Build Your City Model

Questions to Consider

- Will your team create a single model or multiple segments?
- Will your team work together in person or remotely? 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: scale has to be consistent throughout each single segment, but different segments can use different scales.)
- 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 do the realities of a waste-free future influence your infrastructure choices?
- What are some of the services in your city? How will you represent them in the model?
- How does your city incorporate the three principles of a circular economy into its design and daily functions? How will you represent this in your model?
- How can you make your model look as realistic as possible?
- 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?

Tips for Creating the City Model and Slideshow

- Look at the Example Slideshow available in the Resources section of the Educator Dashboard. This will give your team a clear sense of what the finished deliverable will look like when you are done.
- Check out the Gallery at futurecity.org/gallery to see models from past competitions for inspiration. Although the format of the model is different from most previous years, teams can still get construction and material insights from the Gallery.
- Remember to choose a scale (or multiple scales) that works best for your city design and the materials your team has available. If one model segment builder has large materials to work with, he might choose a scale that shows off a larger physical area of the city. If another builder has smaller materials, she might choose a different scale for her segment to show more detail.
- Remember that each team needs to include a moving part (which can be on any model segment). 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.
- Your team will film a short video demonstration (no longer than 1 minute) of the moving part. Describe the role it plays in the city and explain how the team designed and built it. The educator will submit the link to the recorded moving part video (posted on either YouTube or Vimeo) via the Educator Dashboard at FutureCity.org.

For the City Model deliverable this year, rather than presenting your model/model segments to judges in person, you will highlight specific elements of your city design in a slideshow. Review the model requirements, slideshow template, and rubric before beginning.

SCALE MEASUREMENTS

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

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 and 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 affect, 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

Creatively engineered or innovatively modified moving parts garner more points. For example: a store-bought, electric, handheld fan that is glued to a model is technically a moving part, but it will not receive as many points as a moving part whose team put time, effort, and engineering thought into its construction or development.