Lesson Plan Title: The Iditarod and Daylight

Developed by: Heidi Sloan, 2018 Teacher on the Trail™

Discipline / Subject: Math

Topic: Problem solving

Grade Level: can be adapted for grades 3 – 9

Resources / References / Materials Teacher Needs:
Screen shot from a weather app, sunrise and sunset start times for the hometown and a checkpoint village on the Iditarod, websites listed below under technology

Lesson Summary: students problem solve, finding daylight hours from winter solstice until the start of the Iditarod in their hometown and in a checkpoint in Alaska

Standards Addressed: (Local, State, or National)

VA 5.4 The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division with and without remainders of whole numbers.

CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.

CCSS.ELA-LITERACY.RL.6.2
Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

Learning objectives:	**Assessment:**
1. The student will use a mathematical problem solving strategy to determine the sunrise and sunset times for the start of the Iditarod in their town and in one of the Iditarod Trail checkpoints. 2. From their findings, students will infer why the Iditarod Race is run in March. 3. The student will be able to write his/her mathematical thinking and conclusions on how the number of daylight hours can affect people in Alaskan villages.	Student math work and written explanations

Procedural Activities

1. Introduce concept of winter and summer solstice. Discuss spring and autumn equinox.
2. The Iditarod has had to move north three times because of poor conditions for the dog teams. Have you ever wondered why the race isn't run in January or February when there might be more snow?
3. Students read the article on how daylight changes throughout the year, especially close to the North Pole or South Pole.
4. Show students a screen shot of sunrise and sunset on the day you begin. Show your hometown and one of the checkpoints along the Iditarod race. Assign students the exemplar, problem solving, worksheet. With younger students, some guidance on how to begin may be needed. For older students, the problem can be enhanced to present a true challenge.
5. At the end, ask students to write their mathematical thinking and to infer why the Iditarod may begin in March, based on their data from the daylight activity. In this discussion, add in the fact that the Iditarod Air Force is required to fly only in daylight.

Materials Students Need: problem worksheet, tweaked by teacher for varied grade levels

Technology Utilized to Enhance Learning:

- Active board to display sunrise and sunset from weather app
- Online article added to Google Classroom or available on student devices about how much time is added or lost daily between winter and summer solstice.
- Older students: https://www.washingtonpost.com/news/wonk/wp/2017/09/21/happy-equinox-heres-how-quickly-the-days-are-getting-shorter-where-you-live/?utm_term=.55e60cff824d
- Younger students: https://www.reference.com/science/many-minutes-daylight-lose-day-after-june-21st-181cb4959cb2d724
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Other Information

Infer what life might be like in the village during winter or summer solstice in a writing assignment.

Modifications for special learners/ Enrichment Opportunities:

Choose one checkpoint on the coast and one in the interior of Alaska along with your hometown to compute daylight hours. Is the coast different? What about comparing a checkpoint on the northern route of the Iditarod versus and checkpoint on the southern route.