

Population Along the Trail

Developed by: Jennifer Reiter, 2014 Iditarod Teacher on the Trail™ **Created 9/15 UPDATED 11/17**

Discipline / Subject: Math

Topic: reading, interpreting, and creating bar and double bar graphs

Grade Level: third, others with modifications

Resources / References / Materials Teacher Needs:

Graph paper – you can print your own here: <http://www.printfreegraphpaper.com/>

Iditarod Media Guide: <http://iditarod.com/resources/press-media/>

The Iditarod Air Force Flies into Rohn Checkpoint: <https://www.youtube.com/watch?v=UokrVg3wXSc>

IXL site for interactive bar graph practice: <https://www.ixl.com/math/grade-3/interpret-bar-graphs>

BrainPop, Jr. Video: <https://jr.brainpop.com/math/data/tallychartsandbargraphs/>

ELT Base site for double bar graph practice: http://www.elibase.com/quiz/508_01.htm

Lesson Summary:

Students will create a bar graph that displays information about the population of the checkpoints along the trail.

Standards Addressed: (Local, State, or National)

CCSS.MATH.CONTENT.2.MD.D.10

Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

CCSS.MATH.CONTENT.3.MD.B.3

Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

Learning Objectives:

TLW create a bar graph to display data.

Assessment:

Students can be assessed on their finished bar graph.

Procedural Activities

1. Show the Iditarod Air Force video on checkpoints to give the kids a feel for what an Iditarod Checkpoint is and why they are crucial for the race.
2. Explain to the students that all of the communities that house the Iditarod checkpoints along the trail are unique and different. Some are set in large communities, some are set in small villages, and some locations only spring to life when the race comes through.
3. If you haven't already discussed the idea that there are two different routes and the reasons behind that decision, now would be a good time! The following explanation comes from the Iditarod Trail Committee Website (<http://iditarod.com/about/the-iditarod-trail/>):

Both sections of trail are a part of the Iditarod National Historical Trail which was used in early years for all winter travel. Dog sleds delivered the mail, the preacher, the groceries, and hauled out gold and furs all the way to Anchorage or Fairbanks.

During the early years of the Iditarod Race, the mushers only traveled the northern trail. After several years, the Iditarod Board of Directors realized that the smaller villages were being heavily impacted by the race coming through their village year after year. It was decided to use both sections of the trail.

This decision had a three fold effect. The northern villages of Ruby, Galena and Nulato only had to deal with the large group of mushers, press, and volunteers every other year. The second effect was that the race was able to pass through the actual ghost town of Iditarod. Lastly, the villages of Shageluk, Anvik, and Grayling were able to participate in the race.

4. Tell the students that today they will be investigating and comparing the populations of the checkpoints on this year's route. A bar graph is a great tool to show the relative sizes of many things.
5. Share with the students the BrainPop, Jr. video on Bar Graphs to introduce the concept.
6. The IXL site has a game that the students can play to practice reading and interpreting bar graphs.
7. As a class, use the information found in the Iditarod Media Guide about the checkpoints to identify the population of each checkpoint on this year's trail. I've also included a chart of the data with this lesson plan if you don't have time for the students to locate the data on their own.
8. Calculate the range of population and determine how to best set up the graph to reflect the needed data. You may want to start with Yentna Station and only do the locations where actual *checkpoints* are set up.
9. Use the data collected by the students to complete the bar graph as a class. Alternatively, the students could complete this bar graph in small groups.
10. Explain to the students that sometimes we can also use bar graphs to show or compare more than one kind of data.
11. Use the activity about cats and dogs at the ELT site to practice reading and interpreting double bar graphs.
12. Challenge the students to compare the population changes in Willow and Nome throughout history in a double bar graph (direction sheet included). **Note: if you begin the scale with 1,650 people, go by increments of 200, and finish at 3,850 people; you can complete the graph in twelve divisions.

Materials Students Need:

Graph paper

Technology Utilized to Enhance Learning:

See Teacher Resources

Students could create the bar graphs digitally at <http://nces.ed.gov/nceskids/createagraph/>

Other Information:**Modifications for Special Learners/ Enrichment Opportunities:**

The bar graph could be created as a class, team, or individual as needed.

To add a writing component, students could do a journal entry about whether they think it's better for the ITC to try to set up a checkpoint in a more or less populated community. What are the pros and cons of each?

If you are looking for some more advanced data and graphing opportunities, there are some pretty wild graphs included in this document on Alaska Population Projections:

<http://laborstats.alaska.gov/pop/projected/pub/popproj.pdf>

Additional Information

Population Along the Trail

Northern Route

Checkpoint	Population
Anchorage	291,826
Willow	1,658
Yentna Station	8
Skwentna	30
Finger Lake	2
Rainy Pass	2
Rohn	0
Nikolai	101
McGrath	341
Takotna	49
Ophir	0
Cripple	0
Ruby	173
Galena	487
Nulato	275
Kaltag	205
Unalakleet	692
Shaktoolik	258
Koyuk	347
Elim	332
White Mountain	199
Safety	0
Nome	3,695

Population Along the Trail Southern Route

Checkpoint	Population
Anchorage	291,826
Willow	1,658
Yentna Station	8
Skwentna	30
Finger Lake	2
Rainy Pass	2
Rohn	0
Nikolai	101
McGrath	341
Takotna	49
Ophir	0
Iditarod	0
Shageluk	83
Anvik	79
Grayling	189
Eagle Island	0
Kaltag	205
Unalakleet	692
Shaktoolik	258
Koyuk	347
Elim	332
White Mountain	199
Safety	0
Nome	3,695

Population Changes Over Time

Create a double bar graph to show how the population of the starting and ending points of the Iditarod Sled Dog Race has changed over time.

Willow Data

Year	Population
2000	1,658
2002	1,718
2004	1,860
2006	1,959
2008	2,142
2010	2,102
2012	2,012 (estimated)

Nome Data

Year	Population
2000	3,497
2002	3,503
2004	3,616
2006	3,566
2008	3,623
2010	3,617
2012	3,725