Lesson Plan: Semi Truck

Summary

In this episode, Blade reflects on the evolution and impact of semi trucks, beginning with their unique design and his family's connection to trucking. He discusses how highways, pop culture, and technology shaped the industry, from diesel efficiency and electric rigs to self-driving trucks. The episode connects personal history to modern logistics, illustrating how millions of trucks move billions of tons each year, equal to billions of hippos.
https://www.youtube.com/live/MyCSx0XvM0g?si=bVib628dtgvMk6po

Objective

Students will explore how the trucking industry has shaped infrastructure, culture, and technology while identifying the economic and environmental roles of semi trucks in modern society.

Standards

- NGSS MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- CCSS.ELA-LITERACY.RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts.
- C3 D2.ECO.1.6-8: Explain how economic decisions affect individuals, businesses, and society.

Materials

- 9 Fun Facts: Semi Truck
- Worksheet (included below)
- Optional: paper, pencils, whiteboard, projector

Introduction

Begin by asking students how everyday goods like cereal, art supplies, and clothing reach their local stores. Discuss how semi trucks connect communities and keep supply chains moving. Introduce the term “semi-trailer” and explain why these trucks are called “semis.”

Activity

Students will read the 9 Fun Facts and research one advancement in truck technology such as fuel efficiency, electric vehicles, or autonomous driving. They will create a brief summary explaining how their chosen advancement could impact future transportation, economy, or the environment.

Assessment

Students will submit a short paragraph summarizing their chosen topic and complete the worksheet questions. Class discussion should explore how trucking innovations reflect larger themes of technology, economy, and sustainability.

Rubric

Criteria	Excellent (4)	Good (3)	Fair (2)	Poor (1)
Content Understanding	Demonstrates full understanding of trucking’s role and technology	Shows general understanding with minor gaps	Demonstrates limited understanding	Lacks clear understanding
Discussion Participation	Fully engaged in discussion and activity	Participates with some prompting	Minimal participation	Does not participate
Worksheet Completion	All answers complete and accurate	Most answers complete with minor errors	Some answers incomplete or inaccurate	Few answers, largely incomplete
Technology Connections	Clearly connects topic to technology impacts	Connects topic with minor gaps	Limited connections made	No clear connection to technology

9 Fun Facts

1. What makes it a "semi." A "semi" is short for *semi-trailer truck.* The trailer has wheels only at the back, so it needs the tractor in front to move. That's why the tractor is called a "tractor" (it pulls) and the trailer is called "semi" (it's half a vehicle). The design lets one truck swap different trailers, making hauling faster and more flexible.
https://driverresourcecenter.com/why-are-semi-trucks-called-semi-trucks/

2. The evolution of freight. Before trucks, goods traveled by horse-drawn wagons or by train. But as roads improved and internal combustion engines matured in the early 1900s, trucks became the best way to reach smaller towns that trains didn't serve. By the 1950s, long-haul trucking had replaced rail for most local and regional freight, reshaping how we build communities and do business.
https://freightplus.io/the-history-of-the-semi-truck/

3. Engines of economy. Nearly every product you buy rode in a truck at some point. According to industry data, trucks move over 70% of all freight in the United States. If trucking stopped, grocery stores would run out of food in about three days and hospitals would quickly feel the shortage of supplies. Semis aren't just vehicles, they're the veins of the modern economy.
https://cdlschoolusa.com/essential-cargo-types-transported-by-trucks/

4. Pop culture on the open road. Semis have starred in every kind of story. In *Duel* (1971), a mysterious trucker stalks a lone driver across the desert. In *Maximum Overdrive* (1986), the machines themselves go rogue. In *Convoy* (1978), truckers rebel against unfair laws. And in *Transformers*, Optimus Prime leads the Autobots as a symbol of courage and leadership. Each version reflects how people feel about power, independence, and technology on the highway.
https://www.pridetransport.com/news-and-events/famous-semi-trucks-throughout-film-and-television/

5. Fuel and firepower. Semis use diesel engines that can haul up to 80,000 pounds, but that power comes at a cost, most get only six to eight miles per gallon. Upgrading infrastructure, reducing idling, and improving aerodynamics can boost fuel economy and cut emissions. Smarter highway design and investment in clean transport corridors could help big rigs waste less fuel while hauling the same heavy loads.
https://kleinmanenergy.upenn.edu/research/publications/stalled-make-big-trucks-more-fuel-efficient-with-smarter-infrastructure-investment/

6. The electric horizon. Electric semis are on the road now, with Tesla, Volvo, and Freightliner all testing zero-emission models. They're cleaner and quieter, but face real challenges. Charging stations for big trucks are rare, and current batteries can't match the 500-to-1,000-mile range of diesel haulers. Until the technology and infrastructure catch up, electric trucks will mostly handle regional or urban routes.
https://www.freightera.com/blog/the-problems-and-challenges-with-electric-freight-trucks/

7. The thinking truck. Self-driving semis are already being tested in the U.S. by companies like Aurora, TuSimple, and Waymo. These vehicles use radar, lidar, GPS, and artificial intelligence to read traffic and make split-second decisions. Proponents say autonomous trucks could reduce fatigue-related accidents and lower costs, while critics worry about lost jobs and unclear safety regulations.
https://www.geotab.com/blog/autonomous-trucks/

8. Highways born of horsepower. Modern interstates were designed not only for passenger travel but to support freight and defense. President Dwight Eisenhower, after seeing Germany's autobahns during World War II, pushed for a nationwide highway system that could move people and goods quickly. Today, these connected highways remain the backbone of North American logistics and the testing ground for autonomous trucking.
https://www.geotab.com/blog/autonomous-trucks/

9. Breakfast delivery. There are nearly three million semis registered in the United States, hauling more than ten billion tons of goods each year. Every product on a store shelf, from cereal to school supplies, probably spent part of its journey on a truck. Without them, daily life would come to a quick stop.
https://www.truckinfo.net/research/trucking-statistics

Worksheet

Name: _____ Date: _____

Review

1. What does the word “semi” mean in “semi-truck”?

2. How did trucks change local economies and small towns?

3. What percentage of U.S. freight moves by truck?

4. How has pop culture portrayed semi trucks over the decades?

5. What are some ways trucks can become more fuel efficient?

Discussion

6. What are the challenges facing electric trucks today?

7. How might self-driving trucks change the trucking industry and workforce?

8. Why were interstate highways designed with both defense and freight in mind?

Reflection

9. What lesson can be learned from Blade’s idea that you cannot fix a bad drawing with paint, but you can accept it and move on?