Electronic Waste

This resource will:

▶ discuss the causes and effects of electronic waste, and

▶ empower you to make choices that help reduce the amount of electronic waste.

Visit cemc.uwaterloo.ca/resources/cs-and-society.html for more *CS and Society* resources.

The Menu

What is Electronic Waste?

Electronic Waste

Discarded electronics that are no longer wanted, no longer useful, or no longer working.

According to the Global E-Waste Monitor, in the year 2019 a record of 53.6 million tonnes of electronic waste was produced globally. Only 17.4% of these discarded electronics were recycled.

Electronic waste contains hazardous materials. When discarded electronics are not carefully recycled, these toxic elements can be very harmful to both the environment and to humans.

Activity - Electronic Waste

What do you know about electronic waste? What do you do with your unneeded electronics?

Electronic Waste
rebrand.ly/kahoot-electronic-waste

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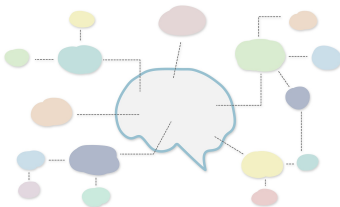
Causes of Electronic Waste

Worldwide, we throw out the equivalent of 800 laptops every second.

An average user replaces their cellphone every 18 months.

The number of computers and cellphones produced annually grows by approximately 8% per yer.

> Brainstorm as a class why there is so much electronic waste.

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Video - Planned Obsolescence

Why do our electronics keep breaking?

The following video explores a strategy known as **planned obsolescence**.

Planned Obsolescence
rebrand.ly/planned-obsolescence

Discussion

1. Is planned obsolescene a good business strategy? Why or why not?
2. **Perceived obsolescence** is another strategy. What do you think it means? Describe some examples.
3. What can consumers do to fight back against planned and perceived obsolescence?

Video - The Circuit

Where does our electronic waste go?

The following video tracks electronic devices to see what happens to them when they are dropped off for recycling.

After watching the video complete the provided summary.

The Circuit
rebrand.ly/the-circuit

Video →   Summary →

Project - Toxins in Electronic Waste

Individually or in small groups, research a hazardous material found in electronic waste and create a game for your fellow classmates to play. Your game should answer the following questions:

1. What hazardous material did you choose?
2. What is the material used for? What is its purpose in electronics?
3. What are the material's effects on the environment?
4. What are the material's effects on humans?
5. Can the material be safely recycled?
6. Is there a safer alternative material?

Project Ideas

Here are some hazardous materials commonly found in electronics:

- ▶ Polychlorinated biphenyls (PCB)
- ▶ Chlorofluorocarbon (CFC)
- ▶ Polyvinyl chloride (PVC)
- ▶ Arsenic
- ▶ Barium
- ▶ Beryllium
- ▶ Cadmium
- ▶ Lead
- ▶ Lithium
- ▶ Mercury
- ▶ Nickel

Here are some websites that can be used to create games:

- ▶ Flippity
- ▶ Kahoot
- ▶ Wisc-Online
- ▶ Educaplay
- ▶ JeopardyLabs
- ▶ Educandy

Reduce, Reuse, Recycle

You are probably familiar with the three R's of Waste Management: REDUCE, REUSE, and RECYCLE.

Did you know that the order matters?
They are listed in order from most to least effective.

1. List at least three ways you can REDUCE the amount of electronics you use or own.

2. List at least three ways you can REUSE or REPURPOSE your unwanted electronics.

3. List at least two local places where you can bring unwanted electronics for proper RECYCLING.

DESSERT

For more information:

Global E-Waste Monitor (ewastemonitor.info)

The WEEE Man (weeeman.org)

The World Counts (rebrand.ly/the-world-counts)

World Loop (worldloop.org/e-waste)

To recycle your electronics:

Recycle My Electronics (recyclemyelectronics.ca)