

Build Your City Model

Questions to Consider

- Will your team create a single model or multiple segments?
- How will you divide up responsibilities?
- What recycled materials could you use? How could you use them in creative ways?
- What scale works best for your model? (Remember: a team may use up to four different scales in their model, but no more than that. Be sure you are consistent with the scale(s) you choose.)
- How are your different city zones visually distinctive?
- Think about your city's infrastructure. Where are the energy production facilities? What does your city's transportation system look like? How does the climate change impact you are addressing influence your infrastructure choices?
- What are some of the services in your city? How will you represent them in the model?
- How will you represent your city's climate change adaptation into your model? How will you showcase your city's mitigation strategy?
- What will the moving part do? How is it related to an aspect of your city's design or function?
- How will the moving part be powered?
- What makes your city innovative and futuristic? How can you show your futuristic ideas are based on real science and engineering?
- How can the engineering design process help you build your model?



Deliverable:
City Model

Scale Measurement

Consider a scale that works for both large items, such as buildings, as well as smaller items, such as windows and traffic signs. These measurements below can be used as a general guide for scaling basic city features. Research dimensions for other features that you plan to include in the model.

12 feet	Width of traffic lane
8 feet	Height of stop sign
10 feet	Height of a building story
4 feet	Minimum width of residential sidewalk

As you figure out your model's scale (or multiple scales), one consideration is materials. If one model segment builder has large materials to work with, they might choose a scale that shows off a larger physical area of the city. If another builder has smaller materials, they might choose a different scale to show more detail.

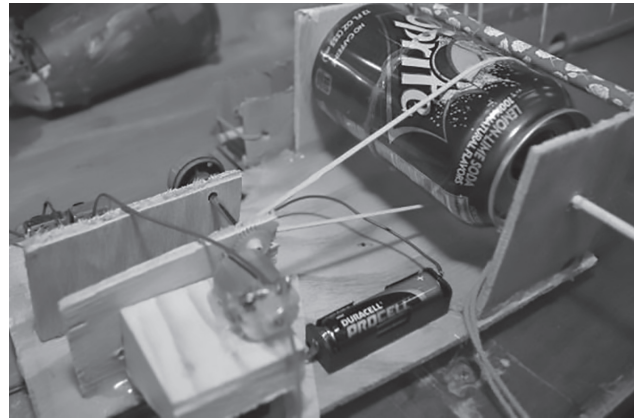


Get Inspired!

Check out videos of high scoring models from previous years on the Future City YouTube channel:
www.youtube.com/user/EWEEKFUTURECITY

Model Enhancement Ideas

- **Trees:** These can be made from twigs and sticks with cotton balls (can be painted green), lichen from a hobby store, dried flowers or weeds, or sponges with food coloring.
- **People:** These can be made from sticks, toothpicks, mat board, pins, dowels, pipe cleaners, and so on.
- **Cars:** These can be made from layers of mat board or cardboard glued together, toy cars that are the right scale, Styrofoam, and so on.
- **Glass:** You can use clear plastic dividers, sleeves, or sheets. Remember to put this on last so that it doesn't get scratched.
- **Bricks/Pavers:** You can use colored paper or other colored material that matches what you want it to look like and then draw on the pattern or you can take white paper or material and color it with markers, crayons, or similar, remembering to show the pattern.
- **Asphalt:** You can take black paper or color white paper black, then draw on the lane markers with a white and/or yellow colored pencil or crayon, and then cut to size.
- **Cement:** You can use gray paper or color white paper and then cut to size.
- **Grade changes (like hills or craters):** You can use Styrofoam that is cut/shaped to what you want and use layers of cardboard or mat board to form contours or slope the model.
- **Water:** You can use blue colored paper or color white paper blue. For added effect, you can put clear plastic or plastic wrap (the kind you use for foods) over it.
- **Building material look:** To make something look realistic, you can draw on joint lines.
- **Sand/beach:** You can use sandpaper (very fine grit).



Moving Part Mechanisms

Your moving part must be able to have the motion repeated and must be related to a function of the city or this year's challenge. Ideas for moving part mechanisms include:

- Rubber bands
- Heat
- Light/Solar
- Weights
- Springs
- Pulleys
- Batteries
- Simple circuitry

Designing your own moving part, or creatively modifying an existing item, will earn more points than using a prefabricated or purchased item. The moving part is an excellent opportunity to explore the physics of simple sources of power, such as rubber bands, weights, heat, springs, pulleys, simple circuitry, light, and/or solar power.