Protecting the Environment



Resources and Pollution

Sustainable cities use resources that don't harm the environment. These resources are called renewable resources, because they naturally replenish themselves. Non-renewable resources don't naturally replenish themselves, and they are harmful to the environment when they are used. Check out the Venn diagram below to learn more:

Renewable

Sources of energy that can be recycled, because these resources naturally replenish themselves.

- Sustainable, because it reduces the pollution in the atmosphere.
- Examples include water, sunlight, and wind

Non-Renewable

Both

- Both are types of usable energy sources found in nature.
- Both are used by people in different cities around the world.

- Sources of energy that can not be replenished once used.
- Release pollutants into the air that cause air pollution.
- Some of these pollutants are chemicals, like carbon dioxide and methane, which are harmful to human health.
- Examples include coal, natural gas, and petroleum products like gasoline and diesel



Solving Pollution Problems

We know that using non-renewable resources causes pollution. How can we help solve this pollution problem?

Plant Trees

Trees naturally suck carbon dioxide out of the air. This reduces the amount of carbon dioxide in the atmosphere.



Install Scrubbers

Scrubbers are filters that remove carbon dioxide from exhaust fumes.



Thermal Oxidizers

These machines burn harmful chemicals.



Reduce Car Trips

Some cities provide public transportation, and some of these vehicles use electric power, which doesn't pollute the air!





Steps to Create a Device

Follow the steps below to create your device.

Step One: Choose a City (circle your choice)



Chicago, Ilinois



Los Angeles, California



Cincinnati, Ohio



Denver, Colorado



Detroit, Michigan



Houston, Texas

Step Two: Read Requirements

Read the requirements for your device below.

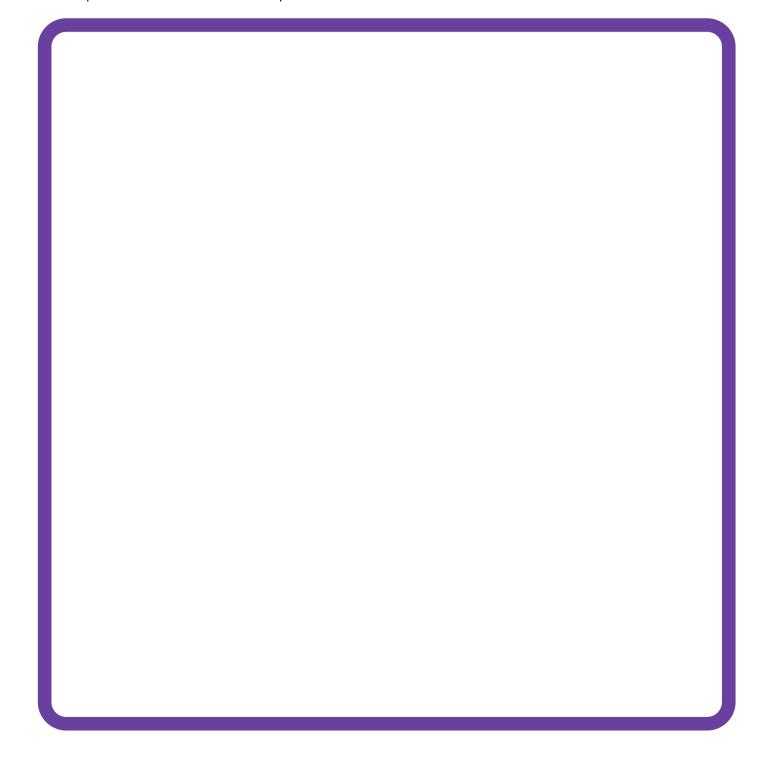
- Must have a sensor to detect the amount of pollution in the air.
- Must have a way to filter air.
 - Can your device use several layers of material to filter the air?
 - Can your device use plants or trees in it?
- Must have a GPS locator to tell scientists where it is taking measurements.
- Must be able to send messages to scientists to alert them if the device is broken.
- Must have a "solar panel" to get power from the sun.
- The outer layer of your device must be made of waterproof materials in case it rains!

Protecting the Environment



Step Three: Brainstorm Ideas

Use the space below to brainstorm ideas for your device.



Step Four: Build Your Device

Use supplies from your teacher to build your device!