Learning objectives

1. Radio waves and technologies are all around us.

2. People use radio technology every day.

3. Radio waves are used to carry information.

Materials

- Wavetown illustration (see choices below)
- Wavetown Identification Key
- Deck of challenge cards
- Scissors and tape (optional, depending on your printout sizes)
- Let's Send a Selfie (optional)
- Activity guide

Safety

No safety concerns are present in this activity.

Training Videos

Facilitators should review the training video for this activity for facilitation guidance. The *Making Waves with Radio* content training video will provide additional background content to help in the facilitation of this activity.

Activity Training Video: https://vimeo.com/776686592

Making Waves with Radio **Content Training Video:** https://vimeo.com/776685410

Making Waves with Radio **Content Training Video (Spanish):** https://vimeo.com/776686149

Advance Preparation

Before you begin

Print out the appropriate Wavetown illustration for your audience.
There are several PDF versions to choose from:

1. Full Color–No Numbers–No Answer Key
We suggest starting with this version to present more of a challenge for learners searching for radio technologies in Wavetown. A high-quality PNG file is also included if you want to print a poster.
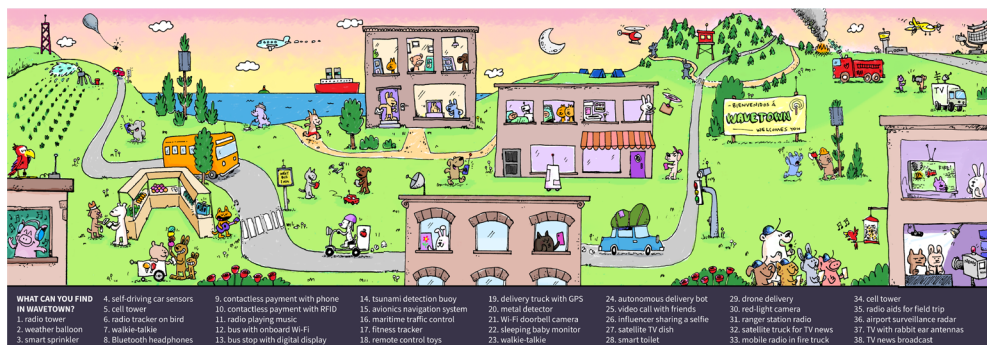

2. Full Color–Numbers–No Answer Key
If you have very young learners that may need help spotting the location of devices, we suggest using a version with the identification numbers.
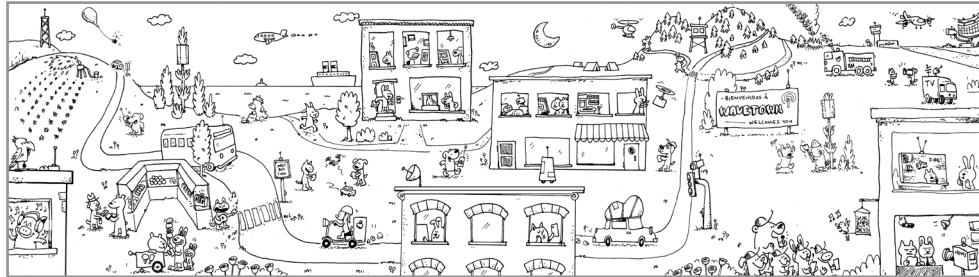

3. Full Color–No Numbers–Answer Key
If you would like to use a version of Wavetown with the list of radio devices but still have learners search the diagram without numbers, this is the version for you.

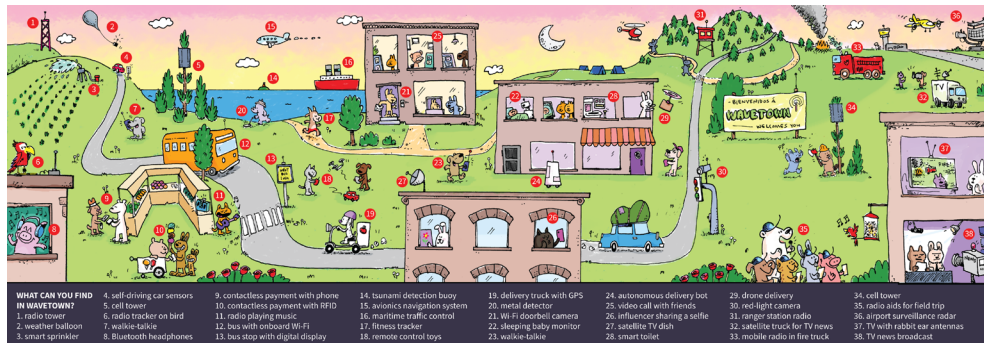| WHAT CAN YOU FIND IN WAVETOWN?					
1. radio tower	4. self-driving car sensors	9. contactless payment with phone	14. tsunami detection buoy	19. delivery truck with GPS	24. autonomous delivery bot	29. drone delivery	34. cell tower
2. weather balloon	5. cell tower	10. contactless payment with RFID	15. avionics navigation system	20. metal detector	25. video call with friends	30. red-light camera	35. radio aids for field trip
3. smart sprinkler	6. radio tracker on bird	11. radio playing music	16. maritime traffic control	21. Wi-Fi doorbell camera	26. influencer sharing a selfie	31. ranger station radio	36. airport surveillance radar
	7. walkie-talkie	12. bus with onboard Wi-Fi	17. fitness tracker	22. sleeping baby monitor	27. satellite TV dish	32. satellite truck for TV news	37. TV with rabbit ear antennas
	8. Bluetooth headphones	13. bus stop with digital display	18. remote control toys	23. walkie-talkie	28. smart toilet	33. mobile radio in fire truck	38. TV news broadcast

4. No Color–No Number–No Answer Key

This smaller-sized version can be used for coloring by younger learners.
A high-quality PNG file is also included if you want to print a poster.

5. Full Color–Numbers–Answer Key

This version can be printed as a facilitator key.

WHAT CAN YOU FIND IN WAVETOWN?

1. radio tower
2. weather balloon
3. smart sprinkler
4. self-driving car sensors
5. cell tower
6. radio tracker on bird
7. walkie-talkie
8. Bluetooth headphones
9. contactless payment with phone
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37. TV with rabbit ear antennas
38. TV news broadcast

Print out the challenge card deck and familiarize yourself with the cards.

This activity will invite learners to search for examples of radio technologies in Wavetown based on the challenge card prompts.

Print out the Wavetown Identification Key to have handy when assisting participants in identifying radio technologies. The key also contains categories for all radio technology in Wavetown if participants wish to search for similar devices.

Content Background

A satellite TV truck parked on a city street sends radio waves to space to be distributed across the globe.

Radio technology may be hiding in plain sight. Many different devices that use radio waves can help make life easier and more efficient—or just entertain us. Wavetown is filled with many examples of radio technologies learners can point out. Learners, caregivers, and facilitators may or may not have used radio technologies shown in Wavetown.

Given this activity is more directed at young learners, the content background really only includes the experiences that participants bring to the engagement. No significant preparation is needed on the part of the facilitator besides reflection on personal experience with radio technologies and a quick review of the list of those pictured in Wavetown.

Infrastructure and systems

Like many modern technologies, some radio technologies work because they are part of larger systems. For instance, a cell phone cannot make calls without cell phone towers to relay messages, a power supply that can recharge the battery, and a company that routes the calls to the numbers dialed. Only when you look at the larger system can you see how the technology works. And by looking at that larger system you can also better see the impact that a technology might have on the world.
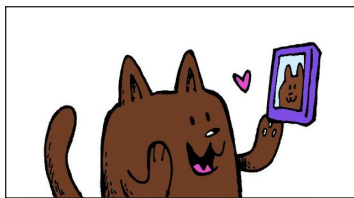
Many learners may miss the existence of large infrastructure and systems supporting some radio technologies. We have provided a supplementary resource called *"Let's Send a Selfie"* for facilitators who want to explore this topic with families of younger learners. The resource shows how a simple selfie requires a large and complex system behind the cell phones themselves. Other large and complex systems, including the internet and the Global Positioning System (GPS), support many of the radio technology communication devices we take for granted every day.

Notes to the Presenter

Wavetown is a rich illustration, designed to be inviting for young learners, that depicts how radio devices are present in our everyday lives. Facilitators have many choices on how to use the materials, but as with most on-the-floor experiences, learners' interests can help guide the interactions. Some participants may not need much structure or facilitation and might simply enjoy searching for radio devices. Others might need some help getting started and will benefit from the cues found on the challenge cards. You may choose to create a narrative about the town, or present one or more specific characters in the illustration to build connections with participants. Wavetown could even be used unfacilitated by leaving the illustration out with simple prompts on what participants can discover. More information on our suggested facilitation methods appear below.

Museum floor facilitation (5–10 minutes)

- This activity works best with 1–5 participants per each playthrough.

- Begin with a brief introduction to Wavetown and invite participants to identify a few radio devices.

    - "Welcome to Wavetown! Just like in your community, the people of Wavetown use radio technologies in their everyday lives—sometimes without even knowing it. What examples can you find?"

    - It may also be helpful to provide a simple definition of technology for younger learners: "Technology is anything designed by people to solve a problem."

- Allow participants to select a challenge card to start their search.

- Many participants will quickly find several radio devices. If the participants are struggling, encourage them to answer the questions on the challenge cards and others, such as: Where might you find a device like this in your home? Have you ever seen a device like this at the store? What people might want to use this device—can you find them in Wavetown?

- Once the participants are satisfied with the number of devices they have found for a particular challenge card, have them select another. Continue this process until the participants are finished with the activity.

- Consider using the categories provided in the Wavetown Identification Key to create further search challenges for participants or help them discover devices with similar functions.

- If you have access to an assortment of the radio technologies depicted in Wavetown, consider making them accessible during the facilitation to reinforce real-world connections and encourage further conversations.

- **Extension:** Have participants tell a story about if they were visiting Wavetown for a day, starting with waking up in the morning and ending with going to sleep at night.

  - Alternative: Ask participants to search by the alphabet, for example, to find a radio device that starts with the letter "T."

- **Extension:** Have printouts of the **No Color–No Number–No Answer Key** version ready for take-home coloring.

- **Extension:** If you have access to a large-format printer, consider a wall-sized poster of the **No Color–No Labels** version for community collaboration on coloring, labeling, or adding new devices and residents to Wavetown.

Tips for facilitating with younger participants

- **Introduce cards aloud.** Instead of asking participants to read the cards, highlight one or two main ideas and points of connection. For example: Radio devices can help people talk with each other. Can you find two people talking using a radio device? Have you ever used a radio device like this to talk to someone?

- **Use the images on the cards as prompts.** Very young participants will use the challenge cards as a "key" for what images to find in Wavetown. This type of play still offers opportunities to introduce radio technology. Encourage participants to think deeper about radio technology with questions like, "Now that you found the TV truck, can you find where the signal from the TV truck is going?"

- **Share your perspective.** Younger participants may have difficulty understanding some of the technologies they have not yet interacted with. Share your experience with these technologies by telling a short story about a time you used one. For example: Traffic cameras helped me see a traffic jam on the road last week, so I was able to pick a better route to get to the grocery store.

- **Play in small groups.** If possible, pair younger learners with caregivers for richer conversations that draw in family perspectives.

Conversational Prompts

Use these questions to help introduce participants to the prevalence of radio technology and the potential pros and cons of radio technology in society.

- **Have you used any of these radio devices?** Which of these technologies are you excited to use or interact with in the future? Which ones are you not excited about?

- **How does radio technology change the way the residents of Wavetown interact with each other?** Is it similar to how you interact with family and friends in your community?

- **What kind of data does this technology collect and share about users?** Who do you think would be able to see—or even own—that data? Who would get to decide?

- **In what ways do the residents of Wavetown interact with the radio technology?** What radio devices can you find with a similar function? Do you think all of the radio devices are helpful?

- **Who would most value or benefit from this technology? Who might be harmed?** Why? How might benefits and harms change over time?

- **How do you think life in Wavetown would be different if there were no radio devices?**