

## 2024 Maker Faire Sustainable City Competition Rules & Guidelines

The Maker Faire Sustainable City Competition is a design and engineering challenge that was developed to provide students with a chance to design solutions for real-world environmental problems. Eligible teams must attend school within MEEC's boundaries (High Desert portion of San Bernardino County, the Palo Verde Valley of Riverside County and the High Desert region of North Los Angeles County, including the cities of Lancaster and Palmdale).

### **2024 Challenge Theme: "Powering our Future"**

Design your version of a sustainable city that features a resilient power grid that can withstand and quickly recover from a natural disaster.

### **Competition Structure:**

Each team of 3 to 8 students is responsible for designing and building a model of what they consider to be a sustainable city that addresses the real-world environmental problem as chosen by the Maker Faire Committee.

### **Eligibility Requirements:**

1. Each competing team consists of three to eight students in grades 3 through 12.
2. The competition is divided into three divisions: elementary (grades 3 through 5), middle school (grades 6 through 8), and high school (grades 9 through 12). Teams of mixed grade levels will compete in the division of the highest-grade level student.
3. Competing teams agree to have their projects on display as part of the Maker Faire Exhibit Hall. Team members will ensure that their display has a representative to answer questions from other attending teams.

### **Project/Design Requirements:**

1. Team projects consist of three components: City Model, Essay, and Oral Presentation.
2. Teams must design and build a portable city model. While there are no size or weight requirements, the model must be movable and able to be displayed on a standard 6-foot table.
3. Team model must be constructed with a minimum of 75% recycled/reused materials. Models must include a least one moving part or light and should include 2D (hand drawn) and 3D components.
4. Only students are allowed to build their model—this is not a parent/advisor project. However, for safety reasons, teams may have assistance with power tools, and may buy pre-cut parts as needed. Adults are encouraged to monitor the use of tools.
5. The city model must address the solution to this year's environmental challenge theme **and** include 2-4 sustainable design concepts from the list below:

- Zoning (agriculture, industrial, business, residential, forest, protected areas)
- Sustainability with minimal environmental impact
- Transportation (smart transportation?)
- Water source
- Water treatment (what type?)
- Waste disposal (what type?)
- Recycling
- Power Plants/stations
- Protecting biodiversity
- Business (ex: commerce)
- Housing (ex: housing density)
- Recreational areas (ex: parks)
- Geological features
- Pollution prevention (ex: runoff etc., reducing CO2 emissions)

6. Team essays shall describe the unique attributes of their city and provide a solution to this year's environmental challenge. Essays should be no more than 1,500 words. All teams must submit their essay to MEEC no later than 1 week before the competition.

7. Teams will present a three to five minute oral presentation about their city and their solution to the environmental challenge, followed by a three to five minute question and answer session with the judges.

### **Competition Day:**

At the event, each team will have a booth space in the Maker Faire Exhibit Hall in which they will display their model and discuss their project with other teams. Booths must have 2 student representatives during exhibit hall hours, expect for the time that the team is in the judging area for competition.

### **Judging Criteria — Model: (45 points total)**

1. Design Decisions: Does the model showcase the solution to the environmental theme? Did the model address 2 to 4 sustainable concepts? Is there at least one moving part or light?
2. Construction Technique: How well did the students construct their design? Are the students able to discuss the materials used? Is the model made from mostly recycled/reused materials?
3. Creativity: How creative is the use of materials? Is the design/project presented in a creative way?

### **Judging Criteria — 1,500-word essay: (30 points total)**

1. Relevance to environmental theme: Did the students describe the unique attributes that they used to create a solution to this year's challenge?
2. Comprehensiveness: How well did the students understand the challenge and their solution?
3. Creativity and Originality: Uniqueness, novelty and authenticity of ideas. Did the students present a critical view of the subject with a fresh way of looking at things?

**Judging Criteria —Presentation and Q&A: (45 points total)**

1. **Presentation and delivery**– Did the team provide a well-executed and engaging presentation within prescribed time limit and incorporate required information to help judges evaluate their solution? Did the team demonstrate knowledge of their solution to the challenge? Did the team describe the whole city model to the judges? Does the team present and answer questions with confidence?