



Green Career Awareness Module



(Replace Logo)

Green Transportation ▾

Solutionary Phase	Fundamentals ▾
Lesson # and Title	Lesson One ▾ <i>Introduction to Transportation</i>
Duration	45 minutes

Lesson Overview

To engage students in a discussion about different transportation methods, their personal experiences and community connections, and ultimately understand the relationship between transportation and climate change, including the movement of materials and goods. Students also reflect on the careers that might exist today and in the future in green transportation.

Learning Objectives

By the end of this lesson, students will be able to:

- Identify and discuss different transportation methods that they have used (and compare to others)
- Create a dot plot that represents which transportation modes are used by the class
- Create data tables (in small groups) with the dot plot information and add “carbon footprint” impacts of the class’ transportation modes histories
- Define transportation to include the movement of goods and materials
- Begin to connect transportation to careers

Content Standard(s)

NGSS ▾ MS-ESS3-4: Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

NGSS ▾ MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

CCSS Math ▾ 6.SP.B.4: Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

CCSS Math ▾ 7.SP.B.4: Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.


CCSS ELA ▾ CCRA.SL.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners.

CTE Model Curriculum Standards ▾

Transportation, Distribution, and Logistics Cluster (TDL):

- TDL.1: Explore the range of career opportunities within the transportation, distribution, and logistics industry.
- TDL.4: Demonstrate knowledge of transportation systems and their components.

Equipment, Instructional Resources, and Materials

SLIDES -  Lesson 1: Introduction to Green Transportation

For students:

- *Sticky Notes*
- *Pencils or markers*
- *Large sheet of paper or chart paper for each table (optional) for dot plots*

Print out carbon comparison table [data sheet](#) page

- Teacher background information/resources:

<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#transportation>


- *LOTS of great data and tables for you (and also could make math connections):*

<https://www.epa.gov/system/files/documents/2023-05/420f23015.pdf>

- *Another great article for background knowledge building:*

<https://www.wri.org/insights/everything-you-need-know-about-fastest-growing-source-global-emissions-transport>

- *Carbon Footprint Calculator for Transportation: <https://calculator.carbonfootprint.com/calculator.aspx>*

Key Vocabulary and Terms
Teacher Preparation
<p>Create a numbered list of tasks that a teacher would need to perform to effectively prepare to teach this lesson. For example:</p> <ol style="list-style-type: none"> 1. Review the slide deck - link to deck 2. Materials to assemble: Sticky Notes (1 pad per student), writing utensil 3. Print out (or share digitally) the data sheet for student transportation 4. On Slide 12 students start to mention careers in transportation - create a place in your room (or padlet/slide) to start collecting the careers mentioned over the course of the whole unit - in the notes I call it the “job board”
Lesson Procedure
Slide Deck:  Lesson 1: Introduction to Green Transportation

Segment Title	Activity/Task, Student Grouping, Special Accommodation, Related Career(s), and Assessment	Time (min)
<i>Activate Prior Knowledge</i>	<p>Activity/Task: <i>Students reflect on modes of transportation. They do a think-pair-share to come up with as many ways as they can for people and things to get from one place to another in their communities, and in the world</i></p> <p>Student Grouping: Individual ▾ <i>Select One</i></p> <p>Student Grouping: Pairs ▾ <i>Select One</i></p> <p>Student Grouping: Small Group ▾ <i>Select One</i></p> <p>Special Accommodation(s): <i>think-pair-share structure will support students, especially Multilingual students</i></p> <p>Related College Major and Career(s):</p> <p>Related Assessment: <i>Informally assess the funds of knowledge students bring to the classroom around transportation</i></p>	10 min
<i>Students List transportation</i>	Activity/Task: <i>Students write on sticky notes, they ways that they (personally) have</i>	5 min

<i>modes they have used</i>	<i>traveled or moved around</i> Student Grouping: Individual ▾ Special Accommodation(s): <i>model how to write one transportation mode on each sticky note</i> Related College Major and Career(s): <i>Provide running list</i> Related Assessment: <i>Circulate and support students who need support with this</i>	
<i>Students work in small groups to create dot plots to represent frequency of different transportation modes</i>	Activity/Task: <i>Students work in small groups to create dot plots of how all students in the group have traveled (moved from place to place)</i> Student Grouping: Small Group ▾	10 min
<i>Connect Greenhouse Gases and Transportation</i>	Activity/Task: <i>Teacher connects Greenhouse Gases and Transportation</i> Student Grouping: Whole Group ▾	5 min
<i>Turning small group dot plot data into climate change impact values (carbon footprint)</i>	Activity/Task: <i>Student take the group Dot Plot Data and aggregate it. They then estimate a "Carbon Footprint" tally for their group and compare numbers and reflect</i> Student Grouping: Small Group ▾ Special Accommodation(s): <i>model how to write one transportation mode on each sticky note</i> Related College Major and Career(s): <i>Provide running list</i> Related Assessment: 📄 <i>Student Worksheet: Transportation Data Table - ROUGH DRAFT</i>	5 min
<i>Bring in trucking and goods and services as part of the transportation sector</i>	Activity/Task: <i>Students write on sticky notes, the ways that they (personally) have traveled or moved around</i> Student Grouping: Think-Pair-Share ▾ Special Accommodation(s): <i>Related College Major and Career(s): Provide running list</i> Related Assessment: <i>Circulate and support students who need support with this</i>	5 minutes
<i>Connect to green careers</i>	Start a rolling "job board" of careers that students think of in each lesson	-
<i>Transportation Notebook</i>	Give Students time to create or add to their student notebooks (or google slide)	5 min

	They can also take a photo of their data sheet from the carbon footprint activity	
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