

STUDENT WORKSHEET


WIRELESS SIGNAL BLOCKADE

BACKGROUND

We all know the annoying situation when you cannot connect properly to the Wi-Fi. In this activity, you will investigate which materials block signals from a Wi-Fi router. You will then design the layout of your classroom or house to take advantage of the strongest Wi-Fi signals.

WHAT YOU NEED

- A Wi-Fi router
- A Wi-Fi connectable device that displays signal strength
- Materials to test, for example paper, card, ceramic, wood, plastic, steel, aluminium

ACKNOWLEDGEMENT


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Part 1

Signal strength

Place your computer or smartphone about 3 metres from the Wi-Fi router. Make sure that they are at the same height. Check the Wi-Fi signal strength, and write it down. This is your control.

You can check the signal strength in two ways:

- by counting the number of curved lines on this symbol: 
- by downloading special software — this method is more precise

Part 2

Testing different materials

Hold a piece of paper between the Wi-Fi router and your device. Wait at least 5 seconds, then read the Wi-Fi signal strength.

Draw a table for your results, and write down your two results so far.

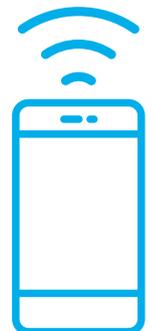
Now hold each of the other materials, one by one, between the Wi-Fi router and your device. Read the Wi-Fi signal strength for each material and write the results in your table.

Part 3

Extending and using your results

Can you think of another scientific question about Wi-Fi signal strength to investigate? For example, does it matter how close you hold the material to the computer or Wi-Fi router? Discuss how to do a fair test to answer your question.

Discuss how to use your findings to design the layout of the classroom or your home to take advantage of the strongest Wi-Fi signals.


Practical or investigation
Group discussion task