



EM Waves for the Win!

Electromagnetic waves are everywhere and are part of our lives, from communicating by cell phone or downloading documents to heating or cooling our houses with renewable energy sources such as solar panels. They travel through the air at the speed of light, making it possible for our electronic devices to send and receive information and energy. They are invisible, but they shape our lives by powering our tools.

Taking urgent action to fight climate change and its effects is an important goal for the United Nations and the world. Are EM waves also able to help us fight climate change? Yes, they are insofar as they produce waves needed to power renewable energy sources, meaning we can reduce our dependence on hydrocarbons such as oil and gas. GPS is instrumental in tracking weather patterns to warn people of a dangerous weather event, and post-COVID lockdowns showed us how cell phones, laptops, and other electronic communication devices can be used to decrease travel, reducing CO2 emissions. All this is because of a range of EM waves.

In this Maker Zone, you'll work in groups to create a model that demonstrates EM waves in action in a real-world situation (GPS, radio, cell phone, etc.) and the value of EM waves in the fight against climate change.

DO

EM Waves for the Win!

In this Maker, you will work in a group to create a model of electromagnetic waves in action in a real-world application.

1. Choose a device that uses EM waves (cell phones, GPS, solar panels).
2. Use the lab tools to create a physical model of the device and how EM waves make it work.
3. Write a presentation to explain how EM waves work with this device.
4. Practice your presentation.
5. Share your presentation with other groups.

01 Present!

Once your Maker is done, set up your model and presentation using a digital presentation. Present your model and how EM waves are used in the examples used in the class, or create a video.

02 Discuss!

Take notes about each model and presentation. Then, get together in a group of four and discuss the questions.

- › Which model was the most surprising?
- › Which presentation was the clearest and easiest to follow?

03 Get Informed!

Learn about different ways EM waves are used in our daily lives.

04 Take It on the Road!

With the help of your teacher, present your models and explanations to younger students.

