 4, 1, 3. Then it starts over at 2. Use the pattern to answer each step.

- 1** The signal just hopped to the last number in the pattern, 3. Write the next two channels the signal will hop to.

- 2** The pattern uses 4 different channels. An enemy does not know the pattern and guesses one channel to jam. How many channels could the enemy choose from?

- 3** One full pattern is 4 hops. How many hops happen in 3 full patterns?

Part 3 • Think About It

Why do you think a hopping signal is harder for an enemy to jam than a signal that stays on one channel?
