



TRANSPORTATION THROUGH TIME For students in 2nd grade

OVERVIEW:

Students measure the speed at which they can walk in order to understand speed and distance traveled. Students research the history of transportation and express data in a class timeline.

OBJECTIVES:

Math 2.01 - Estimate and measure using appropriate units.

Math 4.01 - Collect, organize, describe and display data using pictographs where symbols represent multiple units.

Social Studies 8.01 - Identify uses of technology in communities.

Social Studies 8.02 - Explain how technology has affected the world in which we live.

Computer Skills 2.02 - Use prepared electronic database as a class/group activity to conduct keyword search/filters to meet information needs.

English Language Arts 4.02 - Compose sentences with correct subject and verb agreement for regular verbs in the present tense.

English Language Arts 4.03 - Apply rules of spelling conventions independently in own writing.

MATERIALS:

- Tape measures, chalk, stopwatches, class chart to show time and distance.
- Paper and pencil for students to record data.
- Paper for recording modes of transportation. Box from which to select modes of transportation.
- Timeline to tape onto classroom or hallway wall. Label 10-year increments between 1800 and the present. Leave space to record events that happened prior to 1800 and space for future developments

TEACHER INPUT

- Ask students "What was the first mode of human transportation?" Explain that people have always used their own two feet for transportation. Record at the beginning of timeline.
- Ask students to estimate how fast they can walk. Record their guesses on a piece of paper. Explain that they will measure walking speed scientifically and ask how this can be done. Distance and time must be measured. What units of measurement will be most appropriate? Inches/miles/feet? Hours/days/minutes? Establish that feet and minutes will be best for a school setting. These can then be converted to miles per hour.
- Equipped with tape measures and stopwatches, take students to a location where they can measure a suitable distance. Working in pairs, students time each other walking and then running the measured distance. They record their data. Each student should record a walking speed and a running speed.
- Back in the classroom, compile student data. Create a graph expressing the speed range at which children in the class can walk. Create a second graph expressing the speed range at which children in the class can run.

- With students, generate a list of modes of transportation. Record each mode of transportation on an individual piece of paper. When you have enough modes of transportation for at least one for every two students, fold up the papers and put them in a box. (If you are using two students per mode, write the name of each mode on two separate pieces of paper.) Students pull a piece of paper from the box with the name of the mode of transportation that they will be investigating. Using the library and/or the internet, students research their mode of transportation, recording when it was first invented, what speeds can be attained, an interesting fact about their mode of transportation. See attached homework sheet.
- When student-teams present their reports, add their mode of transportation to the timeline to indicate when their mode was invented, how fast it can go and an interesting fact about it.

EXTENSIONS:

- When riding Charlotte Trolley, ask students to calculate the average speed of the trolley, given the distance and measuring the time to ride.
- Use a bicycle to measure how fast students can ride on a bike and compare with walking and running speed.
- As a class, read books that feature a mode of transportation, such as:
 - *Charlotte Trolley & The Full-Moon Adventure* by Donna York-Gilbert
 - *The Polar Express* by Chris Van Allsburg
 - *Lisa's Airplane Trip* by Anne Gutman

ASSESSMENT:

Display timeline and graphs in classroom. Assess students' individual and group work against objectives above (accurate use of appropriate measures, organization of data, composition using correct grammar and spelling.)