2021-2022 City Model Slideshow

School/Organization: **Saint Andrew School**

Educator Name: **Mr. Lacey & Mrs. Dolceamore**

Future City Team Name: **Springfield, SC**

Section I
CITY DESIGN

Springfield, SC

Residential Zone

What is important for the judges to know about your residential zone?:

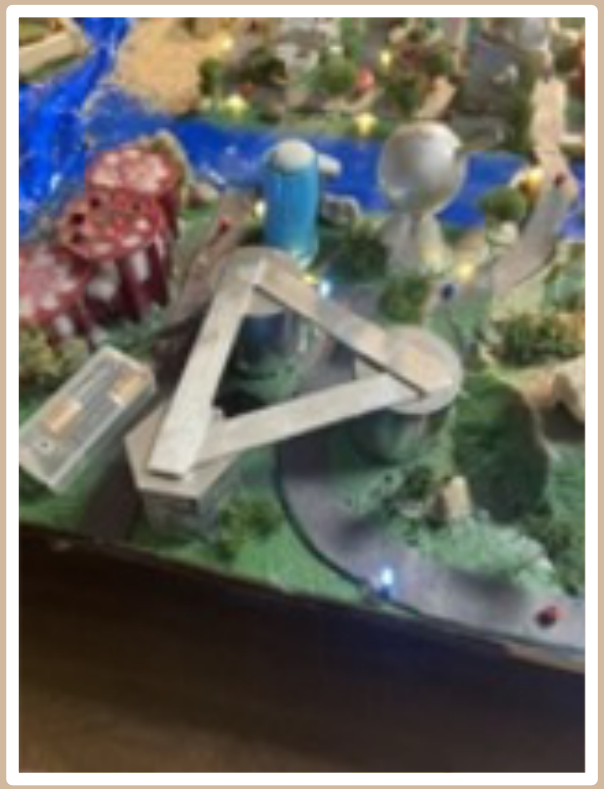
Our Residential zone offers schools, daycare centers, a church, and homes on well-lit, tree lined streets. Homes are equipped with facial recognition security cameras, and are built using sustainable bamboo construction. Rooftop solar panels provide power and geothermal heating keeps us LEED compliant. We educate ages 3-24. We offer advanced medical training, and technology driven college classes. Tourism revenue supports scholarships for those who qualify, and we have classes for children and adults with special needs.

Commercial Zone

What is important for the judges to know about your commercial zone?:

The commercial zone of our city offers a mall, hotels, a boardwalk, a casino, an observatory, and a movie theater. The boardwalk boasts many tourist attractions such as a ferris wheel, a carousel, and shops. The boardwalk's piezoelectric bamboo planks capture energy from the vibrations of people walking and converts it into energy usable by our cars and city. River boat tours and our famous Fort Sumter draws tourists from all over the country, making Springfield a vibrant, lively destination.

Industrial Zone



What is important for the judges to know about your industrial zone?:

Springfield's industrial zone contains our PAW manufacturing plant (Packaging and Waste) and our waste management plant. PAW repurposes plastic waste into "plarn" which is used to manufacture woven baskets & totes. PAW also manufactures bamboo packaging to replace plastic. Both are vital to our circular economy. The waste management plant treats and processes human waste into fertilizer for our lush trees and gardens. The plant has been deliberately positioned away from the city to minimize the impact on our citizens and tourists

Infrastructure Example 1

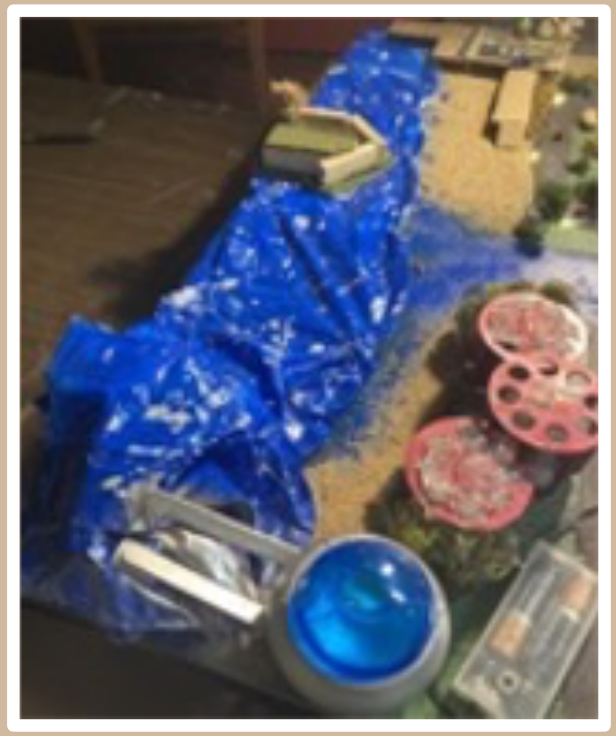
What type(s) of infrastructure are shown here (water, power, utilities, etc.)?:

Here we showcase two of our power sources: wind farms and solar panels.

How are these related to the realities/challenges of a Waste-Free City?:

Traditional power sources, such as burning coal, pollute the air with dangerous byproducts of nitrogen dioxide and soot. Choosing sustainable, green sources such as wind and solar do not create waste and are eco-friendly. Springfield is dedicated to being a leading waste-free city that doesn't harm the environment.

Infrastructure Example 2



What type(s) of infrastructure are shown here (water, power, utilities, etc.)?:

Here we have a geothermal energy plant, and a wave energy plant.

How are these related to the realities/challenges of a Waste-Free City?:

Using the earth's natural temperature to heat and cool homes, we don't harm the planet, or any animals in it. The wave energy is captured through the kinetic energy of the waves. Then it is transferred to our wave energy plant, where it's then made into electricity for our city.

City Services Example 1

What type(s) of city services are shown here (health, education, etc.)?:

Pictured are a police station, a fire station, and a hospital. These critical city services are located in close proximity to the residents' homes, ready to serve.

What do you want the judges to know about your city's operations?:

Smart cameras located around the city are linked to police and fire stations to automatically alert authorities of a crime, accident or fire. This minimizes response time during an emergency.

City Services Example 2

What type(s) of city services are shown here (health, education, etc.)?:

We have a senior center and daycare.

What do you want the judges to know about your city's operations?:

Revenue from our robust tourist industry supports these vital services. Springfield is able to provide cost-free daycare for children of our working parents and care facilities for our senior adults. We encourage local students to volunteer at our senior center. They receive school credits for activities from feeding the occupants to reading them a book.

Transportation Example 1

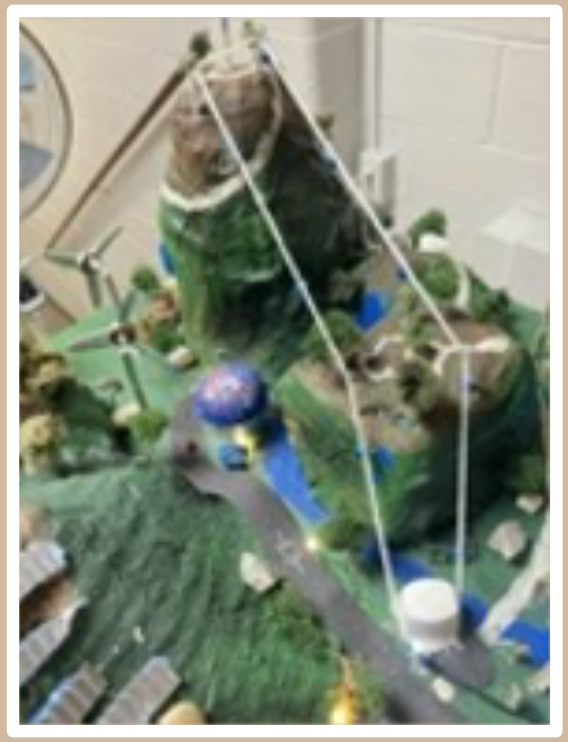
What type(s) of transportation systems are shown here?:

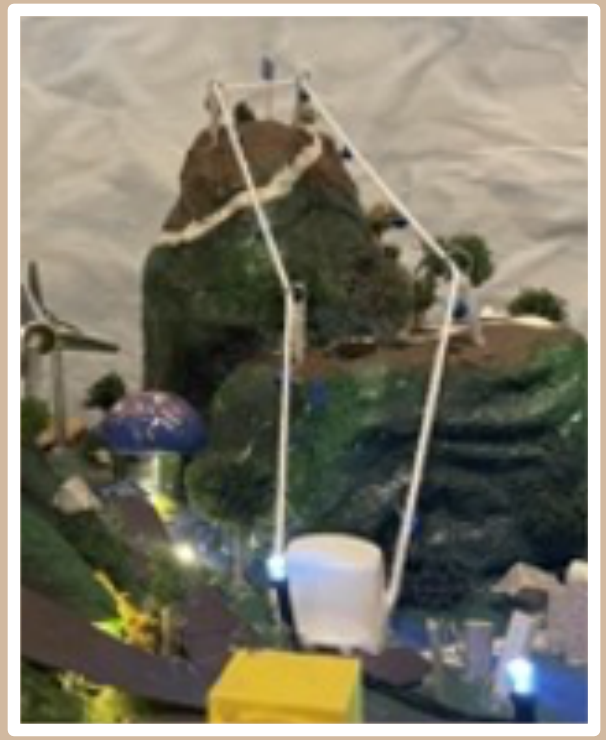
Piezoelectric roads and electric cars

What do you want the judges to know about your transportation system(s)?:

Piezoelectric roads convert the weight of vehicles into electricity. The roads are made from repurposed rubber containing piezo-crystals. These crystals are constructed with cane sugar crystals and repurposed metal plates. Mechanical stress compresses the crystal, inducing an electric current. The electricity is harnessed in tracks which then charge car batteries as the vehicles move along them.

Transportation Example 2





What type(s) of transportation systems are shown here?:
Shown here is a gondola.

What do you want the judges to know about your transportation system(s)?:
The Springfield gondola is a favorite for tourists and citizens alike. It carries passengers from ground level at Maggie Park up to Mount Large Marge, a 400 foot elevation change. The mountain top offers spectacular views of Springfield. Visitors can choose to take the gondola back down or opt for the hiking trails. The gondola is a closed loop powered by the nearby solar farm.

Principles of a Circular Economy in Action - Example 1

What is important for the judges to know about this element of your circular economy solution?:

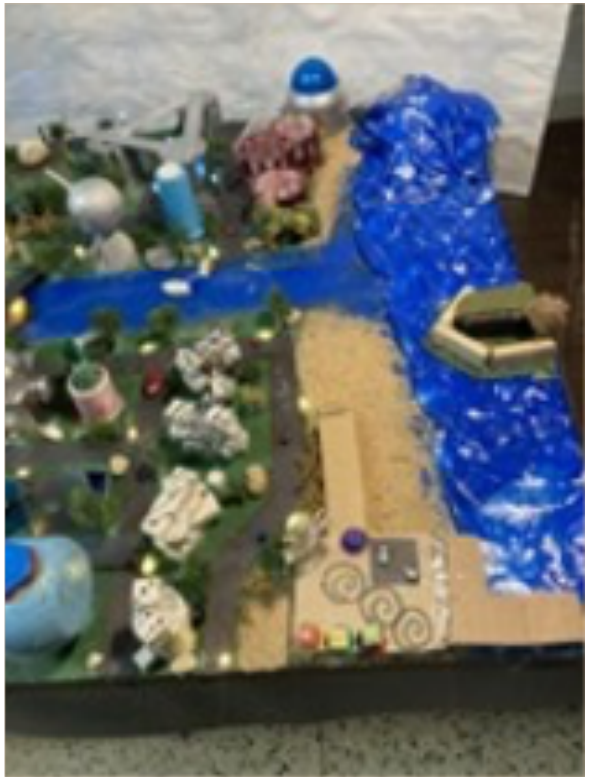
This photo shows our bamboo forest. We have transformed the construction industry from a linear economy to a circular economy by replacing wood, steel, and concrete with eco-friendly bamboo construction materials. Bamboo is a grass which grows very rapidly, and can support up to 6 stories. Bamboo buildings utilize modular construction so portions are easily broken down and repurposed for other uses. No waste, materials kept in use, and natural resources easily regenerated!

Principles of a Circular Economy in Action - Example 2

What is important for the judges to know about this element of your circular economy solution?:

These photos show our Piezoelectric roads which are the definition of a waste free circular environment. The energy of the vibrations from the cars is sent to the road, converted into electricity, and transferred back to the car. No waste, and a closed system, constantly regenerating.

Principles of a Circular Economy in Action - Example 3



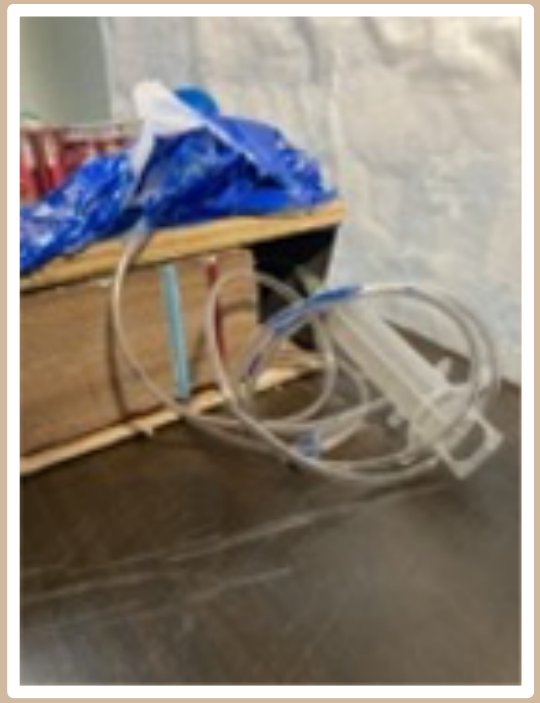
What is important for the judges to know about this element of your circular economy solution?:

Our element of wave energy is transferred into electricity for our town using a wave energy converter. This takes the kinetic energy of the ocean and generates electric energy from just using the wave energy converter. Waste has been designed out of the system, and the ocean tides & swells are constantly regenerated.

Section II

BUILD IT: QUALITY, SCALE, AND MATERIALS

Innovative Material & Use Example 1



Choose a recycled or reused item and describe how you used it creatively in your model:

We deliberately chose old trash bags to represent the ocean on our model. We used plastic bags symbolically, because they are one form of waste that most often winds up polluting our oceans. To demonstrate the moving ocean waves, we used an old plastic syringe and tubing to pump air into a ziploc bag taped under the trash bag. This creatively depicts the rising and falling of ocean swells which are critical in generating wave energy.

Innovative Material & Use Example 2

Choose another recycled or reused item and describe how you used it creatively in your model:

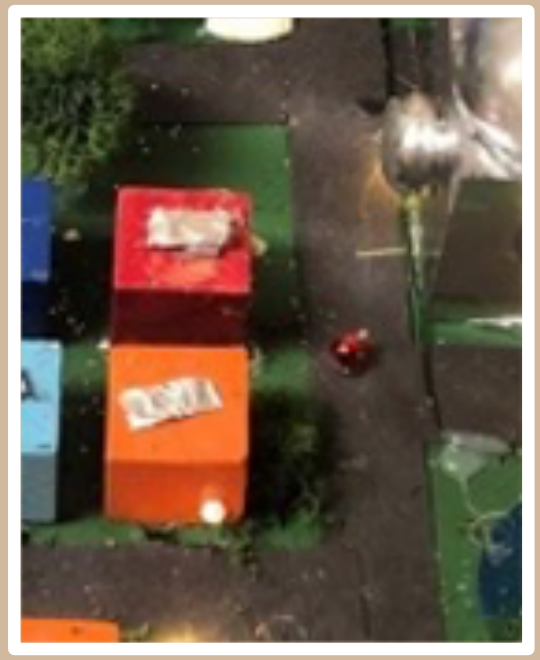
We used bamboo from one of our teammate's backyard to show that our city has it growing throughout. Bamboo is our main source of building materials because it is easy to grow and is better for the environment. What better way to represent a bamboo forest than with real bamboo!

Innovative Material & Use Example 3

Choose another recycled or reused item and describe how you used it creatively in your model:

We repurposed old pom poms for the movie theater so it could look like a box of popcorn. Our police station is made up of a plastic cup and pieces of sea glass we found and broke.

Example of Scale



Scale used in model (e.g., 1”= 10’, or 1”=22’): 1”= 30’

Structure 1

What type of structure is this?:

Hospital

What size is the structure on the model?:

2x2x3 inches

What size would this structure be in real life?:

60x60x90 feet

Structure 2

What type of structure is this?:

House

What size is the structure on the model?:

1x1x1 inches

What size would this structure be in real life?:

30x30x30 feet

Moving Part

- **Moving Part Video Link:** https://youtu.be/33HTZtqA8WM **or** https://drive.google.com/file/d/1euUrf8-RBTakYuZvqLFVQqCq8Sziwial/view?usp=sharing
- **Judges**: Watch and review the moving part video from this team in your Judge Dashboard.

Video Details:

- The video must be posted as to be publicly available for judges to access on either YouTube or Vimeo.
- Video cannot exceed 1 minute.
- Teams need to mention their city/team name in the video.
- Teams must show the moving part in action.
- In the video, share what role the part plays within the city and how your team built it.

Section III

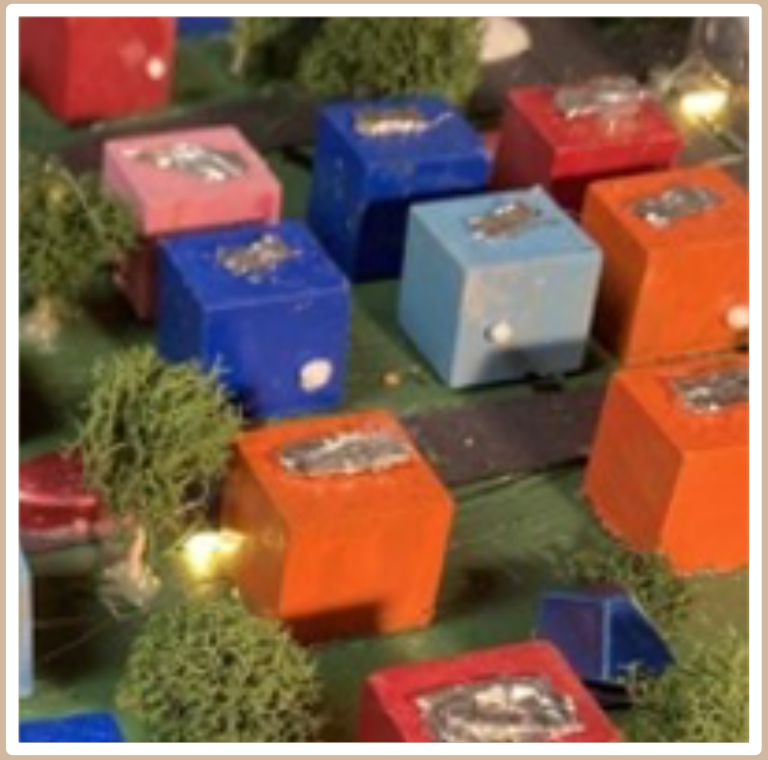
JUDGE ASSESSMENT OF MODEL

Futuristic Technology Example 1

What is important for the judges to know about this example of technology?:

We used Piezoelectric roads which takes up energy from the car and transfers it back to the car. This causes a more circular system which does not result in waste. Our cars also do not use gas, which helps with the earth because it prevents us from taking earth's natural resources. Piezoelectricity technology is in use currently, but has not yet evolved into use for this application. We think 100 years from now, this could be a very viable transportation system.

Futuristic Technology Example 2



What is important for the judges to know about this example of technology?:

The A.I. cameras on our houses contain facial recognition devices which can be linked to the police to prevent burglaries and home invasions. Although this technology exists now, it is not developed for residential use and is far too expensive for the average home. We feel that 100 years from now it will be commonplace.