

Urban Design

Designing Cities 50 Years in the Future

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Abstract

Students participate in an urban design project whereby they design a city for the future. It is a gamified simulation where cities (classes) compete for scarce resources and funding. Through this unit students learn about climate action and how public and private systems work. The speculative fiction, “City of Choice” and city future planning documents are used prior to the simulation to help students understand how imagination and creativity are essential for designing any city.

Keywords

Urban design, political policy, long-range planning, competing interests, climate action, futurism

Overview

Prior to the urban design project, students examine future cities in a variety of ways. First, students review videos and news articles about different city design projects that are created with the future and scarce resources in mind. Second, students examine a speculative fiction short story, "City of Choice," to analyze how human and AI limitations and creativity have real consequences for city dwellers. Third, students examine their own city's planning for the future, including current and future zoning policies and long-range plans. Finally, students engage in the urban design simulation whereby they create their own city for the future, 50 years from present day. In this simulation, students engage in political policy making, competing interests, scarce resources, and using their imagination to create something livable and sustainable.

Narrative Framing

I adopted this Urban Design unit from a former social studies teacher at my school. Originally, this unit was focused on governmental procedure at the local level and the basics of urban planning. Since this adoption, I have added more climate-based elements and have students look at "future cities" models where cities look at how to plan for a changing climate. We also look at our city's own future planning document to see how cities forecast anticipated needs in the near and long term. In this rendition, I have added a speculative fiction short story, "City of Choice." With students' excitement and use of AI, I want them to see how AI has both the ability to help and harm our humanity now and in the future.

At a Glance

Title	Urban Design
Unit Time	4-5 weeks
Grade Level(s)	7-8th grade
Core Text	"City of Choice" by Gu Shi (Center for Science and the Imagination, Arizona State University, Climate Action Almanac)
Supporting Texts	• your own city's future planning document • various videos on past and present-day future cities planning (see below)
Objectives	• Read and discuss the story "City of Choice" to discern how people and technology make decisions during climate challenges.

	• Compare “City of Choice” to various future cities examples to determine how humans imagine future cities in the near and long term. • Analyze how current economic and political policies impact planning for future cities, including our own city of Duluth. • Work cooperatively to create a successful future city using current political policies and limited resources • Use imagination to plan a future city • Share future city plans and solicit new “citizens” to live there
Materials and Resources	• LA Olympics, news article • Cities of the Future, video • The Line, video • Bad Future, Better Future, illustrated story, NYT • City of Choice, short story • Climate Action Almanac Lesson Plans, ASU • Land Use Planning in Duluth, zoning website • Imagine Duluth 2035, planning document • Want to Escape Global Warming? These Cities Promise Cool Relief, NYT • Is Duluth, MN a Climate Change Safe Haven? Michael Kosta Investigates, Daily Show

Part 1: Examining Cities Real and Imagined

To begin this unit, I have my students watch a few videos about future cities. After watching the videos students are always curious about these cities’ current status, wondering if they became realities and, if so, how they are doing. We then spend a bit of time researching these cities, confirming suspicions and excitement for possibilities. For example, students learn how lofty projects like “The Line” in Saudi Arabia have failed, but how planning for cleaner waste management or creating green areas in Singapore have been wildly successful. Of course, I would be remiss if I did not introduce to them Minnesota’s own [Experimental City](#) from the 1960s, and how it too failed. Through these examples students begin to understand that urban designing is complex.

To hit this home even further, I then have students examine how two Olympics host cities, Paris and Los Angeles, have used the games to address real urban issues they face such as housing and transportation. From these little investigations students begin to see how urban design requires imagination and creativity.

After this we spent several days reading the speculative fiction “City of Choice” by Gu Shi. This short story is part of *The Climate Action Almanac* produced by the Center for Science and Imagination at Arizona State University (Figure 1). Each day we read several sections of the story where I posed questions for discussion and questions for a reflective journal. These questions amplify how urban design can address the climate crisis, particularly flooding that was prevalent throughout the story. We also discussed the role of artificial intelligence (AI) in urban design. AI plays a prevalent role in the story; the reader must grapple with its unintended consequences that have a serious impact on humans. The use of AI was particularly interesting for my students because they see in their own lives both its positive and negative impacts. Placed in a futuristic story that is not entirely too farfetched, we grappled with the role AI will play in future cities and our own humanity.



Figure 1: For this project we read “City of Choice.” There are several engaging stories in this almanac.

Part 2: Examining our Own City

In the second part of this unit, I have my students look closer to home and examine our own city planning documents (Figure 2). First students are asked to identify any city infrastructure or services that they use. We then use the city website to determine what divisions are responsible for these infrastructure or services. From there we examine zoning maps to understand how our city uses zoning ordinances to determine appropriate land use. We then review the city’s long range planning document, “Imagine Duluth 2035.” Students examine the five challenges the city faces as determined in the planning process. In groups students scrutinize various policies created to address these challenges and identify which ones they see as most valuable and viable. I then share

how in 2019 Duluth made headlines because a Harvard University climate adaptation expert identified Duluth as a “climate proof city.” According to several studies, Duluth is an ideal place to escape the impending climate crisis due to its location and geography. We then go back to the long-range planning document and speculate if Duluth is indeed ready for an influx of climate refugees/migrants—could our infrastructure and city services handle that many people? How can Duluth plan for this before it happens, if it happens? Finally, students are asked to identify the top three issues Duluth will face in the future. This is then used in Part 3.

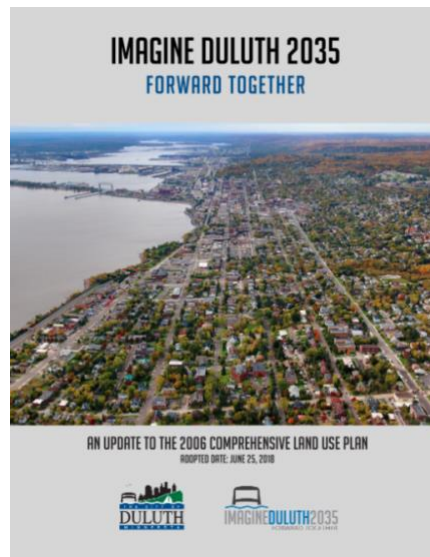


Figure 2: City of Duluth guiding document.

Part 3: Urban Design Simulation

The final part of this unit is lengthy: approximately 26 forty-minute class periods. From the students’ point of view, this is the most fun part. Because this is a gamified simulation, students are often confused in the beginning, but after the first few days they become fully immersed.

Throughout the school year students are given “10,000 extra credit points” slips for good deeds or answering trivia questions. Students do not know what these points are for but are told “you never know when you might need them.” The game begins with the appointment of the mayor of the city—the student with the most 10,000 extra credit points. Any 10,000 extra credit points students have collected becomes their political power for this game.

Each student is also given a citizen role. This is determined by the top three issues students identified in Part 2. For example, if a student identifies having green space as an issue they become “Cityzen Proggreen” or if they identify economics as an issue they become “Business, Industry & Tourism.” Each citizen-role has different political power. Students must then write development proposals from this citizen-role.

In order for each city to become viable, they must reach 50 points of development by the end of the simulation or their city will fail. Students are given a list of potential development projects with point values that range from one to five points. Five-point proposals are competitive. That is, only one city may adopt a five-point proposal and it will then serve the tri-city area. For example, an international airport is worth five points, and whatever city has the most votes for it wins it (votes are derived from the 10,000 extra credit points and points gained throughout the game). They are encouraged to not limit themselves to this list but be creative and use ideas from Parts 1 and 2 of the unit. In addition, cities are in competition for city certificates which will help them in the competition for future citizens during Cities on Parade. For example, if 50% (25 points) of their proposals are green focused, the city qualifies for a LEEDS certificate.

From here the mayor leads the city in the discussion of the city name and their goals for the future city. They then vote and adopt three goals which become the city’s prosperity plan (e.g., environment or public safety). Each goal area then becomes the mayor’s task force committees. Students are randomly assigned to the three committees. The task force committees then elect a chair and a slogan. Students then begin writing development proposals that they submit to the various task force committees for approval. When writing the proposals students must follow a specific format or they are at risk of not having their proposal passed.

The incentive to write strong proposals is two-fold: 1) to win the game and 2) get a good grade on their portfolio (see below). Here is where having a well-liked mayor also helps a city. I’ve had mayors push their citizens (students) to write more than the required two proposals to ensure they have more than enough proposals to get to the 50 points. Other mayors encourage their citizens to write specific proposals so that there are not several of the same kind (e.g., three students writing a proposal for a hydroelectric dam) and thus wasting time on determining which one is the best in task force committees. Once mayors also see what sort of certificates the city can gain, (based on passed proposals) they may persuade citizens to focus their efforts on proposals that can ensure that certification (e.g., Education Magnet certificate – write proposals focused on education and research). All citizens are required to submit two proposals to a

committee. No matter if their proposals are passed or not, all citizens must submit two for their individual grade.

The mayor hosts four task force committee meetings where the citizens lobby people with similar citizen roles and committee members prior to the meeting to pass their proposal (Figure 3). Once at the meeting, task force members read through proposals and determine if the proposal meets their particular prosperity goal (Figure 4). If they do, each member signs it, and the chair passes it onto the dictator (the teacher) who will review prior to giving it to the mayor.



Figure 3: Students lobbying.



Figure 4: Task force committee work.

Here is where the gamification incentivizes students to participate. If a citizen's proposal passes the committee and the dictator, they receive political power points. If the committee passes it, but the dictator finds spelling and grammatical errors and thus denies it, each committee member must then forfeit political power points. Never will you see middle schoolers so committed to examining for spelling and grammatical errors!

All passed proposals are then given to the mayor (Figure 5). From there the mayor determines what proposals they would like to put on the mayor's agenda for town hall meetings. The mayor hosts three town hall meetings where the citizen author must explain why they wrote the proposal and the task force committee chair must explain why the committee passed it. The mayor opens up the town hall for discussion. The dictator keeps track of citizen participation (which will be recorded for Cities on Parade boards). Students then vote on proposals using their personal political power. For example, a Cityzen Green citizen has two political power points. They then add these two points to any 10,000 extra credit points and any points gained throughout the game. Ballots have a very specific format and if citizens do not follow it, they become spoiled and their votes are not counted.

Returning to the gamification part of this simulation, if a citizen gets their proposal on the mayor's agenda they gain political power points. If it passes a town hall they gain political power points. If a task force committee gets a proposal passed in town hall, each member gains political power points. All these points add to their collective political power as a city. The more collective political power a city has, the more likely that city will acquire the competitive five-point proposals and get them closer to the 50-point total.

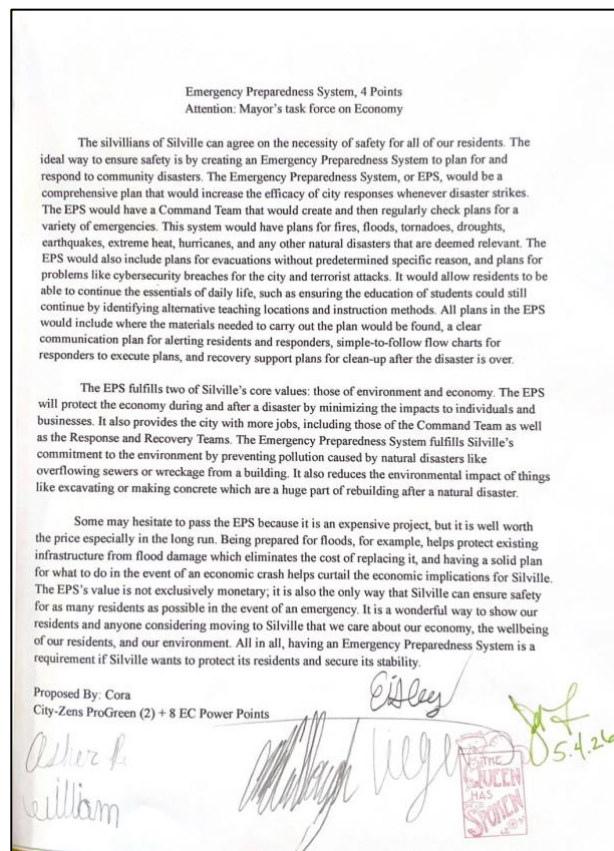


Figure 5: Citizen/Student proposal passed by Task Force on Economy.

Once the simulation is well underway, I then introduce "Development Days" whereby citizens can open small businesses and social service agencies. To open a small business a citizen must give me one political power point as capital and have their neighborhood design completed (see below). They are then given an index card where they create a business logo on one side and describe their business and how it will be good for their city on the back. Each citizen is given two "small business tips" that they can give to the businesses they like. Once a business owner gets three tips, they gain a political power point. Often students turn around and use this political power point to open another

business. To open a social service agency students must select from a list. They then must write one paragraph describing what the agency does and who it serves. In the second paragraph they identify similar agencies within the Duluth area or Minnesota and how people can access these services. Once a social service agency is established it serves the tri-city area (like five-point proposals) and the citizen author receives a political power point. Development Days last for eight class sessions to encourage competition.

No city is without its crime and we simulate this in the city as well. For a two-week period, middle school teachers issue citations for various “misdemeanors” such as left materials in a classroom gets a “littering” citation or if caught running in the hall they receive a “speeding” ticket. At the end of the two weeks, we host a “Council of the Elders” composed of the eighth-grade teachers. Offenders come in front of the Council to plead their case. Citizens are offered to complete 15 minutes of community service to clear their violation. Community service has a two-week period. The mayor keeps track of this crime rate and community service. Ultimately the crime rate is placed on the city boards. This is a fun period for teachers and students alike!

Throughout the simulation, each citizen is also responsible for their own citizen portfolio. The portfolio contains: 1) tracking of political power points; 2) neighborhood design (this is a zoning map to reinforce what they examined in Part Two); 3) two development proposals; 4) a current event analysis on urban issues (to reinforce what they examined in Parts One and Two); 5) minutes of a task force committee; 6) minutes of a town hall meeting; 7) a community ethos project (sculptures, city flags, city legends, etc.—these are used in the Cities on Parade portion of the simulation). Whenever the city is not hosting task force committee meetings or town halls, students work on their portfolios.

All this work culminates with “Cities on Parade” where the mayor and any other appointed citizens present their city to the eighth-grade class (Figure 6). To do this, each city is given a city board (History Day sized trifolds) where they place their city information, everything from proposals passed to crime rate to their city map. Students get very creative in this part of the project, adopting city colors, voting for community ethos projects, and of course because it is middle school, bringing in the obligatory string of lights.

In the presentations, mayors explain their city’s process in terms of how they developed the city the way they did. For example, a mayor may explain that because one of their prosperity goals was “environment” the mayor encouraged all citizens to write proposals with the environment in mind. As a result, they were then able to apply for environment

related certificates such as the LEEDs certificate. Mayors also explain how the competition impacted development. For example, if they lost out on a five-point development to another city, they would explain how they adjusted to meet the 50-point goal. Prior to the presentations, I meet with mayors and city planners to encourage them to identify both the strengths and weaknesses of their city, so they are ready for any questions. For example, a city can have all sorts of lovely futuristic, climate friendly projects, but what if the crime rate is high? I prod them to have answers ready for such questions

After the Cities on Parade presentations the city boards are placed in the main hallway where all adults in the school building are invited to sign the “welcome mat” to the city they would like to live in. Every year, I find my students near their boards during passing time encouraging school building personnel to sign up for their city. The city that receives the most signatures wins the game!



Figure 6: Mayors and city planners present their cities at Cities on Parade.

Going Forward

Much of the unit is about the process of creating a future city, particularly government processes where students propose infrastructure that have to go through several steps (task force committee, mayor’s agenda, town hall) to reach implementation. This is indeed the heart of the unit—it is not about the actual design so much as the process. This year a number of students pulled ideas from “City of Choice”—flood gates, elevated highways, use of renewable energy sources, etc.—which changed other

proposals put forward. In the future, I will place much more emphasis on how to pull ideas from the story and other green infrastructure to create more sustainable cities.

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