Author’s Name: Kevin Brachat

Lesson Title: Planes, Trains and Automobiles: American Infrastructure

Grade Level: Eighth

# Essential Question: How can America make the grade?

## Lesson Foundations

### Content Standards

1. D2.Civ.1.6-8. Distinguish the powers and responsibilities of citizens, political parties, interest groups, and the media in a variety of governmental and nongovernmental contexts.
2. D2.Civ.2.6-8. Explain speciﬁc roles played by citizens (such as voters, jurors, taxpayers, members of the armed forces, petitioners, protesters, and ofﬁce-holders)

### Learning Objectives

1. Students will be able define one aspect of American Infrastructure
2. Students will be able to summarize the grade given to a specific area of American Infrastructure

### Assessments

1. Guided notes
2. Category Report
3. Poster Summary
4. Share out

### Materials & Resources

1. [Infrastructure Super Map](file:///Users/millar.28/PDF_and_Dox/BaseDownload/Infrastructure%20Super%20Map) (https://www.infrastructurereportcard.org/infrastructure-super-map/)
2. [History of American Infrastructure](https://origins.osu.edu/article/how-public-and-private-enterprise-have-built-american-infrastructure) (https://origins.osu.edu/article/how-public-and-private-enterprise-have-built-american-infrastructure)
3. PowerPoint
4. guided notes
5. large paper
6. pencil
7. markers

## Instructional Procedures/Steps

### Opening: 5 Minutes

1. Handout a piece of paper to every student.
2. *Infra* is the latin prefix for below and *Structure* means the arrangement of parts or elements of something complex
3. Have students answer the following prompts on the sheet of paper
	1. If *infra* means below and *structure* means an arrangements of parts of something larger, come up with your own definition of infrastructure.
	2. What infrastructure have you seen today from the moment you woke up to the time we started this activity? Why do you think it is considered infrastructure?
4. If students are struggling give them hints such as: roads, if they took a bus to school, drinking water, plumbing, electricity
5. Have a student share out their response
6. Review I Can statements

### Instruction: 30 Minutes

#### Guided Notes

Students will be given guided notes to follow along with the PowerPoint on infrastructure

1. Students should follow along and fill out missing words/phrases/facts on their note sheet
2. Each note sheet has a word bank at the bottom.
3. Instructor has a choice whether or not they wish to provide the word bank. Each slide contains at least one answer students should write down
4. Information is from ASCE (American Society of Civil Engineers)

#### Category Report

Instructor should model *scanning* either with individual groups or as a whole class

1. Each subtitle/bolded word gives you an idea of what the main idea is going to be in the following paragraph
	1. “overview” gives you the most concise description of your topic
	2. be sure to highlight any stat that stands out for example: *it takes $1 Trillion to maintain drinking water services*
2. Group students in fours
3. Have students bring their guided notes to their station
4. Students will go to a station covering one aspect of the most recent U.S. Infrastructure Report Card
5. Have students read the reports aloud in their groups. Remind them they should be highlighting, underlining, and taking notes on interesting facts or things they do not understand
6. These reports are DENSE so encourage students to read a paragraph and then try summarizing it in one sentence.
7. After reading the report once. Have students *scan* for important information
8. Questions to ask to maintain student engagement are:
	1. How has your category improved/ worsen from the last time the report has come out?
	2. Where do you see your category the most?
	3. Do you use your category daily? *For example: have you driven on a highway today? Does your home have indoor plumbing?*
	4. List some other objects/services you could consider infrastructure. Explain.

#### Poster Creation

Each group will create a poster from one of the main categories of the U.S. Infrastructure report card.

1. In the same groups have students organize their annotated reports into ONE poster/Poster creation
2. Poster categories areaviation, bridges, drinking water, energy, parks, schools, and transit.
3. The goal for the Poster Creation is to explain that specific category of the U.S. Infrastructure. Therefore, students should provide:
	1. Examples of the category
	2. A few interesting facts about the category
	3. Whether it has improved/worsened since the last report
	4. Ways to improve the grade
	5. Drawn visuals to represent their categories
	6. Every report contains this information, the information is dense so have students try and break down what the stats all mean in Poster Creation
4. Each group will have 4 roles:
	1. Timekeeper (keeps track of time) *The timekeepers main job is to make sure the group stays on task*
	2. Note Taker (writes down facts/ key points group comes up with) *The note taker is in charge of collaborating with group about the best/concise way of writing down the information*
	3. Spokesperson (explains to instructor their progress and when it’s time to share they will be the ones speaking) *Spokesperson verbally presents their big paper to the class and instructor*
	4. Designer (works with note taker to design their poster for best representation of the information) *Works with the notetaker to make sure their poster is aesthetically pleasing and includes visuals to help represent their information*
5. All members are responsible for contributing to the Big Paper regardless of their roles
6. Questions to support learning:
	1. What stats do they give you?
	2. How does it relate to the grade given?
	3. Were there any numbers that were confusing/unnecessary?

#### Poster Share Out

1. Go around group to group having each spokesperson explain their big paper

#### Whole Class Discussion

To synthesize lesson

* 1. What statistic most surprised you? Is it worthy of going on your Poster? Why or why not?
	2. Do you agree with the grade the ASCE gave? Why? Looking at the community you live do you think the report represents where you live? Why or why not? Explain.
	3. Why do you think it necessary to evaluate the infrastructure of the country? What purpose does it serve? Does your poster answer this?

### Closure: 5 Minutes

#### Exit Ticket

On a notecard each student must answer the prompts below. Each notecard should have at least 3 different categories of infrastructure.

1. What grade did this aspect of infrastructure receive? And list one interesting fact you heard from the presenters
2. Example: Aviation received a D. One interesting fact I heard is that US airports serve 2 million passengers daily.