USING THE "HOW WE MOVE GOODS" CARDS

INSTRUCTIONS

Each Moving Goods Card represents a mode of transportation and tells a story of how people move goods. The image and facts on the card provide more information about that specific mode, including how much it can carry, how far it can move in a day, and if/how it pollutes the environment.

Through investigation and discussion of the cards, students can explore different modes of transportation, identify patterns, and deepen their understanding about how goods are moved. Using the images, facts, and descriptions, students can identify patterns, categories, and sequence the cards by history, speed, and pollution.

In the United States, 17,824,281 thousand tons of freight are moved each year. This is worth 2.5 billion male adult elephants in weight! How do goods—the food we eat, the medicine we need, the clothes we wear, the entertainment we use—get where they need to be? When and why is a particular mode used? Did your shoes come by cargo ship from abroad or by train across the country? How do these modes differ by capacity, speed, and emissions? Explore the “How We Move Goods” Cards to investigate and consider the answers to these questions and more.
1. A truck transports packaging supplies from a plant in Kingsburg, CA to San José, CA.

**Maximum Capacity:** 80,000 lbs  
**Speed:** 600 miles/day  
**Greenhouse Gas Intensity:** Medium  
**Pollution:** High

2. A cargo bicycle delivers packages to homes and businesses in the city as a "last-mile" transport solution.

**Maximum Capacity:** 220 lbs  
**Speed:** 30 miles/day  
**Greenhouse Gas Intensity:** Zero  
**Pollution:** Zero

3. Fairtransport is a cargo transport company that uses sailing ships to transport fair-trade coffee, jam, wine, and other delicacies. Tres Hombres ship travels between South, Central & North America and Europe.

**Maximum Capacity:** 88,000 lbs  
**Speed:** 90 miles/day  
**Greenhouse Gas Intensity:** Near zero  
**Pollution:** Near zero

4. A container ship arrives at the Port of Oakland from South Korea with up to 19,200 20-foot cargo containers.

**Maximum Capacity:** 250,000 tons / ~550,000,000 lbs  
**Speed:** 400 miles/day  
**Greenhouse Gas Intensity:** Low  
**Pollution:** Medium
5. Time sensitive goods, like produce and prescription medications, are delivered by a 747 cargo plane.

- **Maximum Capacity:** 274,100 lbs
- **Speed:** 8,700 miles/day
- **Greenhouse Gas Intensity:** High
- **Pollution:** High

6. An electric van delivers a variety of goods ordered online to customers.

- **Maximum Capacity:** 2,000 lbs
- **Speed:** 200 miles/day
- **Greenhouse Gas Intensity:** Low
- **Pollution:** Low

7. Diesel-powered rail transports grain exports from U.S. crop-producing areas to ports.

- **Maximum Capacity:** 26,000,000 lbs
- **Speed:** 300 miles/day
- **Greenhouse Gas Intensity:** Low
- **Pollution:** Medium

8. UberEats provides food delivery services within a 20 miles radius. Deliveries within 2-3 miles are sometimes completed by cyclists.

- **Maximum Capacity:** 15-20 lbs (per delivery)
- **Speed:** 30 miles/day
- **Greenhouse Gas Intensity:** Zero
- **Pollution:** Zero
9. UberEats provides food delivery services via car within 20 miles radius.

Maximum Capacity: 50 lbs (per delivery)
Speed: 180 miles/day
Greenhouse Gas Intensity: High
Pollution: High

10. A pedal rickshaw (or ‘becak’ in Indonesian) is a traditional transportation often available for hire at open-air markets to carry food and household goods.

Maximum Capacity: 220 lbs
Speed: 30 miles/day
Greenhouse Gas Intensity: Zero
Pollution: Zero

11. Nuro develops autonomous fully-electric vehicles and partners with businesses like Domino’s, CVS, and Krogers to deliver groceries, food, and prescriptions.

Maximum Capacity: 420 lbs with space for 20 grocery bags (per delivery)
Speed: 105 miles/day
Greenhouse Gas Intensity: Zero
Pollution: Zero

12. Zipline designs, manufactures, and operates delivery drones. The company has established itself in Ghana, powering their national blood delivery network, and Rwanda, helping with Covid-19 vaccine distribution.

Maximum Capacity: 6-8 lbs (per delivery)
Speed: 1,440 miles/day (quickly-replaceable battery allows for rapid turnaround between flights)
Greenhouse Gas Intensity: Near zero
Pollution: Near zero
13 Sled dogs are still used for transportation in some rural parts of Alaska, Canada and Greenland, though snowmobiles have steadily replaced this means of transport.

Maximum Capacity: 340 lbs (85 lbs per dog)
Speed: 90 miles/day
Greenhouse Gas Intensity: Near zero
Pollution: Near zero

14 Westward-bound emigrants moved food, water, furniture, and household goods in covered wagons. Wagons were most commonly pulled by oxen.

Maximum Capacity: 1800 lbs
Speed: up to 20 miles/day
Greenhouse Gas Intensity: Near zero
Pollution: Near zero

15 Many indigenous peoples throughout North America have transported food and goods on dugout canoes in oceans, lakes, and rivers. Photo depicts a contemporary seagoing dugout from a tribe in the Pacific Northwest.

Maximum Capacity: 5,000 lbs (2.5 tons)
Speed: 60 miles/day
Greenhouse Gas Intensity: Near zero
Pollution: Near zero

16 Over 54 million women in African nations are responsible for regular water collection trips by foot that take 30 minutes or longer.

Maximum Capacity: 40 lbs
Speed: 4 miles/day
Greenhouse Gas Intensity: Zero
Pollution: Zero