

Everyday Radio Frequency Technologies

Take a few minutes to think about what technologies you use every day that rely on radio frequencies.

Next, share your answers with the class (through whiteboard, Jamboard, digital word cloud).

Some Radio Frequency Technologies

- ❑ Bluetooth
- ❑ NFC
- ❑ RFID
- ❑ UWB

Bluetooth



- Short range radio frequency, allows devices to communicate with each other
- Operates between 2.402 and 2.480 GHz or 2.400 and 2.4835 GHz
- Commonly used to connect headphones to smartphones or keyboards to computers
- Can connect up to 7 devices at the same time



HOW BLUETOOTH WORKS



NFC (Near-Field Communication)



- Radio waves work over a short distance, 4 inches
- NFC tag sends signal to NFC reader
- Used for cashless payments and hotel room cards
- Gaming, Nintendo 3DS uses to grant you extra characters when you pass by a reader



WHAT IS NFC

TOP 6 USE CASES EXPLAINED

Blue Bite

RFID (Radio-Frequency Identification)



- Can work over a longer range than NFC
- Transfers data over radio waves
- An improvement over UPC, doesn't need line of sight
- Windshield mounted toll pass or car wash pass





What is the Difference between RFID and NFC?



RFID
RADIO FREQUENCY IDENTIFICATION

VS

NFC
NEAR FIELD COMMUNICATION



UWB (Ultra Wideband)



- High bandwidth (500MHz)
- Can track real time data quickly
- Has ability to show not just location but also movement
- Apple AirTag and Galaxy SmartTag, animal trackers
- Future uses: garage door openers, automatic room key openers (can sense when you are approaching)



