

# ScienceCraft



Communications

# Defining Communications



- ✗ **Communications** and the technology around it are defined by the ways in which we interact and give information to one another
- ✗ For example, a “**Stop**” sign is communicating to drivers on a road.
- ✗ The easiest “form” of communication is simply the **human voice**
- ✗ Think about what you use to communicate...



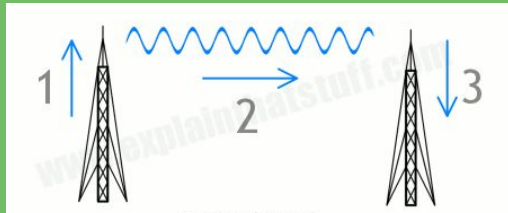
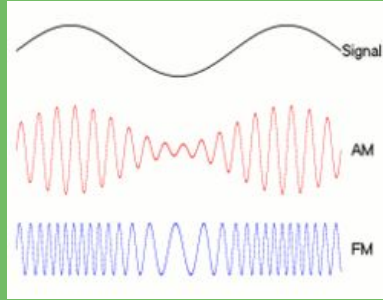
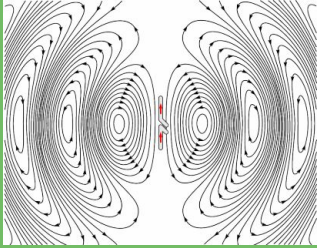
# Telegraph and Telephone

A ●—	J ●---	S ●●●
B —●●●	K —●—	T —
C —●—●	L —●●●	U ●●—
D —●●	M —	V ●●●—
E ●	N —●	W ●—
F ●●—●	O ---	X —●●—
G —●—●	P ●—●—	Y —●—
H ●●●●	Q —●—●	Z —●●●
I ●●	R ●—●	



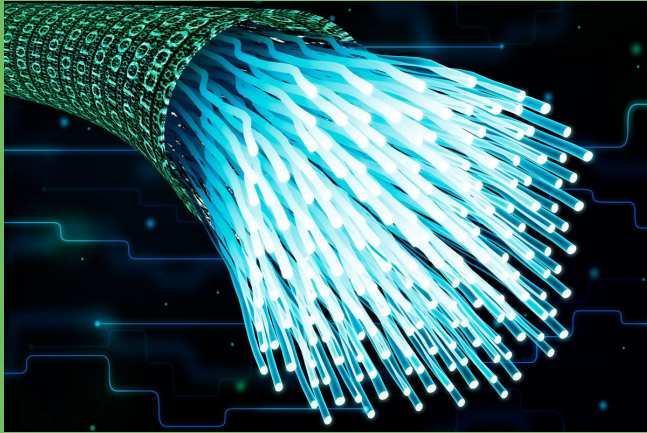
- ✗ The **telegraph** and **telephone** are two early forms of modern communication.
- ✗ “Tele” = “Far”
- ✗ These devices were able to communicate nearly instantly thanks to **electricity**, which travels incredibly fast.
- ✗ Messages were translated into **Morse code** and electricity was sent in a pattern representing it.
- ✗ The telephone converted **voice waves** to electricity based on the **vibrations** different tones would cause

# Radio



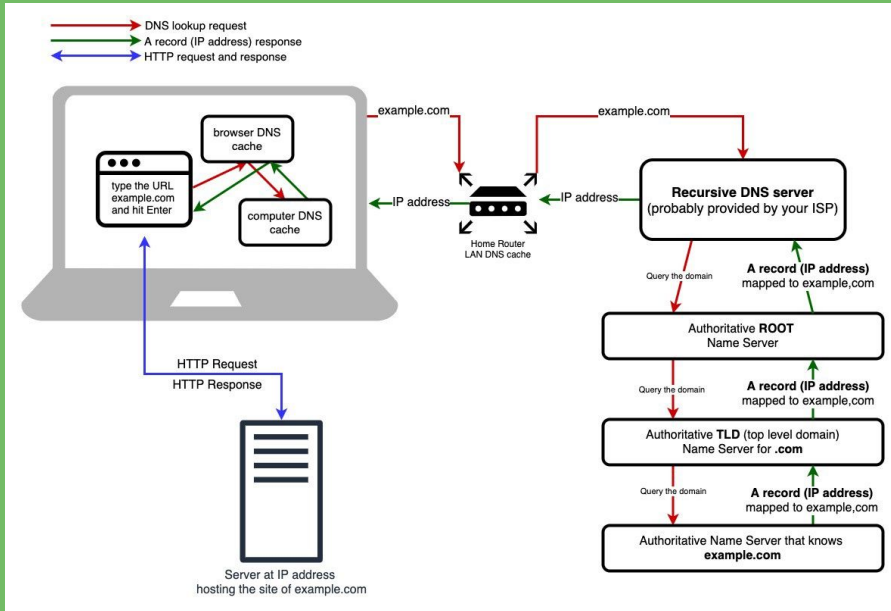
- ✗ First of all, think about things that use **radio** technology
- ✗ When you walk around, there are thousands of different kinds of radio waves in the air
  - ✗ Specifically, these are **sine** waves, generated by an **electromagnet**
- ✗ Every wave has a different **frequency and amplitude**, and the **receiver** on a radio is “tuned” to only capture that certain frequency or amplitude

# Fiber Optic



- ✗ Before fiber optic, copper wiring was used to transmit electrical signals
- ✗ However, **fiber optic** cables are faster and more compact.
- ✗ This is because fiber optic uses **infrared light** to carry information.
- ✗ Thousands of glass “fibers” serve as a way for very **quick pulses of light** to travel to your computer, television, or phone.

# Internet



- ✗ The **Internet** is our most powerful and widely used communication tool
- ✗ Information transmitted over the internet comes in the form of **packets**, which are tiny “bits” of information
- ✗ Most households have a **router** that controls all internet traffic and “re-routes” packets to the right device
- ✗ Since every device has its own **IP address**, the router knows where to send the information

# Careers in Communication Technology



- ✕ Communications is a broad field
- ✕ Some careers are responsible for maintaining communication technology, others are responsible for utilizing it
  - ✕ **Graphic Designers** communicate through design of visuals and logos that make sites fun and easy to use
  - ✕ **Computer Technicians** work with computers in various environments to ensure everyone can properly utilize them

# Challenge: Build a molecule



- ✗ Use [Chemspider](#) to look up a molecule of your choice
- ✗ Find the **3D** visualization and build it, making sure to **label**

