Iᴅɪᴛᴀʀᴏᴅ Cʜᴀʟʟᴇɴɢᴇ – Teacher Notes

These notes will give a more detailed explanation of how to run The Iditarod Challenge in your classroom.

To begin, familiarize yourself with the Iditarod sled dog race and the downloaded materials. I used the Discovery Channel video, [Toughest Race on Earth: Iditarod](#), to get my students interested in the project. The real race begins every year on the first Saturday in March and lasts 9-14 days. A ceremonial start in Anchorage is followed by the official start in Willow, Alaska. I had race days for my students on Mondays, Wednesdays, and Fridays, and the project lasted most of the 3rd Quarter. Our race happened to finish on the same day that Lance Mackey won his fourth consecutive Iditarod.

The Iditarod Challenge Google Earth Kmz

The Iditarod Challenge Google Earth folder contains the following:
1. Marked path of the Iditarod's Northern Route. This is the route the race takes during even numbered years. A Southern Route may be added to the site in the future.
2. Checkpoint Folder: Each checkpoint from Anchorage to Nome is marked in Google Earth. The placemarks' pop-up windows give the distance to the next checkpoint in miles, and the standard rate of travel in miles per hour. A link describing each particular leg of the journey is included as well.
3. Information Folder: Between the checkpoints there are information icons that contain links to Iditarod websites and videos. An Internet connection is necessary to view this information.

Direct students to RealWorldMath.org to find the Iditarod Kmz download. It's included in the Project Based Learning section of the Lesson Downloads menu. Google Earth Kmz's can also be shared via a thumb drive or attached on an email. Encourage the students to look through the contents and point out where they can find the information they need. **Before any race day, the students will need to know the distance to the next checkpoint and the rate of travel** (found in each checkpoint's placemark). Decide how you want to handle this; it depends on whether the students are able to access Google Earth in the classroom or if you are having them do it at home.

Iditarod Checkpoint Sheets

The Checkpoint Sheets hold all of the students race information, so stress how important it is that they don't lose it. (Make a Xerox of the first side when completed for back up.) This sheet is a log for the times the students arrive at each checkpoint, how many dogs they have, how fast they travel, and the elapsed time to the next checkpoint. The Checkpoint Sample sheet can be used to instruct students on how to calculate the times for the project.

Distance = rate x time. This formula is the basis for their calculations. Since the distance to the next checkpoint and the rate of travel are known, the elapsed time it takes can be found by dividing the distance by the rate. Calculator use is encouraged because the results will be a decimal amount of hours, such as 6.24 hours. 6 hours will be easy for students to understand, but 0.24 hours is not 24 minutes. Coach your students through the process of finding the number of minutes equivalent to the decimal amount. 0.24 x 60 = 14 minutes, so 6.24 hours is 6 hours and 14 minutes or 6:14. The next step is to take the previous checkpoint's time and add the elapsed time. This race takes over a week, so AM/PM and moving from one day to the next will also have to be covered.

The student should write with pencil on their Checkpoint Sheets and you will want to check their work after each checkpoint. This can be done with the Master Iditarod Time Sheet (see below).

When the race is finished, have the students calculate their total race times.

Note: The actual Iditarod is largely won or lost on how well mushers manage their dog teams. Each musher rests their dogs typically the same amount of time they are racing, but this varies from team to team. The Iditarod Challenge does not incorporate resting times, so this is not a variable of the mock race. It can be, but you would have to decide on a fair way to do it. Resting times would have to be added on the Iditarod Checkpoint Sheets somehow. My suggestion is that you leave this as a "teachable moment".

Iditarod Fortune Cards

The race wouldn't be much of a race if everyone were traveling the same distances using the same rates. The Fortune Cards will take care of that. Print out a copy of the cards and cut them out and laminate or tape to a deck of playing cards. The cards contain some event that will increase or decrease the elapsed time or the rate it takes to get to the next checkpoint. For example, an encounter with a moose may add an additional 30 minutes to the elapsed time or cold weather may increase the sled speed by 2 mph.

On race days have the cards face down and have each student pick a card. Stress that they make a note of the time or rate adjustments on their Checkpoint sheets to aide their calculations. There is also a spot on the checkpoint sheet to write the card's number. This helps you as much as it does them to keep track of what is happening. Cards with an "A" in the label are negative cards and cards with a "B" in the label are positive. Some days I would only have the "A" cards out and other days the "B's".

Dropped dogs are a common occurrence in the Iditarod and it will happen in the mock race as well. Some fortune cards will instruct students to drop a dog at the next checkpoint. For this leg of the journey, the standard rate and time will apply; but at the next checkpoint, <u>and for the remainder of the</u> <u>race</u>, the student will be racing without that dog. This may be a positive or negative event in that some dogs slow down the team while others will be missed. The typical dropped dog card reads:

"Drop a dog at the next checkpoint and decrease your speed by ½ mph." Again, this goes in effect at the next checkpoint. It is important that students keep track of this as the race goes on.

Note: A listing of the Fortune Cards' information is at the bottom of the document. You will want to keep this handy for reference.

Iditarod Master Time Sheet

This spreadsheet is crucial to your ability to keep track of the students' work. At the end of each race day, collect the students' checkpoint sheets. Make note of the Fortune Card number for each student because this is what you will enter into the spreadsheet. The spreadsheet is already set up with the standard distances and rates. You will have to enter any adjustment to this depending on the Fortune Card each student picks. This takes place in column G (rate adjustment, if any) and column K (elapsed time adjustment, if any). **Negative values can be entered for rates, but not for the elapsed times. Thus, you will have to make sure positive elapsed time adjustments (ie "add 30 minutes") and negative elapsed time adjustments (ie "subtract 3 hours") are take into account**.

You can accomplish this by simply adjusting the cells' formula in the L column. First, the spreadsheet's elapsed time format is set so that 2 hours 15 minutes is entered as 2:15, or 30 minutes is entered as "0:30". In column K's cell enter the absolute value of the elapsed time adjustment needed. Second, double-click on the adjacent cell in column L for the same row. You will see the spreadsheet's formula, such as J85 + K85. The standard setting is to add the two cell values, so if you want the time subtracted, simply type a "– " or J85 – K85 and select return. Keep an eye on the Final Elapsed Time in column L to verify the desired results.

Another tip for handling students' times is for when dogs are dropped. Remember, a dropped dog is dropped for the entire race, so you may want to mark those increases or decreases in the G column starting at the next checkpoint and continue marking the value for the remainder of the race. Any additional adjustments from Fortune cards can be taken into account when they occur.

You may want to devote a section of the spreadsheet to list the times students reach each checkpoint. This will make it easier to figure out the current race standings.

Finally, you will notice that there are times listed for checkpoints not yet reached. This is because all of the standard rates and distances are entered into the spreadsheet. You will see those times change each time data is entered into the spreadsheet. The dates are not calculated in the spreadsheet so you will have to keep track of that yourself and enter the days (ie March 8).

Race days

This is how each race day is normally broken down – remember, 10 minutes should be enough:

1. Have students take out their Iditarod Checkpoint Sheets and calculators
2. Call students up one by one to select an Iditarod Fortune Card. With a pen, make a note on their checkpoint sheet which card they pick.
3. The students make their calculations on their checkpoint sheets for one leg of the race and turn their sheets in when finished.
4. When possible, enter the students' Fortune Card data in the Master Time spreadsheet and check their work. I used a stamp to mark correct times, and incorrect sheets were given back the next day for repair.
5. Ideally, your students will have access to Google Earth and time in the classroom to explore the provided content. Like most topics in school, I'm sure you'll find some students will really get into the race and explore the Iditarod further on their own.

Last Word

Finally, this project is for practicing math skills that concern time, but the students will get caught up in the race. The winner or loser of the race will solely depend on what Fortune Cards are picked. The place the students finish should not part of their grade, but how accurate their calculations are should be.

Having said that, there are a lot of things you can do to add to the fun. Have the students pick musher names, like "Klondike Kate" or "Ketchum Bill" and post the race standings each day. The actual Iditarod has many awards, such as the first musher to reach Nulato (halfway), and the first to reach the coast (Unalakaleet). There's even a prize for the last place finisher. I made giant phony checks for the top three finishers as well as other gag gifts along the way.

Don't forget to include other subject areas in the project. Social Studies and English teachers may want to get in on the action. A web search can find many Iditarod resources available for teachers.

See you in Nome!

Iditarod Card Summary

1A	+30 minutes
1B	– 40 minutes
2A	Drop a dog at the next checkpoint and decrease rate by ½ mph
2B	Rate: + 2 mph
3A	Drop a dog at the next checkpoint and decrease rate by ½ mph
3B	– 20 minutes
4A	+ 45 minutes
4B	Rate: + 1 mph
5A	rate: –2 mph
5B	Rate: + 2 mph
6A	+ 15 minutes
6B	– 40 minutes
7A	rate: –1 mph
7B	– 20 minutes
8A	Drop a dog at the next checkpoint and decrease rate by ½ mph
8B	Drop a dog at the next checkpoint and <u>increase</u> rate by ½ mph
9A	+ 30 minutes
9B	Rate: + 2mph
10A	+ 45 minutes
10B	Rate: + 1mph
11A	+ 30 minutes
11B	– 40 minutes
12A	Drop a dog at the next checkpoint and decrease rate by ½ mph
12B	Drop a dog at the next checkpoint and <u>increase</u> rate by ½ mph
13A	Drop a dog at the next checkpoint and decrease rate by ½ mph
13B	Rate: + 1 mph
14A	+ 15 minutes
14B	Rate: + 3 mph
15A	+ 3 hours
15B	Rate: + 2 mph