

City Planner: Protecting the Environment

NGSS Standard: MS-ESS3-3



Adventure Description:

In this adventure, you will think like a city planner and design a device to help reduce air pollution in a city.

Activity

Step One: Background Information on City Planners and Pollution (5-10 minutes)

- Show [Video: Protecting the Environment](#)
- Explain to students that city planners are responsible for figuring out how to best use the land and resources in an area. City planners have a lot of different responsibilities. For example, they plan where different buildings and roads will go in a new city. They might also fix cities that have a lot of traffic by building new roads or adding public transportation.
- Tell students that city planners also create plans and develop new ways to make cities more sustainable. A sustainable city is a city that uses renewable resources in a way that doesn't hurt the environment. Renewable resources are resources that naturally replenish (make more) of themselves, like wind or solar power. Non-renewable resources, like gasoline or coal, don't replenish themselves and create pollution when they are burned. Show [Handout: Resources and Pollution](#).
- Next, explain to students that sustainable cities minimize the impact that humans have on the environment because they aren't using up as many resources, like coal and natural gas. Show [Handout: Sustainable vs. Non-Sustainable Cities](#). Discuss how sustainable cities use renewable resources to minimize their impact on the environment, use recycled materials when they are available, and support local businesses.
- Explain to students that city planners want to create more sustainable cities, or develop ways to change current cities, to help reduce the human impact on the environment. Show [Handout: Solving Pollution Problems](#). Discuss different ways that cities can reduce the amount of pollution in the air.
- Tell students that they will think like city planners and create devices that will help reduce air pollution in a city of their choice!

Step Two: Brainstorming and Planning (10 minutes)

- Explain to students that they will now brainstorm ideas for a device that can help minimize air pollution in a city.
- Divide students into pairs or small groups.
- Provide students with [Handout: Steps to Create a Device](#). Walk through the steps together as a class.
- Have students complete Step 1 and Step 2 on the handout.

Please contact Allison Bischoff, Director of Customer Service, at allison@rozzylearningcompany.com or 314-272-2560 with questions.

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Step Three: Building a Device (20-25 minutes)

- Explain to students that they will now build their device!
- Provide students with the following materials:
 - Art supplies (examples include crayons, colored pencils, markers, etc.)
 - Building materials (recycled jugs, cardboard, soda bottles, etc.)
 - Tape and scissors
- Have students complete Step 3 on the handout.

Step Four: Discussion (5 minutes)

- Have students showcase their devices. Have students explain how their device helps eliminate pollution.
- Have a concluding class discussion about how city planners are concerned about pollution in their cities. Pollution is a side effect of using non-renewable resources that release harmful chemicals into the air. We can minimize pollution if we use renewable resources, such as wind, water, and solar power.

Materials List

Provided online:

- Video: Protecting the Environment
- Handout: Resources and Pollution
- Handout: Sustainable vs. Non-Sustainable Cities
- Handout: Solving Pollution Problems
- Handout: Steps to Create a Device

Not Provided (Each student or group needs):

- Art supplies (examples include crayons, colored pencils, markers, construction paper, scrap paper, etc.)
- Building materials (recycled plastic containers, cardboard, pipe cleaners, etc.)
- Tape and scissors

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