



Introduction to Future City

Jean Eason

Regional Coordinator

www.dfwfuturecity.org



Agenda

- Overview of program
- Online Team Center
- Understanding project phases
 - Specific rules and guidelines
 - Resources
 - Deliverables
 - Timeline
- Lessons learned





A Brief History

- Nationally
 - Sponsored by DiscoverE (formerly National Engineers Week) Foundation
 - Began in 1992
 - About 40 regions, 30,000 students involved annually
- North Texas
 - 16th year
 - More than 700 students involved annually
 - From ~50 schools and youth organizations across N TX
 - With support of > 100 volunteers from engineering organizations, companies



What is Future City?

- Project-based educational program
- Skills learned:
 - Problem solving
 - Teamwork
 - Public speaking
 - Research, writing
 - Math, science, engineering
 - Project and time management



What is Future City?

- The Challenge:
 - Design and Build a Livable City of the Future
- Project phases, goals
 - Form the team
 - Conceive an initial city plan, design
 - Simulate, refine solution
 - Research, write paper
 - Build physical scale model
 - Stay within budget
 - Present final solution to judges





You decide – What will the future be like?

- Solving real-world problems
 - Cheap, renewable, sustainable energy sources
 - Efficient, effective public transportation
 - Green cities: technologies, industries and utilities
 - Healthy, clean cities: no pollution, recycle/reuse garbage
 - Safe cities: low crime, immediate emergency response
 - Instant global communication
 - Parks, recreation, amusements





FC & The Engineering Design Process

Future City Stages

- Form the team
- Conceive an initial city plan, design
- Simulate, refine solution
- Research, write paper
- Build physical scale model
- Stay within budget
- Present final solution to judges

Engineering Design Process

- Identify the problem
- Learn the specifications
- Brainstorm solutions
- Design
- Test, improve, redesign
- Share

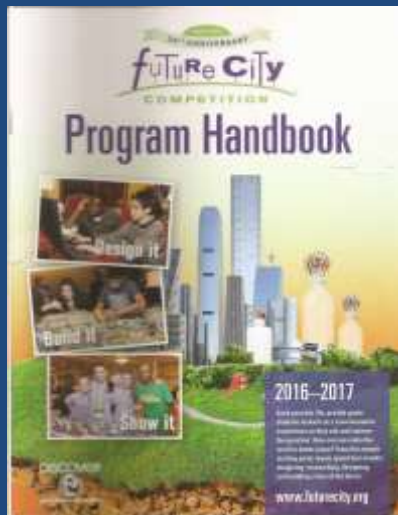




Where to Find Answers

1. Program Handbook

- Rules
- Teaching points
- Background information



2. Websites

- Regional
www.dfwfuturecity.org
- Region-specific info
 - Schedule, due dates
 - Local resources
 - Program updates

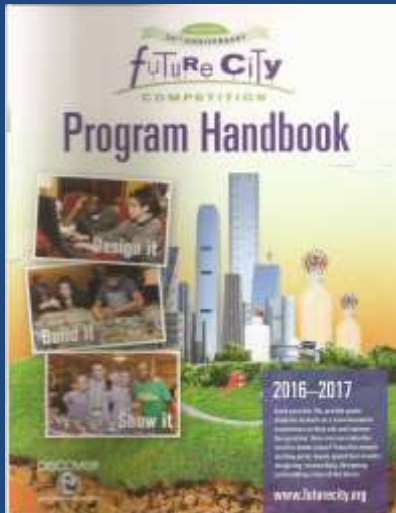




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- Regional
www.dfwfuturecity.org
 - Region-specific info
 - Schedule, due dates
 - Local resources
 - Program updates
- National
futurecity.org
 - Overall program info
 - General resources
 - Program description

3. Ask

- Region coordinator
- Region school coordinator
- National program manager





FC NTX Team Center

www.dfwfuturecity.org/teamcenter.html

- Team Center – *Bookmark it!*
- First stop for all local information
 - Schedule, rules
 - Program updates
 - Resources

6, 7, 8th Graders...
Engineer the Future!

About Us
Overview, History, Photos

Sponsors
Companies, Organizations, Individuals

Program Details
Schedules, Resources, Rules

Get Involved
Schools, Students, Engineers, Volunteers

Team Center

[Teacher Sign-In](#) [Mentor Sign-In](#)

This secure site will:

- Allow you to set up teams
 - Add and change members
- Allow you to upload deliverables
 - SimCity files and forms
 - Essays, Narratives and forms
- Automatically time-stamp deliverables
- Send acknowledgements for uploaded files
- Obtain detailed scoring reports

Updates

What's Different This Year

(Aug-13) Significant changes this year:

- You can use either SimCity 4 or the new SimCity game to build your virtual city. Select when you register.

Team Center

[Resources](#)

[NTX Schedule](#)

[NTX Rules](#)

[List of Schools](#)

[Team Center](#)

[Day-of Info](#)

Email Updates

Email Archive
Check back later for updates

Sign-up for Email Updates
Email updates for NTX Future City participants give you the latest information about the NTX program, including schedule, rules, deliverables, resources, and other need-to-know items. They are issued as necessary (about



FC NTX Team Center

www.dfwfuturecity.org/teamcenter.html

- Team Center – *Bookmark it!*
- First stop for all local information
 - **Schedule**, rules
 - Program updates
 - Resources

6, 7, 8th Graders... Engineer the Future!

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Schedule Deadlines for 2016-17

Thru 31 Oct	Registration and fees Training Webinars (see Updates for details) Initial project planning: Learn the specifications and set goals. Set Project Plan schedule. Begin collecting material and recyclables for model.
Sep-Oct	Develop initial city design. Test design using SimCity.
Oct-Nov	
02 Dec	Virtual City slideshow due <ul style="list-style-type: none">• Upload file (.pdf) through the Team Center• You will need to have created your teams before you can upload your slideshow• Files received by deadline will avoid late penalties• Late submissions are allowed - see below for dates and penalties
Nov-Dec	Begin scale model design Begin essay research
Dec	Complete research and write essay
18 Dec	City Essay (Essay) due <ul style="list-style-type: none">• Submit in electronic format - common word processing document format such as .doc, .docx, .pdf• Upload file through the Team Center• Files received by deadline will avoid late penalties• Late submissions are allowed - see below for dates and penalties
28 Dec	

Team Center

- Resources
- NTX Schedule
- NTX Rules
- List of Schools
- Team Center
- Day-of-Info



FC NTX Team Center

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- First stop for all local information
 - Schedule, rules
 - Program updates
 - **Resources**

6, 7, 8th Graders...
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Resources

1. [Manuals](#)
2. [Competition Forms](#)
3. [Letter to Parents](#)
4. [Orientation Workshop Materials](#)
5. [Mentor Information](#)
6. [SimCity Resources](#)
7. [Lessons Learned](#)
8. [List of Penalties](#)
9. [Where to Learn More](#)
about Essay Research, City Planning, Model Building, Engineering and more.

Team Center

Resources

[NTX Schedule](#)

[NTX Rules](#)

[List of Schools](#)

[Team Center](#)

[Day-of-Info](#)

Manuals

www.dfwfuturecity.org/teamcenter.html



Enrolling Teams in the Team Center

www.dfwfuturecity.org/teamcenter.html

- Team Center – *Bookmark it!*
 - First stop for all local information
 - Schedule, rules
 - Program updates
 - Resources
- Create and manage teams
 - Assign team members
 - Submit deliverables
 - Automatic confirmation of submission
 - Download team scores
 - Available after the competition

6, 7, 8th Graders...
Engineer the Future!

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Team Center

https://www.dfwfuturecity.org/Teachers/Teacher/Home

Apps | Food | Diet & Fitness | Food Friends | Future City

future City
Teachers Home Page - (afased - click to cancel)

Home | Logout

This | Educators Pages | Team Information | Score Overview

Welcome Back Amy Delaney!
Here is the list of the teams you have created. Use the "Edit Team" button to change the information for the team. Use the "Upload Files" button to submit files to be scored.

Team: 7th Grade	Edit Team	Upload Files	
Mentor: (Unassigned)		Virtual City	Due: Fri Dec 02, 2016
		City Essay	Due: Mon Dec 19, 2016
		Project Plan	Due: Mon Jan 16, 2017
		Honor Statement	Due: Mon Jan 16, 2017
		Expense Form	Due Date Not Set
		Media Waiver	Due: Fri Jan 27, 2017

Up

Team: 8th Grade	Edit Team	Upload Files	
Mentor: (Unassigned)		Virtual City	Due: Fri Dec 02, 2016
		City Essay	Due: Mon Dec 19, 2016
		Project Plan	Due: Mon Jan 16, 2017
		Honor Statement	Due: Mon Jan 16, 2017
		Expense Form	Due Date Not Set
		Media Waiver	Due: Fri Jan 27, 2017

What

(Aug-1

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What's Different This Year

- Very few changes this year
 - Simplified Virtual City slide show
- Point allocations for some components
 - Total points down from 264 → 258
 - **Virtual City:** 48 (19% of total)
 - Essay/City Description: 60 (23% of total)
 - Project Plan: 10 (4% of total)
 - Model: 70 (27% of total)
 - Presentation: 70 (27% of total)





2016-17 Registered Groups

- Ann Richards MS, Dallas
- Applied Learning Academy, Fort Worth
- Austin Achieve Public School, Austin
- Bessie Coleman MS, Cedar Hill
- Boulter MS, Tyler
- Carter JH, Arlington
- Cooper JH, Wylie
- Coppell MS North, Coppell
- Dallas Academy, Dallas
- David Walker IS, Fort Worth
- Donna Park Elementary, Hurst
- Dowell MS, McKinney
- Fort Worth Academy, Fort Worth
- Girl Scouts-Forney, Forney
- Harbor View Academy, Rockwall
- Harmony Sch of Business, Dallas
- Harmony Sch of Innovtn, Fort Worth
- Harmony Sch of Innovtn, Garland
- Harts Bluff Elementary, Mt. Pleasant
- Hill Country MS, Austin
- Homeschoolers Excel, Grapevine
- Hunt MS, Frisco
- Intl Leadership TX Garland, Garland
- Irma Rangel Young Women's Leadership, Dallas
- Kennedale JH, Kennedale
- McLean MS, Fort Worth
- Pearson MS, Frisco
- PE Wallace MS, Mt Pleasant
- Pioneer Heritage MS, Frisco
- Richardson West JH, Richardson
- Sam Houston MS, Irving
- Scoggins MS, McKinney
- Staley MS, Frisco
- Summer Creek MS, Crowley
- TCC Generation Hope, Fort Worth
- Thrall MS, Thrall
- Uplift Luna Preparatory, Dallas
- Village Tech Schools, Cedar Hill
- Washington MS, El Dorado, AR
- West Ridge MS, Austin
- Westwood School, Dallas
- Wheat MS, Cleburne
- Young Women's Leadership Academy, Fort Worth

2016 North Texas Sponsors



Program Details



Step 1: Build the Team





Teams

- Schools/organizations are represented by teams
 - 3 students, 1 educator/sponsor, 1 engineer-mentor
 - At the regional event (model-presentation judging) you need to have a team
- Student team members – must be from the same organization
 - Don't have to be from the same class or same grade
 - 6th, 7th, and 8th grades eligible



Teams – Options for Large Groups

Prior to the presentation, educators and students may:

1. Work in large groups (classes, clubs, etc.)
 - Assign work equitably
 - Down-select to 3 students – “the Team” – to represent all
2. Work with multiple teams (groups of 3-4 students)
 - All teams complete all phases
 - Select some (or all) teams to send to regional
 - Max 8 teams from one school/organization
 - Select teams by: Intramural run-off competition, Grades, Lottery
 - Teams compete (present) in the preliminary round
 - *Only one team per school/organization may advance to the final round*



Teamwork

- Teamwork is an important part of the program
- Decisions are reached by consensus
- Everyone contributes
 - Agree on assignments
 - Agree on responsibilities
- Resources:
 - Team building activities on National FC website
 - Teambuilding, brainstorming, conflict resolution





Finding an Engineer-Mentor

- Parents of students, PTA newsletter
- Spouse or friend of educators
- School/organization business partner
- City bureau of engineers
- TX DoT
- US Army Corp of Engineers
- Local engineering firms
- National Engineers Week sponsors (www.discovere.org)
- Local Chapters of Engineering societies
- Regional Mentor Coordinator – Tom Hunt





Engineer-Mentor

- Involved in all phases of the competition
- Advisor, coach
 - Students do all the work, make all the decisions
- Provides real-life engineering experience
 - Project planning
 - Scheduling
 - Setting realistic goals
 - Helping to assign tasks
 - Understanding roles of engineers, engineering disciplines
- Resources:
 - Mentor coordinator
 - Online tips, advice, webinars





Ethics, Roles and the Honor Statement

- Future City is an educational program
- Rules are designed to ensure a fair competition
- Students envision the city and do all the work
 - Design, simulation, research, writing, model building, presentation
- Adults provide guidance and advice
 - Should be present when teams work with tools, build models
- Everyone adheres to the rules
- Team members sign and submit an Honor Statement
- **Due January 16**
 - Upload through the Team Center
 - Submissions from Jan 17-20, -1 point
 - Submissions after Jan 20, not accepted



Step 2: Make a Plan





Project Planning

- Plan it before you build it...to help you
 - Establish goals
 - Stay organized
 - Focus on goals and results
 - Moving forward on schedule





Project Plan Deliverable

- Project Plan – 4 parts
 1. Set goals for the entire project
 2. Create a schedule
 3. Monitor progress periodically throughout project
 4. Reflect on team performance at end of project
- Resources
 - Team Center resources “Where to learn more”
- Project Plan (4 parts)
 - Single Word document file
- Submit through Team Center
- 10 points (not judged)
- **Due January 16**
 - Submissions from Jan 17-20, -5 points
 - Submissions after Jan 20, not accepted



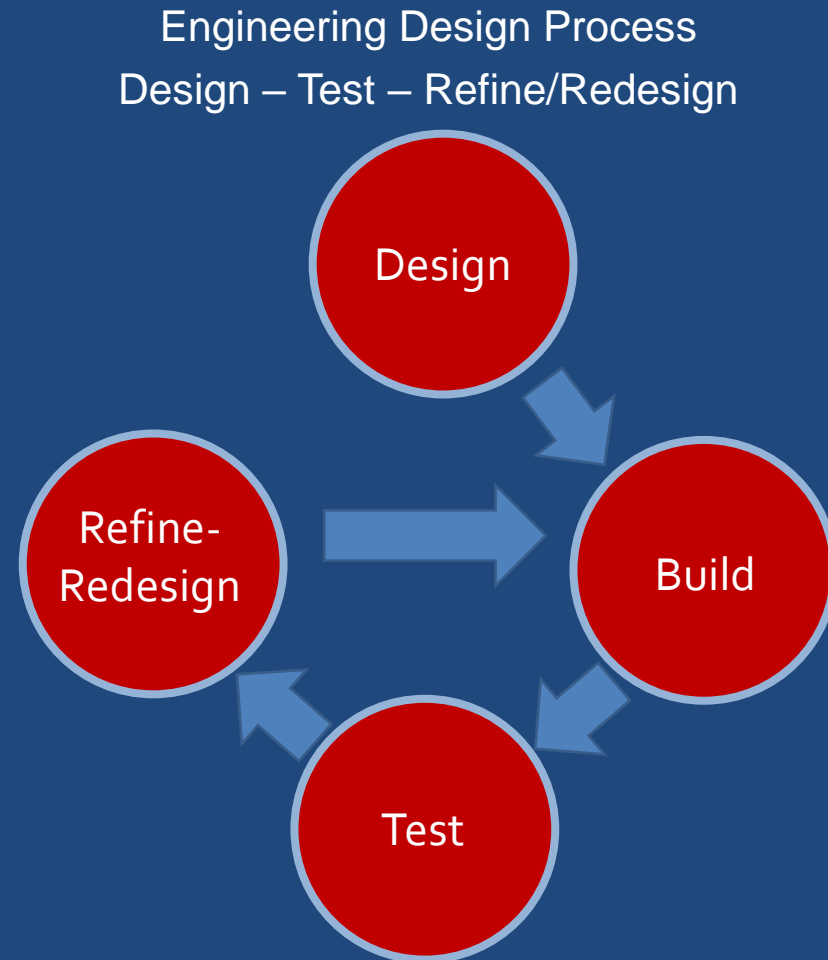
Step 3: Virtual City – Planning, Simulation





Goal of the Virtual City Exercise

- You should learn ... how to
 - Establish meaningful long-term goals for your future city
 - Develop a city design for achieving those goals
 - Use the simulation tool to test the design
 - Accurately assess progress based on simulation results
 - Refine the design as necessary to improve progress
- *Goal of exercise is NOT to*
 - Create the perfect city
 - Win the SimCity game





City Planning & Design

- Plan before you play
 - Decide on where your city will be located (geography, climate, environment)
 - Develop goals for your city
 - Green utilities, no pollution
 - Public transit, no cars
 - Healthy city, parks, recreation, walkable
 - Develop a basic city plan or layout
 - Zones, neighborhoods, downtown, commercial areas, suburbs
 - Traffic patterns
 - Industry, special services
 - Pick an imaginative, meaningful name



Simulation – testing the design

- Simulator = SimCity
- Testing your city plan/design
 - You are the mayor, you control the budget
 - Input your design, add the infrastructure
 - Test different options, choose the best
 - Program supplies the Sim citizens
 - The better you design it, the more citizens will move in





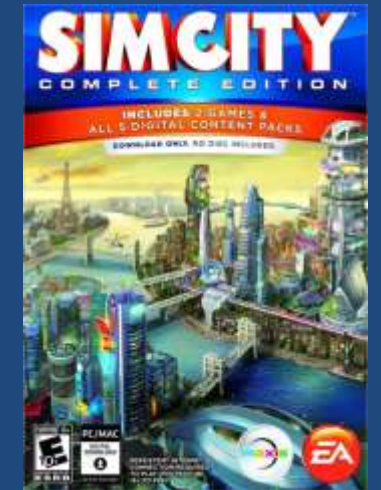
Virtual City Rules

- SimCity rules
 - Offline mode
 - Choose any SC region, any city site
 - Do NOT use sandbox mode
 - Turn off random disasters
- Develop a realistic, functional city
 - No pasting in (or otherwise adding) features not earned
 - Don't outsource expensive services like utilities or major polluters
 - Cheat codes & gifts discouraged, but allowed w/ appropriate documentation



Virtual City Materials

- Download codes for SimCity software
 - Request codes: Team Center, teacher menu
 - Additional codes may be available (limited number)
- Virtual City Slideshow materials
 - Slideshow template – fill in with data and screenshots
 - Sample slideshow
 - Benchmark chart for monitoring your progress
 - Sample goals (handbook)





Virtual City Slideshow

- Choose two goals for virtual city design and work toward those goals
- Document your city development at two points in time
 - Assess progress
 - Take screenshots to document development
 - Refine design to correct problems
- Rubric – *revised 2017*
 - Understanding and following the template
 - Testing and refining the design
 - Lessons learned
 - Judge’s assessment of design and process



City Planning and SimCity Resources

- NTX Webinars
 - City Planning – recorded in 2014
 - SimCity Tips for Success – recorded in 2014
 - The Virtual City Deliverable – recorded Oct 2016
- NTX Team Center – “Resources” page
 - City Planning resources
 - “Where to learn more”
 - City Planning Exercises (National website)
 - SimCity resources
 - Download instructions for Origin and SimCity
 - NTX SimCity Tips
 - Virtual City deliverable resources
 - Links to templates and forms



Virtual City Design Deliverable

- Virtual City slide show
 - pdf created with PowerPoint, Google Docs, Word, etc.
- Submit through Team Center
- Scored on: testing and refining design, learning outcomes
- 48 points
- **Due December 2**
 - Submissions from Dec 3-Dec 19, -5 points
 - Submissions after Dec 19, not accepted



Step 4: City Description (essay)





City Description/Essay

- Goal of the writing exercise
 - Verbally describe the city of the future
 - Develop effective research skills
 - Investigate solutions to the assigned topic
 - Analyze tradeoffs of possible solutions
 - Select the best solution
 - Understand technology required
 - Become familiar with engineering roles in city design and operation





Research Essay

- 2017 Topic: “The Power of Public Spaces”
 - Design a distributed network of multiuse public spaces to serve the diverse population
 - Rehab two areas into public spaces:
 1. Roadway
 2. Greyfield or brownfield
- Rules
 - Word limit: 1500 max; Graphics: 4 max
 - Include bibliography with min of 3 sources
- Resources
 - List of topic resources online and in handbook
 - Examples of past best essays online
 - Tutorial webinar recording





City Description Outline

- Introduction and overview
- City basics – description of the city
- Describe the public spaces problem
- Describe the solution
 - Conversion of two spaces
 - Engineering involved
 - Benefits, tradeoffs
- Conclusion



City Description Deliverable

- Document (doc format)
- Upload through Team Center
- 60 points
 - Scored on creativity, how well you explore/explain the issues, use of new technologies, role of engineers, writing skills
- **Due December 18**
 - Submissions from Dec 19-Jan 8, -5 points
 - Submissions after Jan 9, not accepted



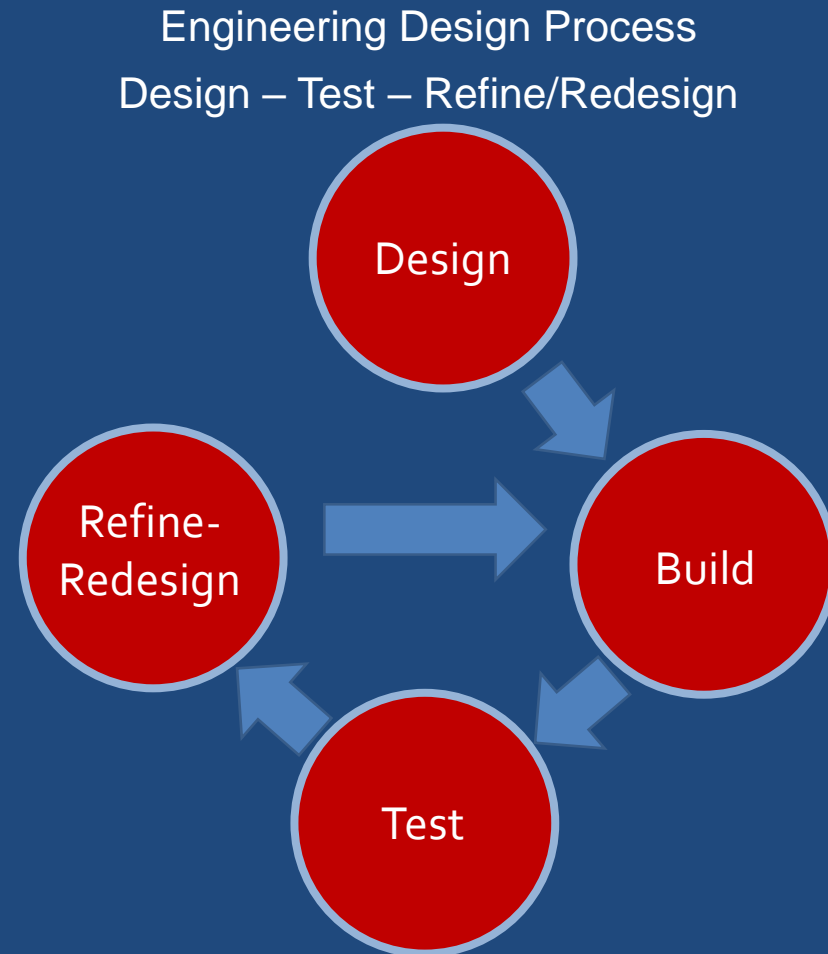
Step 5: Physical Model





Goal of the Physical Model

- Final opportunity to Design → Build → Refine the city
- Learn about scale and how to apply it
- Implement a moving part
- Study power sources to drive the movement
- Work within constraints of a budget





Physical Model Rules

- A *creative* representation of a section of your city
 - Does not have to be an exact duplication of the SimCity
- Built to scale
 - You select the scale
 - Dependent on the section you are modeling, amount of detail
 - Apply scale consistently in all three dimensions
- Model size: 25" (w) x 50" (l) x 20" (h)
 - Not to exceed
 - Includes all supporting structures, all moving parts, all extension parts (hinged doors, drawers, access panels, etc.)





Physical Model Rules

- Model Weight – no specific limit
 - Kids have to be able to move it
 - Going to National Competition: Models > 75 lbs (including shipping container) will incur additional charges
- Building Materials
 - Recycled materials encouraged
 - No live animals, no perishable items (e.g., no Jello)
- Moving part
 - Manually moved, blown on, spring driven
 - Electric – self-generated, battery powered, NO plugs



Model Budgeting

- Cost of materials for model *plus* presentation cannot exceed \$100
 - Recycled materials (plastic bottles, cans, boxes, etc.) \$0
 - Used items (toys, building materials, etc.) Fair market value *
 - Donated items, Borrowed items Fair market value *
 - Purchased items Receipts
- Document expenses on Expense Form
 - Bring to UT Arlington with model

* *Fair market value = garage sale or E-bay price*



Physical Model Resources

- NTX Team Center Resources
 - Where to learn more – pictures and material lists of top models
 - Pictures of past models
- FC activities
 - Understanding scale
 - Model construction





Physical Model Deliverable

- 3-D scale model of a section of your city
 - Must have a moving part and be self-powered
 - Cannot spend more than \$100 on materials
- Expense Form
- Model ID card
 - City name, team member names, school/org name
 - Scale
- 70 points
 - Scored on creativity, realism, accuracy and scale, quality of workmanship
- **Due January 27-28**
 - Deliver to UT Arlington





Step 6: Presentation





Team Presentation

- Goal of the Oral Presentation:
 - Speak confidently in front of audience
 - Organize and express ideas clearly
 - Think on your feet responding to Q&A
 - Demonstrate teamwork
 - Manage time during presentation
 - Create and effectively use visual aids





Presentation Rules

- Team presentation
 - Max 7 minute oral presentation
 - There will be timers in the rooms
 - Explain the design and function of the city
 - 5-8 minutes of Q&A follow formal presentation
- Visual aids: model, posters, flipcharts, display board
 - No laptops, overhead projectors, videos, tablet computers, cell phones
 - No audio equipment
- Resources
 - Team Center Resources page – “Where to learn more”
 - Presentation Skills webinar (2013) – recorded session
 - NTX team presentation at national finals (2016)



Presentation Rules

- Visual aids
 - Size limit, quantity limit
 - One display: 60” x 36” -OR- Two displays: 30” x 36” each
 - Multiple display boards can be stacked on the easel
 - We supply one easel
- Additional demonstration aids
 - Must collectively fit within a 6” x 6” x 12” volume (e.g., a shoe box)
 - Includes pointers, brochures, handouts, small mockups, etc.
 - Handouts are limited to one page
- Cost of presentation materials plus cost of model materials cannot exceed \$100
 - Presentation costs include all materials: display boards, flip charts, costumes, uniforms, props, pointers, handouts, etc.



Presentation Deliverable

- 5-7 minutes of presentation
 - 7 minutes maximum
 - Followed by 5-8 minutes of Q & A (total max time = 15 minutes)
- Expense Form
 - Shared with Model
- 70 points
 - Scored on technical knowledge, city design/features, innovation, teamwork
- **Due January 28**
 - At UT Arlington

To Sum Up



To Review – Required Forms

All forms available on Team Center Resources page

- Home school affidavit
– Home schools only
Mail to Regional Coord.
- Expense Form
Bring to UTA w/ model
- Model ID card
Attach to model
- Honor Statement
Team Center upload
- Media Waiver Form
Upload or
Bring to UTA at check-in



Program Timeline

Oct 31	Registration deadline
Sep-Nov	<i>Students work on City Plan/Design and SimCity</i>
Dec 2	Virtual City slide show due
Oct-Dec	<i>Students begin essay research and writing</i>
Dec 19	City Description due
Dec-Jan	<i>Students work on model and presentation</i>
Jan 16	Project Plan due, Honor Statement due
Jan 27	Team check-in, deliver model to UTA
Jan 28	Competition at UT Arlington, Award ceremony
Feb	National Finals in Washington, DC



Special Note – Potential Conflicts

- Duke Talent Search SAT (7th grade)
 - Don't select the January test date!
 - Option: UTA is a test site (reduce travel time)
- UIL competitions
- Options for those with conflicts
 - Notify Regional Coordinator by 20 December
 - Limited number of late Prelim Round presentation times allocated on first-come, first-served basis
 - Arrange for other team members to handle Special Awards judging Q&A
- Note: there is a letter to parents on website (Team Center Resources)
 - Outlines FC program and dates



Lessons Learned

- Engineer-Mentor is necessary
- This project takes time
 - Educators – 30-40 hours
 - Mentors – 20-40 hours
 - Students
 - Design city – 18-20 hours
 - Build model – 40-60 hours
 - Essay, Narrative – 8 hours
 - Presentation – 7 hours
- Don't wait until January to start model and presentation pieces
 - Start collecting recyclable “building” materials now



Lessons Learned (cont'd)

- Keep parents informed
 - Letter to parents (sample on website)
- Winning teams are successful on all phases
- But, Penalties for late work won't kill your chances
 - All late penalties combined are less than 7% of total score
- Read the handbook and rules for N TX competition
- Educator and mentor act as advisors, not designers
- Consider bringing in topic-area experts



Regional Committee

Regional Coordinator

Judging Coordinator

Mentor Coordinator

Photos, Prizes

Special Awards

Public Relations

Facilities

Jean Eason

Richard Reppert

Tom Hunt

Diane Collier

John Colotta, Victoria White

Katia Gomez

Carter Tiernan, Dave Davis