

Calculating Travel Time – Then and Now

Grade Level: Grade 3

Topic: Mathematics, Social Studies

Resources Needed:

- Multiple copies of Porter Thayer Collection images:

http://cdi.uvm.edu/collections/getCollection.xql?rows=1&start=22&fq=topic_facet%3A%22Roads%22&pid=thayer

http://cdi.uvm.edu/collections/getCollection.xql?rows=1&start=0&fq=topic_facet%3A%22Roads%22&fq=topic_facet%3A%22Horses%22&pid=thayer

Student Learning Objectives:

- Students will be able to describe the ways that transportation in Vermont has both changed and stayed the same over time.
- Students will be able to tell and write time to the nearest minute and measure time intervals in minutes.
- Students will be able to solve word problems involving addition and subtraction of time intervals in minutes.

Assessment of Stated Objectives: Student learning will be assessed in group discussion.

Standards:

USA- Common Core State Standards (June 2010)

Subject: Mathematics

Grade: Grade 3

Domain: Measurement and Data 3.MD

Cluster: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Standard: 1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

VT- Vermont Grade Level Expectations**Subject:** History & Social Sciences**Grade:** Grades 3 – 4**Strand:** History**GE Stem:** H&SS3-4:8 Students connect the past with the present by...**Expectation:** Describing ways that life in the community and Vermont has both changed and stayed the same over time (e.g., general stores and shopping centers).**Procedures:**

Orientation: Split students into groups and distribute one of the photos listed above to each group of students. Ask students to identify and list the differences and similarities they see between these photographs and the present day.

Teaching/Learning Process: Project one of the photos for the class to see. Ask students from the groups using that photo to provide one thing they noticed about the photo that is the same or different. Write their responses for the class to see. Finally, ask for general observations, thoughts, or questions from the class about the photo. Write these responses at the bottom of the chart. Do the same for the next group.

- Why did these things change over time?
- What would life be like if they did not change?
- Were these changes beneficial to the community?

Begin moving into math questions by posing the question: How much faster do you think our cars and roads allow us to travel today versus during the time period of this photograph? Name a place the students all know well that is in their community, but not too close to the school. [The time to drive there should be about 10 minutes driving]. Ask students:

- How long does it take to walk to _____?

Write the response on the board, labeled "walking". This is a general time frame from the students to use. Under this time, divide the board in half. Labeled one half "Present" and the other half "1800s"

- How long does it take to drive to _____?
- How long does it take to get into the car and be ready to go?
- What do you have to do to get ready to go somewhere in a car?
- How long does that usually take?

Write the destination, the time it takes to get there, and the time it takes to prepare to go somewhere in a car up on the board under "Present". Now, show the two photos to the class again.

- How long do you think it might take to get to ___ using a horse and buggy?
- Will it be faster or slower than using a modern car from the present day?
- Will it be faster or slower than walking?
- What do you think are some things you might have to do to get ready to go somewhere with a horse and buggy?
- How long do you think it would take to prepare the horse and buggy?

Write the destination (again), the time they think it will take to get there using a horse and buggy, and the time they think it would take to prepare the horse and buggy.

Provide students with math problems from the travel data students provide. Look at the clock and ask for the current exact time. Write this time on the board. "It is now [state time written on boards], if we were all going to take a modern car to [destination], what time would we arrive? Make sure to include preparation time." Have the students work with their groups to figure this out. Share the answer as a class and discuss how the students got their answers.

"What if we left at the same time, but we were going to use a horse and buggy and travel over a dirt road. What time would we arrive? Make sure to include preparation time." Allow the students to work in their groups to figure this out. Share out as a class at the end.

Closure / Wrap Up: Ask students to draw conclusions from the work they have done and perhaps think about projecting this time accounting forward for a greater distance.

Time allotment: 1 class period of 45 minutes per class

Lesson plan created by Hannah Pelkey 4/21/2013 as part of the University of Vermont Education Class: *EDEL 157 – Social Education and Social Studies*.