

STEAM CITY CHALLENGE

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Share
and **Learn**



The original activity was created by Sonia Clark at the Ballentine Elementary School, North Carolina. It was modified with the author's permission by FLLTutorials.com for the Share & Learn community

STEAM CITY CHALLENGE



You have been hired to create a new city. This city is being created to provide a thriving community where people can live, work and play in an inclusive and healthy environment.

A natural disaster or unforeseen event can impact all of us in a myriad of different ways. A hurricane or weather event may force an evacuation, while a pandemic or power outage may force people to stay inside and cancel community events.

Our city needs to have a disaster preparedness plan. Our goal will be to create new, innovative solutions to help communities find a sustainable path to an optimal future in the event of a disaster.

How will our city handle a pandemic or natural disaster? How can the community adapt to expected changes and continue to thrive?

What expected problems can be averted with planning? Use Science, Technology, Engineering, Art, and Math to come up with solutions for your community.

For this project,

- **Collaborate** with your team online (e.g. using Zoom, Skype, Hangouts, Google Drive)
- **Research** the way your community and others around the world deal with disasters. (You may choose to observe how cities and communities deal with Covid-19, recent floods, tornadoes, earthquakes, hurricanes, etc. around the globe).
- **Identify a specific problem** in your community. A community can be identified as your neighborhood or any area where people live, work, interact, or share a common interest.

Look at reports. Read books and magazines. Browse websites. Conduct a survey. Check with experts who work in and around your community. Use any research tools you have available. Be prepared to share your documented sources of information.

- **Identify a solution** or improve an existing solution. Create a plan for a strong, sustainable, and inclusive community where your problem will be solved.
- **Share your problem and solution** for your community with others. Document feedback you receive on your project.
- Use technology (slide show, video, PowerPoint, digital brochure, etc.) to create a presentation to **share your research and findings**. Share your presentation in the Share & Learn group. #STEAMCityChallenge

Be creative and entertaining in presenting your city ideas. You can use graphics, humor, music or anything that allows you to share your idea. Provide evidence of your research (cite sources, bibliography).

- Remember- **Have Fun!**

Examples:

Below are three examples of unforeseen events or natural disasters, and some of the problems they caused. In each example, the community was not able to prevent the disaster. Think about the problems in the examples or others you can think of. What are some possible solutions? How can your solutions help us plan for problems caused by future disasters like this?



SAMPLE 1: Pandemic

Cindy's grandmother lives by herself. Because of a pandemic, the state issued a Stay-at-Home order. How will she get groceries? What should she do to exercise? How can she prevent loneliness? What should she do if she needs help? What solutions exist? Can you come up with a better solution?



SAMPLE 2: Flooding

John lives in Louisiana. Because of heavy rains from a slow-moving storm, rivers began to swell. Homes and businesses flooded. John's house was severely damaged, and he had to climb on to the roof to be rescued. Are there better ways to build to prevent flood damage? Can early warning systems be implemented? What solutions exist? Can you come up with a better solution?



SAMPLE 3: Earthquake

Ana lives in Croatia. They had a major earthquake. Homes were destroyed and monuments were damaged. Where can Ana live while her home is destroyed? What is the impact on transportation and food? What solutions exist? Can you come up with a better solution?

Examples of problems you might research:

- Food scarcity
- Feelings of isolation
- Mental and physical fitness
- High risk individuals
- Loss of work and income during business closings
- Impact of reopening industries
- Caring for the sick and elderly
- Family care
- Boredom
- Scarcity of supplies
- Communication in a community
- Transportation in a community

Questions to think about:

- What kinds of problems keep people from leading happy and healthy lives?
- How could your team help solve one of those problems?
- How can you help your neighbors while maintaining social distance?
- Are there ways to celebrate together, but at a distance?
- How are places of celebration going to celebrate?
- How can social places (theaters, schools, churches, temples, restaurants, theme parks, etc.) adapt?
- Can this be a time to grow and improve? How?
- How can you use technology in new ways (tests for disease, earthquake detectors, weather centers)?
- What if technology is unavailable (e.g. no vaccine)?
- Discover the people who are responsible for making a city function. How do you keep these people safe?
- What could people do alone or how do they safely include others?
- How do you remain active and not bound to technology?
- How do scientists, engineers, and doctors work together to find solutions?
- What could go wrong in your scenario? Consider ways to protect, repair, or make your city stronger, resilient and sustainable. Examples: Rainy day fund, emergency stockpile.

RESEARCH NOTES

Name:

What are you trying to research?

Three Sources of Information

Instructions:

- *For books and articles, include title/author*
- *For Websites and online sources, include the url*
- *For YouTube videos, list the name of the speaker and their qualifications and also the link*
- *Use only reputable websites (e.g. Smithsonian, .gov, .edu) and YouTube videos (e.g. TedTalk)*

What facts did you learn?

What problems did you identify in your research? What solutions did you discover?

Project Selection Worksheet

Name:

Instructions:

1. Read the challenge and project description carefully
2. What problems do you know about related to the topic?
3. What experts can you talk to? What fieldtrips can you go on?
4. Share your ideas with your team members

Project Ideas/Problems

Possible Virtual Field Trips

Possible Experts to Contact

Instructions:

1. Once your team has picked a problem, think about how to solve it
2. What solutions exist already? How will your solution be different?
3. Can you make a prototype? Can you test the idea?

**What solutions exist
for this problem?**

**Can we solve the
problem in a new or
better way
(easier/cheaper)?**

**How can we test the
idea?**

Innovation Worksheet

Name: _____

Instructions:

1. Find as many similar products/solutions as you can find and compare them to your team's solution
2. The goal is to gather enough information to be able to explain how the team's solution is innovative (different or an improvement on something that exists). You can share all this information with your judges.

Product/Link	Costs	Implementation Process	Pros	Cons	Other
Our Solution					