

NTX FUTURE CITY JUNIOR COMPETITION (2021-2022) 4-5TH GRADE RULES AND PROGRAM DESCRIPTION

The North Texas Regional Future City Junior Competition is a STEAM project-based learning program for 4th-5th grades where students imagine, research and model a solution to a real-world problem in a city 100 years in the future. It is an abbreviated version of the award-winning Future City Competition for middle-schoolers. Components of the Junior Program include a research essay, a physical model and a video presentation of the city and solution to the annual challenge.



2021-2022 Challenge: *A Waste-Free Future*. Use the three principles of a circular economy to design a futuristic waste-free city.

Rules and description of the project scope follow. For complete details, consult the NTX Junior Team Center: http://www.dfwfuturecity.org/team_junior.html.

REGISTRATION:

Schools and youth organizations with 4-5th grade students may register through 31 October by contacting the Regional Coordinator, regional@dfwfuturecity.org. There is no registration fee for the Junior Competition.

TEAMS:

The students will work in teams. Teams consist of three 4-5th grade students, an educator and an engineer-mentor. (For suggestions on finding mentors, see: https://www.dfwfuturecity.org/team_mentorfind.html.)

- Students must be from the same organization, but not necessarily the same class or grade.
- Organizations with large groups may either
 - Enter multiple teams (at this time, we do not anticipate having to limit the number of from one organization), or
 - Work as a class or large group prior to the model showing, but must select the three students (one team) that will represent the group.

PART 1

RESEARCH ESSAY: A WASTE-FREE FUTURE

This component will describe the team's solution to the annual challenge: Use the three principles of a circular economy to design a futuristic waste-free city. The three principles include: a) design out waste and pollution; b) keep products and materials in use; and c) regenerate natural systems.

Download the Essay Requirements from the Junior Team Center (http://www.dfwfuturecity.org/team_junior.html) for a complete description. Briefly, the essay should:

- Introduce the team's city – at least 100 years in the future.
- Describe what the city and life was like in the past with a linear system: take-make-dispose.

- Choose the most wasteful, polluting system (or systems) in your city and describe
 - How you applied the principles of a circular economy to reduce and eliminate waste and
 - The technology that allowed the city to move to the waste-free system.
- Contain no more than 1000 words.

Refer to the Essay Requirements document for a Suggested Outline and the FC Junior Essay rubric.

The essay is due 19 November 2021. Late submissions will be accepted (with penalty points deducted) through 6 December 2021.

PART 2 **PHYSICAL MODEL**

Download the requirements for this component in the Model Requirements document in the Junior Team Center (http://www.dfwfuturecity.org/team_junior.html). Briefly, the Physical Model should:

- Be built to scale (scale chosen by the team).
- Illustrate the team's concept of their future city.
- Be focused on demonstrating the solution to the challenge: A Waste-Free City.
- Not exceed the total of \$50 cost of materials. The total value of the materials used must be reported on the Competition Expense form.

To accommodate both in-person and virtual learning environments, there are two model building options for the 2021-2022 competition.

- Option 1: Your team can choose to build one single model
- Option 2: Your team can choose to build multiple model segments. These model segments are separate pieces that represent various sections of the city. Model segments do not need to fit together physically.

This year, since there will be no on-site event, the model will be judged using a video recording that the team creates and uploads. See Part 3 (below). The judges will score the model according to the rubric included in the requirements document.

PART 3 **TEAM MODEL PRESENTATION VIDEO**

Student team members (max 3) record a short (max 7 minute) video presentation that that explains their model, their future city, and their solutions to the Waste-Free City challenge. Download the requirements for this component in the Model Video Presentation Requirements document in the Junior Team Center (http://www.dfwfuturecity.org/team_junior.html). Briefly, the presentation should:

- Last no more than 7 minutes.
- Be given by the three students that make up the official team.
- Include the model (or model segments) as the principal demonstration aid.

Presentations will be scored by judges using the rubric included in the Presentation Requirements document. Scores are based on the quality of presentation content rather than elaborate video production.

The video presentation is due 14 January 2021. Late submissions will be accepted (with penalty points deducted) through 21 January 2021.

PROGRAM HANDBOOK:

The Future City Competition program handbook has been written for the middle-school program (available to registered participants only) and is a valuable guide for the teaching/leading the project.

Download a copy from the Educator Portal. The Junior program has been simplified somewhat from the complete middle-school program described in the handbook. Specifically, for the Junior Competition:

1. The Project Plan, Model Slideshow, and Q&A deliverables are NOT included in the Junior program.
2. The Essay is shortened such that it need not include a detailed description of the city and the word count is reduced to 1000 word max.
3. The Model and Team Presentation are likewise simplified: focused primarily on demonstrating the annual theme and limited in cost to no more than \$50 (combined total).

Keeping in mind these changes from the middle-school program, the Program Handbook contains elements that might be useful for leading the Junior program:

1. The following sections are helpful in getting started:
 - a. Preparing to Lead and Preparing your Students (p. 9-12)
 - b. Introduce Engineering and The Engineering Design Process (p. 13-15)
 - c. Activities on Teambuilding and Brainstorming (website resources)
2. You might also find these activities useful:
 - a. Project planning - setting goals and monitoring progress
 - b. City planning - learning the elements of what makes a good city beyond the basic questions posed by the annual challenge.

REQUIRED FORMS:

1. City Model Expense form (max expense = \$50)

JUDGING:

The Essay and Presentation Video will be judged online by multiple judges (technical professionals). The judges' scores for each deliverable will be averaged. Those average scores will be added together, less any penalties incurred, to come up with a composite-total score for each team. Prizes will be awarded based on those scores.

AWARDS CEREMONY AND ANNOUNCEMENT OF WINNERS

The results of the NTX Future City Junior Competition will be announced during the online Awards Ceremony in late January (exact date TBA). Scores for individual teams and deliverables will be available for educators to download from the Junior Team Center following the announcements.

Prizes:

- Future City Competition Junior will provide prizes for Best Essay, Best Model, and Best Overall Junior Team.
- Sponsors will also give out Special Awards recognizing accomplishments in various categories, such as: Green City, Energy Efficiency, etc.

OTHER RULES:

- Participants will comply with the basic rules of the Future City Competition program as laid out in the handbook and as modified herein.
- Deadlines will not be extended. Teams making submittals after the deadlines will receive penalty points.
- Any conflicts will be resolved locally. There is no appeal.
- The judges' decisions are final.
- Prizes are not transferable or exchangeable.