



National Engineers Week Future City® Competition North Texas Regional

Orientation and Overview

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www.dfwfuturecity.org



10/5/2012



Agenda

- Overview of competition
- Understanding project phases
- Specific rules and guidelines
- N TX Regional
- Timeline
- Submitting deliverables
- How the judging will work
- On the day of the competition
- Awards and prizes
- Resources – where to go for more info



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National Engineers Week Future City[®] Competition

- National Competition
 - Sponsored by National Engineers Week Foundation
 - Started in 1992
- North Texas Regional Competition
 - 13th year
 - With support from entire N TX engineering community



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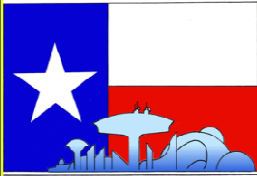


Measures of Success

- Nationally
 - 39 Regions, 30,000 students annually
 - 7500 volunteers donating 250,000 hours
 - Survey of teachers and students
 - More students interested in studying math, science and technology than any other subject
 - More than half interested in choosing engineering as a career
- North Texas, 2012 competition
 - More than 500 students, from 15 districts – 31 public schools, 5 private, 2 charter and 2 home schools
 - More than half of students were women and minorities
 - Schools from as far away as Lubbock and Waco
 - Displayed FC models at E-week exhibit at FW Museum of Science and History



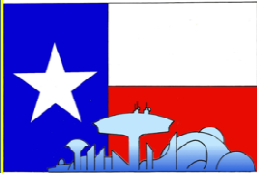
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The Challenge

- Design and Build a Livable City of the Future
 - Build the team
 - Initial city design
 - Simulate solution
 - Write an essay
 - Build a physical model
 - Present to the judges





Build the Team





Teams

- Schools/organizations are represented by teams
 - 3 students, 1 educator/sponsor, 1 engineer-mentor
- Students – must be from the same organization
 - Don't have to be in the same class or the same grade
 - 6, 7, and 8th grades eligible
- Prior to the competition (model judging/presentation) you may
 - Work in teams
 - Work in groups/classes, i.e., more than: 3 students, 1 educator and/or 1 engineer-mentor
- At the competition judging you must have a team
 - Prizes given to teams



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Working in Teams

3 Options for Large Groups

- Prior to the presentation, educators and students may:
- Work large groups (classes, clubs, etc.)
 - Assign work equitably
 - Down-select to 3 students - “the Team” – to represent all
- Work with multiple teams (groups of 3 students)
 - All teams complete all phases
 - Select the team(s) to send to regional
 - Intramural run-off competition
 - Grades
 - Lottery
- Work with multiple teams
 - All teams complete all phases
 - All teams come to regional to present in prelims
 - More than 10 teams require Regional Coordinator approval
 - Only one team per school/organization may advance to final



Note: Teams

- Teamwork is an important part of the competition
- Decisions reached by consensus, compromise
- Everyone contributes
 - Agree on assignments
 - Agree on responsibilities



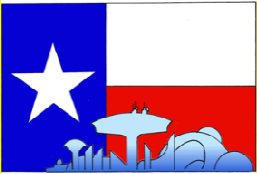


Finding an Engineer-Mentor

- Parents of students, PTA newsletter
- Spouse or friend of educators
- School/organization business partner
- City bureau of engineers
- TX DoT
- Local engineering firms
- National Engineers Week website
 - (www.eweek.org) engineering society sponsors
- Local Chapters of Engineering societies (handbook reference)
- Call Regional Coordinator



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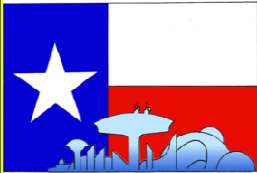


Engineer-Mentor

- 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
 - Roles of engineers
 - Engineering disciplines
- Mentor coordinator
- Bentley mentor forum **-New-**
 - Tips, advice, webinars online



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City Design, Simulation



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City Design

- Use SimCity 4 Deluxe™ software
- Start city in FC default region: medium-size
 - 15 point penalty for not using default region **-New-**
- Benchmarks: at least 150 years growth, minimum 50,000 population
- 90 points
 - Scored on design and amenities
 - ~~Benchmarks (self-scored) – 10 points~~ **-New-**
 - Virtual City Design (judge scored) – 90 points
- Due **November 21**
 - Submissions from Nov 22-Dec 5, -5 points
 - Submissions from Dec 6-19, -10 points
 - Submissions after Dec 19, not accepted



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Note: City Design

- SimCity: You are the mayor
 - You control the budget, you supply the infrastructure
 - Program supplies the Sim “citizens”
 - The better the city ... the more citizens will move in
- Do some planning before you start
 - Geography, city layout, zones, traffic patterns
 - Modify terrain, add features
 - Pick an imaginative, meaningful name



Note: City Design

- Don't turn on "Disasters!"
- Don't need "MySim" mode or "U-Drive-It"
- Good virtual city requires time
 - Not an overnight assignment
 - Plan 15-20 hours
- SimCity manuals and tutorials available through Electronic Arts, websites, Handbook, N TX training



Note: SimCity

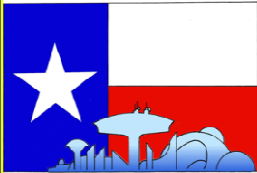
- SimCity 4 for PC – download from web
 - FC National distributes access code
 - EA's Origin website
 - No CDs required
 - Additional copies through FC National:
bknight@futurecity.org
- SimCity 4 for Mac
 - Available (only) from Region
 - Extremely limited supply



Note: SimCity

- SimCity How-To's
 - See website resources:
www.dfwfuturecity.org/team_rsrc.html
 - Backing-up your city
 - Where the files are stored
 - How to upload /submit to judges
 - How to move to another computer
 - How to change the city name
- Saving your city for backup
 - Always check to see that you have a valid copy
 - Do not save directly to backup device from SimCity (“save as”)
 - Save city to your hard drive (default)
 - Copy city from hard drive to backup device

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FUTURE CITY COMPETITION

Essay



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Essay – Two Parts

- Research Essay
 - 1000 word max
- Sets the theme for the competition:
 - Rethinking Runoff
 - Include a bibliography with at least 3 resources
- Due **December 19**
 - Submissions from Dec 20-Jan 9, -5 points
 - Submissions after Jan 9, not accepted
- City Narrative
 - 500 word max
- Describes the future city
 - Quick overview of the city
 - Highlight important services



Essay

- 100 points (Total)
 - Scored on creativity, how well you explore/explain issues, use of new technologies, discussing role of engineers
 - Essay (w/ bibliography) – 75 points **-New-**
 - Narrative – 25 points **-New-**



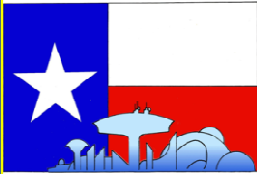
Research Essay: 2013 Topic

- Rethink Runoff: Design clean solutions to manage stormwater pollution
 - Outline:
 - Describe the runoff problems your city faces
 - Design a solution and describe how it works and technology involved
 - Analyze the trade-offs, risks and benefits
- Research references in handbook, online, N TX training
- Past winning essays on website



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Physical Model



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Models

- 3-D scale model of a section of your city
- Must have moving part and be self-powered
- Cannot spend more than \$100 on materials
- 120 points
 - Scored on creativity, accuracy/scale, and quality of workmanship
- Due January 25-26
- Deliver to UT Arlington



Note: Models

- A *creative* representation of a section of the city
 - Does not have to be an exact duplication of the SimCity
- You select the scale
 - Apply 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)
- Pictures and parts lists from past models on website



Note: Models

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

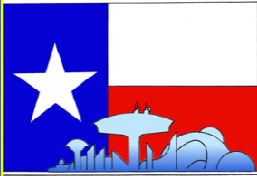


Model Budgeting

- Cost of materials for model *plus* presentation must be less than \$100
 - Recycled materials (plastic bottles, cans, etc.) \$0
 - Used items (toys, building materials, etc.) Fair market value*
 - Donated items, Borrowed items Fair market value*
 - Purchased items Receipts
- Bring completed expense form to competition

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

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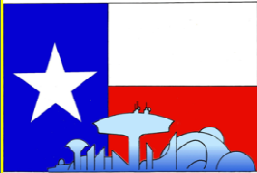
Model Slideshow



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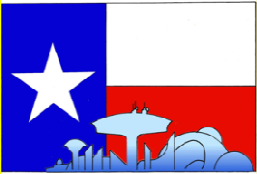
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Presentation



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Presentation

- Team presentation
 - Explain the design and function of city
- Visual aids: posters, flipcharts
 - No laptops, overhead projectors, videos
 - No audio equipment
- 5-7 minutes of presentation
 - 7 minutes maximum
- 5-7 minutes of Q & A
- 90 points
 - Scored on knowledge, teamwork, visuals
- Due **January 26**





Note: Presentations

- Visual aids
 - Size limit, quantity limit
 - One display – 60”x36” -OR- two displays – 30”x36” each
 - Multiple display boards can be stacked on the easel
 - We supply one easel
- Additional demonstration aids
 - Must collectively fit within 6”x6”x12” volume (shoe box)
 - Includes pointers, brochures, hand-outs, small mock-ups, etc.
- Cost of presentation materials plus cost of model materials cannot exceed \$100
 - Documented on Expense Form
 - Presentation costs include all materials: costumes, uniforms, props, pointers, handouts, etc.



Future City Ethics & Fair Play

- Above all:
 - The Future City Competition is an educational program
 - Our goal is to bring this educational opportunity to as many middle school students as possible
- Rules are designed to ensure fair competition
- Program Handbook and N TX rules are a guide
- Team members sign and submit the Honor Statement



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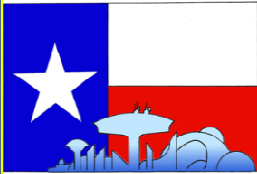
Future City Ethics & Fair Play

- Students envision the city and do all the work: city design, simulation, model building, research, writing and presenting.
- Adults provide guidance – should be present whenever students work on project.
- In SimCity, do not take shortcuts: using cheat codes, pasting in features you haven't earned.
- Stick to the budget: max of \$100 expenses for model and presentation.



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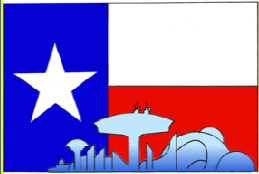
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North Texas Regional Competition



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2013 Registered Organizations

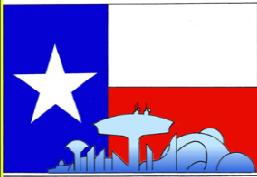
- Applied Learning Academy, FW
- Boles Middle School, Quinlan
- BSA Troop 606, Irving
- COMPASS Home School, Denton
- Coppell Middle School North
- Creek Valley Middle School, Colleyville
- Daggett Montessori, Fort Worth
- Dallas Academy, Dallas
- DeSoto West MS, DeSoto
- Dowell Middle School, McKinney
- Fort Worth Area Homeschoolers
- Frenship Middle School, Frenship
- Garner Elementary, Weatherford
- Harts Bluff El, Mt. Pleasant
- HEAR of Rockwell
- Irma Rangel YWLS, Dallas
- Irma Rangel YWLS, Dallas
- Lakeside Middle School, Little Elm
- Liberty Junior High, Richardson
- McCowan Middle School, Glenn Heights
- McLean Middle School, FW
- McNiel Junior High, Wichita Falls
- Odysseus Academy, McKinney
- Peak Preparatory, Dallas
- Pioneer Heritage Middle School, Frisco
- Rutledge Academy, Lavon
- Scott Johnson Middle School, McKinney
- Summer Creek Middle School, Crowley
- Tidwell Middle School, Roanoke
- WE Greiner Middle School, Dallas
- Westwood School, Dallas



N TX Regional Who's Who

- North Texas Regional Committee
 - Regional Coordinator: Jean Eason
 - Judging Coordinator: Richard Reppert
 - Mentor Coordinator: Tom Hunt
 - Awards: Diane Collier
 - Facilities: Carter Tiernan, Dave Davis
- Sponsors
 - Allied Electronics
 - Lockheed Martin
 - Shell
- Supporters
 - IEEE
 - TSPE
 - SPE
 - INCOSE
 - ASCE
 - ASHRAE
 - ACEC
 - ASQ
 - ITE

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FUTURE CITY COMPETITION

N TX Future City Website www.dfwfuturecity.org

- Not to be confused with FC National site



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N TX Future City Website

www.dfwfuturecity.org

- Team Center
- First stop for all local information:
 - Schedule, rules
 - Program updates
 - Resources
- Via “Program Details”
- Quick Links



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N TX Team Center

www.dfwfuturecity.org

- Local Information:
 - Program updates
 - Schedule, rules
 - Resources
 - Manuals, forms
 - Orientation info
 - Mentor info
 - SimCity info
 - References

The screenshot shows the website's header with a navigation menu: "About Us" (Overview, History, Photos), "Program Details" (Schedules, Resources, Rules), "Sponsors" (Companies, Organizations, Individuals), and "Get Involved" (Schools, Students, Engineers, Volunteers). Below the header is a "Team Center" section with "Teacher Sign-In" and "Mentor Sign-In" buttons. A security notice states: "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." The "Updates" section lists "Orientation and Training for 2012-13" on Saturday, 6 October at UT Arlington, Nedderman Hall. The "Email Updates" section includes an "Email Archive" and a "Sign-up for Email Updates" link, with a note that updates provide the latest information on the program, including schedule, rules, and resources.



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N TX Team Center

www.dfwfuturecity.org

1. Educators and/or Mentors enroll
 - Username & password
 - Different from national website
 - Create, define, manage teams
 - Designate student team members and alternates
 - Identify the mentor
 - List other contributors



N TX Team Center

www.dfwfuturecity.org

2. Submit Deliverables

- Computer (Virtual City) Design – upload
 - SimCity 4 file
 - submit just city (not entire region file)
- Essay and Narrative – upload
 - Essay and bibliography: one file, common format: Word (.doc) or .pdf:
 - Essay form
 - Narrative: common file format
 - Narrative form
- **Automatic confirmation of all submissions**



N TX Team Center

www.dfwfuturecity.org

3. Download team scores
 - Available after competition
 - Summary score sheet
 - Scores for each deliverable, compare to region average



N TX Regional Competition Day

- Competition Day – January 26, 2013
 - Students bring models and presentation visuals to UT Arlington
 - Preliminary round – all student teams may compete
 - Best 4-6 teams based on scores for all deliverables will advance to finals
 - Only one team per school/organization may advance to the finals
 - Finals will take place in an auditorium before a panel of celebrity judges and an audience
- Awards Ceremony immediately following



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Bring With You to UT Arlington

1. Team (3 students, educator, mentor)
 2. Model (with ID card)
 3. Presentation Aids
 4. City Model Expense Form
 5. Honor Statement
 6. Media Waiver Form (*optional*)
- Parents, friends welcome to attend



Check-in

- Team (w/ model) – check-in by City Name
 - Folder with schedule, program, rules, survey form
 - Room assignment for model and presentation
 - Assigned time for presentation, time for special awards
 - Ballots for Peoples' Choice award, chits for t-shirts
- Educator check-in
 - Lunch tickets for team
 - Survey form, chit for “thank you” gift
- Mentor check-in
 - Survey form, chit for “thank you” gift



25-26 Jan – Tentative Schedule

25 January

- 4-7 Team check-in
- deliver model
 - room assignment
 - presentation schedule

26 January

- 8 Judges Orientation
- 9-1 Preliminary Competition and Special Awards Judging
- 12 Lunch
- 2:30 Final Competition
- 4 Awards Ceremony



Special Note to 7th Grades

- Duke Talent Search SAT in January
 - Frequently falls on same day as FC presentations
 - Find out now who will have a conflict
 - Options for those with conflicts:
 - Encourage students to take SAT in December
 - Take ACT instead of SAT
 - Notify Regional Coordinator by Dec. 18 and request special late presentation time
 - UTA is a testing site
 - March test date will still allow student to participate in Duke summer program



Timeline

- Oct 31 Registration deadline
Sep-Nov Students work on SimCity design
- **Nov 21 SimCity design due**
Oct-Dec Students begin essay research, model design
- **Dec 19 Essay due**
Dec-Jan Students work on model, presentation
- **Jan 25 Deliver Model, check-in Team**
- **Jan 26 Competition at UT Arlington**
- Feb 17-22 National Finals in Washington DC



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Judging

- All judges will be engineers and technical professionals
- All deliverables will be judged by 3-5 individuals, scores averaged
 - SimCity designs judged Dec-Jan
 - Essays & Narratives judged Dec-Jan
 - Models and Presentations judged Jan 26
- Average scores added for composite score
 - Max score – 400 points



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Judging – Models & Presentations

- Preliminary round
 - 6-8 parallel rooms for presentations
 - Panels of judges each room (4-6 judges per panel)
 - Team presentation every 30-minutes
 - Family, guests may watch (quietly) – no classmates, competitors
 - Top 4-6 teams (composite score) advance to finals
- Final round
 - In auditorium with audience
 - Panel of celebrity judges
 - Carry-over scores from computer, city design, essay
 - Re-judge model and presentation



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Special Awards Judging

- Sponsors – engineering associations, companies
 - Recognize outstanding innovation and ingenuity in specific design areas
 - Opportunity to reward more students for their hard work
- Best Simulation
 - Best Essay
 - People's Choice Best Model
 - Transportation System
 - Architectural Achievement
 - Systems Design
 - Heating and Air Conditioning
 - Civil Engineering Infrastructure
 - Parks & Recreation
 - Best Design for a Sustainable Community
 - Best Manufacturing Zone
 - Best Moving Part
 - Best Parks & Recreation Zones
 - Best Use of Recycled Materials
 - Best Water Resources
 - Environmentally Friendly Energy Design



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Special Awards Judging

- Rotates through judging rooms during preliminary round
- Each room has specific 60-minute time slot
 - Students stand with their models
 - Judges walk-through, ask questions





Awards and Prizes

- 1st Place:
 - Trophy
 - Medals
 - Gift cards
 - Check for organization
 - Trip to Washington DC
- 2nd & 3rd Places:
 - Medals
 - Gift cards
 - Check for organization
- Special Awards:
 - Certificates
 - Gift cards





No One Walks Away Empty Handed

- Each Student receives:
 - Certificate of accomplishment
 - T-shirt
 - Other Future City “goodies”
- Educators receive
 - T-shirt
 - Thank you gifts
 - Team pictures *
 - Summary scores *
 - Copies of judges comments *





What's Different From Last Year

1. Recognized youth groups eligible to register
 - Boy Scouts, Girl Scouts
 - Boys & Girls Clubs
 - 4-H, etc.
2. Point allocation for Virtual City
 - ~~Benchmarking score (self-scored) – 10 points *eliminated*~~
 - Virtual city design (judge scored) – 90 points
3. Point allocation for Essay
 - Research essay – 75 points
 - Narrative – 25 points
4. Penalty for not using default region (-15 pts)
5. Scoring rubrics: Computer, Essay, Narrative
6. *Team Center available to other regions*



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Resources

1. **NTX Future City (www.dfwfuturecity.org)**
 - Updates for Competitors
 - Schedules, rules, resources, forms
 - Team Center ←
2. **National Future City (www.futurecity.org)**
 - School/Organization registration
 - Resources: Manuals, Rubrics, Forms, Essay references
 - Step-by-step guide
 - FC Learning Blocks
3. **Bentley Mentor's Center**
(communities.bentley.com/programs/be_mentors/default.aspx)
 - Forums, wikis, tips
 - Webinars
4. **SimCity (www.simcity.com)**
 - Tips, playing the game

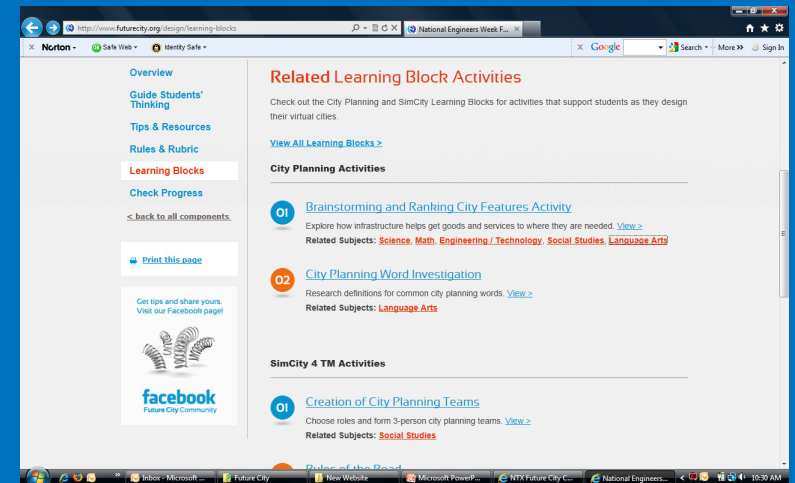


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FC Learning Blocks

- Resource created by FC teachers for FC teachers
- Topics
 - City planning
 - SimCity
 - Model Concepts
 - Model Building
- Contents
 - 21 lessons, 35 supplemental activities
 - Key concepts, background info
 - Exploration and Communication
 - Extended and Enrichment activities
- Use
 - Independent
 - Linear
 - Cross-disciplinary



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Lessons Learned

- The 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 – 8 hours
 - Presentation – 7 hours
- Don't wait until January to start the model, presentation



Lessons Learned

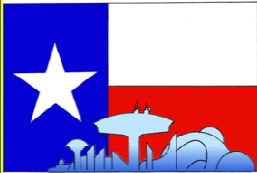
- Keep parents informed
 - Letter to parents (sample on regional website)
- Winning teams are successful on all phases
 - Computer city design 90 pt 23%
 - Model 120 pt 30%
 - Essay & Narrative 100 pt 25%
 - Presentation 90 pt 23%



Lessons Learned

- Penalties for late work will not kill your chances
 - Less than 4% of total score
- Read the handbook and the Rules for North Texas Competition
- Educators and mentors act as advisors (not designers)
- Consider bringing in topic area experts

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Questions???



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