Urban Planning - Unit Plan

Unit Level Question:

*How can you retrofit your city to address population growth and ecological sustainability?*

Unit Level Objectives:

- Explain systems of transportation and their flow within an urban area.
- Explain how products move from the farm and manufacturing process through the transportation system and delivered to our homes.
- Explain the difference between a planned community verse a community that is organically formed through community needs and the movement towards ecological sustainability by reducing congestion, increasing mass transit, improve/add greenways, and encourage the use of renewable energy resources.

Grade Level:

9/10 grade Introduction to Technology

Calendar of Lessons:

- Day 1 & 2 - Lesson 1: Examination of historical mapping of urban areas
- Day 3 - Lesson 2: Examination of Transportation Systems and how they connect our society (intermodalism).
- Day 4-7 - Lesson 3: Urban Transportation Renewal Project, Part I
- Day 8 & 9 - Lesson 4: Ecological Sustainability
- Day 10-12 Lesson 5: Urban Transportation Renewal Project, Part II
Lesson 1: Examination of Historical Mapping of Urban Areas

Lesson Question:

How do cities form and to what extent do different sectors of society benefit from methods of planning based on different emphases like environment, industrial, commercial, and residential?

Lesson Objectives:

Explain the difference between several types of planned development of transportation systems such as organic, indigenous, industrial, totalitarian and Roman within an urban center and its impact on the citizens within the area.

State Standards Addressed:

- State:
  - Standard 4 – Students will develop an understanding of the cultural, social, economic, and political effects of technology
  - Standard 18 – Students will develop an understanding of and be able to select and use transportation technologies.

Transformative Teaching Context:

This would be a transformative lesson evaluated through multiple lenses. First we can evaluate through a critical lens in viewing the difference between an urban area which is planned with functional integrated transportation systems supporting the residents, industry and retail sectors equally verse an organically developed area that is developed through the needs of the citizens and not systematically planned out into nice city blocks and town centers with appropriately placed transportation systems located in the most ideal area for optimal use.

Looking through a feminist lens, we can examining the breakdown of community amongst women as they are forced to travel longer distances for essential services and therefore lose the social/emotional contact of neighbors by isolating themselves within their personal vehicle. How this effects the family unit as well as minimizing connections within the neighborhood as citizens are no longer meeting and socializing at local retail locations as they once did prior to personal vehicles.
Learning Experience:

Discussion of how transportation systems have affected established communities (New Haven, New Britain), story telling
Map reading and comparing historical map information, use of historical maps

Type of Assessment Used:

Informal assessment based on group discussions and observations of map changes. Identification of new building and road construction as well as redevelopment and repurposing of previously developed areas.
Lesson 2: Examination of Transportation Systems and How They Connect Our Society (Intermodalism)

Lesson Question:

*How do transportation systems effectively move product and people from point of origin to point of destination?*

Lesson Objectives:

- Describe how transportation systems are connected and how that impacts our ability to send and receive products.
- Explain the process of how a vegetable travels from farm to plate.

State Standards Addressed:

- State:
  - Standard 13 – Students will develop the abilities to assess the impact of products and systems.
  - Standard 18 – Students will develop an understanding of and be able to select and use transportation technologies.

Transformative Teaching Context:

This would be a transformative lesson evaluated through an ecojustice lens analyzing the effect intermodalism has on the availability of products and goods that are not inherently available to a region.

Learning Experience:

The students will watch the videos of “Watch your (Fo)odometer” and “Public Transportation: Who needs it? Part I” to open the discussion of moving both people and product.

Read the story of Maria Carriaga (pg. 35-37 “When Technology Wounds” by Chellis Glendinning) and discuss the consequence of poor industry practice on the efforts of sustainability by the Carriaga family.

The class will break into groups to discuss and map out methods of transportation used in moving a common household product from raw material to home and then to disposal. Students will then be asked to map out movement of the same product 50 years earlier and to compare how movement may take place in a third world country where their transportation systems are not as advanced as those utilized within the United States.
Each group will present their product’s “life cycle” through a mapping and flowchart diagram showing types of transportation systems used to move the product from origin to disposal.

**Type of Assessment Used:**

Formal Assessment – Student will provide two written mappings/flowcharts describing a potential route of travel from point of origin to destination with multiple modes of transportation utilized for a single item in their house. (Ex. Asparagus harvested in California, Peru, and/or China delivered to your house) They are encouraged to locate the top producing location in the US and the largest exporters of the product as well. In this case, Asparagus is manufactured in California and Michigan so I chose California because it is further in distance. Peru, China and Mexico are the three leading exporters so I chose the first two on the list. I would be looking to see that they effectively utilized three modes of transportation and considered time as a factor in movement. Will their product spoil during transit?
Lesson 3: Urban Transportation Renewal Project, Part I

Lesson Question:

How would you plan urban space to utilize the transportation system most effectively when viewing the space through the lens of someone else?

Lesson Objectives:

- Plan an urban cityscape utilizing three modes of transportation such as auto/truck, rail, light rail, bus, air, ferry/boat, human powered vehicles, pedestrian.

State Standards Addressed:

- State:
  - Standard 9 – Students will develop an understanding of engineering design
  - Standard 18 – Students will develop an understanding of and be able to select and use transportation technologies.

Transformative Teaching Context:

This would be a transformative lesson as it encourages students to look at their urban design through ecojustice, feminist, indigenous, and/or critical lenses as they choose what the most important function of their city is and how to address the other criteria within their city.

Learning Experience:

Construction of Urban Cityscape and marketing poster, small group project

Type of Assessment Used:

Informal assessment of the poster marketing their city as this is a personal objective piece.

Formal assessment of the construction of the urban space as it relates to the critical criteria and rubric provided within the design brief.
Lesson 4: Ecological Sustainability

Lesson Question:

Given the impact of new laws enforcing stricter rules on emissions and use of petroleum based vehicles, how can we redesign our urban areas to incorporate a more ecologically sustainable transportation infrastructure?

Lesson Objectives:

- Describe the importance of Ecological Sustainability within an urban development.
- Design a more ecologically sustainable transportation infrastructure within your urban cityscape layout by reducing congestion and increasing mass transit, greenways, and renewable energy resources.

State Standards Addressed:

- State:
  - Standard 5 – Students will develop an understanding of the effects of technology on the environment.

Transformative Teaching Context:

This would be a transformative lesson engaging the students in debate about which issues of ecological sustainability would have the most impact on their cityscape to move the city from a plan that did not consider sustainability to a redesigned city that has a higher level of sustainability.

Learning Experience:

- Video of “The Story of Stuff”
- Read and discuss AdBuster’s article on “True Cost”, https://www.adbusters.org/magazine/85/true-cost.html
- Read and discuss Adbuster #73, 22 Nov 2007, Clayton Dach, “The Simple Life: How To Bring The Land Back To Us”. https://www.adbusters.org/magazine/73/The_Simple_Life_How_To_Bring_The_Land_Back_To_Us.html
- Small expert group investigation on different methods of sustainability
Mixed expert group discussion on how different methods of sustainability can impact the transportation system in positive and negative ways.

Type of Assessment Used:

- **Informal:**
  - Large group presentation and debate
  - Informal group discussion and participation.
  - Organize a reduce/reuse/recycle campaign to benefit a local charity or organization.

- **Formal:**
  - RAFT on one change a person can make to move toward Ecological Sustainability and how it will impact the transportation system if that one change was done by one million people.
Lesson 5: Urban Transportation Renewal Project, Part II

Lesson Question:

*How does Ecological Sustainability impact your cityscape? What changes can be made to your cityscape to allow for an increase in Ecological Sustainability?*

Lesson Objectives:

- Redesign urban cityscape with the focus on Ecological Sustainability.

State Standards Addressed:

- **State:**
  - Standard 10 – Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.
  - Standard 11 – Students will develop the abilities to apply the design process.
  - Standard 12 – Students will develop the abilities to use and maintain technological products and systems.
  - Standard 18 – Students will develop an understanding of and be able to select and use transportation technologies.

Transformative Teaching Context:

This is a transformative unit using a critical and ecojustice lens to analyze the current space and how to change it to be more ecologically sustainable.

Learning Experience:

Construction of redesign, small group project

Type of Assessment Used:

Formal – RAFT describing the changes you chose to make to your design based on your new knowledge on Ecological Sustainability. Rubric will be provided for structure of assessment.