

**Title**

Plotting the Journey of the Four Brothers Using Distance vs. Time Graphs

**Grade Level**

High School

**Theme**

- 1) Math as a language – you can translate words into mathematical equations
- 2) Science uses mathematics to describe the world and its phenomenon, because math is much more efficient than spoken or written language

**Duration**

1-2 days

**Goal**

Using distance vs. time graphs, students will describe the travels of the four sons of Tate in their journey to establish the four directions in the world.

**Objectives**

Students will be able to...

- 1) Determine the directions (W, N, E, S) and durations (moons) of the separate legs brothers' journey (Tate's lodge to Wazi, then to the West, then North, then East, then South, then back to West, then to Tate's lodge) from the account given by James R. Walker in *Lakota Myth*.
- 2) Plot on a map (satellite image of the North American continent) the important locations, and routes between these locations) of the brothers' journey using the context clues given in Walker's account.
- 3) Graph the journey on a distance vs. time graph, using the correct line slopes for the direction and average velocity of each leg of the journey, as well as marking the important locations and events.
- 4) Interpret their graph to classmates by retelling Walker's account of the journey using only their graph as a guide.

**South Dakota Standards**

9-12.P.2.1. Students are able to apply concepts of distance and time to the quantitative relationships of motion using appropriate mathematical formulas, equations, and units.

**Cultural Concept**

The journey of the four sons of Tate established the directions of the world and the "fourth time," or the year. It is because of their journey that we can now describe the world around us using directions and time (e.g. "It took a *year* for my dad to walk *westward* across the continent.").

**Cultural Background**

As retold in *Lakota Myth* (James Walker, 1983, University of Nebraska Press), "The Founding of the Four Directions" (pg. 289) describes the journey of the four sons of Tate – Yata (eldest), Eya (second born), Yanpa (third born), and Okaga (fourth born) – as they travel around the edges of the known world establishing the four directions (West, North, East, and South). These brothers are also associated with the four winds that are tied to each direction. The length of their journey also establishes what would be known as the "fourth time," or a year (the previous three being day, night, and month). The great spirit

*Skán* directed Tate, his associate, to send his four sons to the ends of the Earth to establish direction in the world. The brothers leave Tate's lodge in the center of the known world (presumed to be in the heart of the *Oceti Sakowin* homelands) and travel northward. Along the way they meet the wizard Wazi. Yata, the eldest, is cruel to the wizard, so Wazi deceives the brothers into heading West through a dense fog. Thus, it is Eya the second-born, and not Yata, who establishes the principal direction as West. From there, they travel the edges of the world and establish North (Yata), East (Yanpa), and South (Okaga) in that order. When they return to their father's cabin, a year has passed.

### **Student Activities**

1. Read the excerpt of the four brothers' journey from Walker. Teacher should edit the passages to only include relevant details from the journey itself, as Walker jumps from the journey back to Tate's lodge often. As students read the text, they should either annotate on the text itself or fill out an accompanying graphic organizer to include the direction, time, and approximate location of each leg of the journey, as well as important events and when they happen along the journey.
2. Students take their annotated text or graphic organizer from 1) and (roughly) map the journey on a satellite image of North America. Students should locate the approximate locations of where each direction was established by the brothers, as well as probable routes for each leg of the journey.
3. Students should be given some scale for the map in 3) so that they may measure distance of each leg. Time taken for each leg should be determined as well (from step 1)
4. Students take their marked-up map and create a distance vs. time graph of the brothers' journey. Each leg should have an appropriate slope relative to the other legs (shallower slopes for slower velocity) and the establishment of each direction should be marked on the graph when it occurs.
5. Students recount Walker's tale to their classmates using only their graph as a guide.

### **Resources**

*Lakota Myth*, James Walker  
Distance vs. Time Graphing Materials (background)  
Graph Paper

### **Assessment**

Oral presentation of the brothers' journey using the distance vs. time graphs

### **References**

Walker, James, *Lakota Myth*, University of Nebraska Press, 1983.

### **Developer**

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### **Date**

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