

Science of Super Sled Dogs

Developed by: Mary Lynn Roush.

Adapted from: Denali National Park Science of Sled Dogs & Jen Reiter Mushing to Learn Nonfiction Text Features

Discipline/Subject:

English Language Arts: Reading Informational Text, Writing, Speaking, Language

Life Science: Evolution and Adaptation Technology/Visual Arts: Multimedia presentation tools

Topic: Research and presentation of information using multiple media. Grade Level: 2-12 (any grade with modifications)

Resources/References/Materials Teacher Needs:

Science of Sled Dogs, Denali National Park

Mush! Sled Dogs of the Iditarod, Scholastic Books

Internet access, and a variety of media for accessing and presenting information.

Lesson Summary:

Students use electronic & traditional media to research about sled dogs, including their physical adaptations and the ways humans work with sled dogs to create sled dog teams. Then, they create presentations, in both written essays and in visual/electronic media.

Standards Addressed:

1 CCSS.ELA-Reading Informational Text RI.5.1, 5.2, 5.3, 5.4, 5.6, 5.7,5.9, 5.10

Read and comprehend informational text and interpret information presented visually; refer to details, main idea, explain multiple contexts, meaning of academic words; integrate, compare, and contrast information from different sources.

2. CCSS.ELA-Writing W.5.2, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9

Write informative text, using the writing process to produce clear and coherent writing; conduct research projects that build different aspects of a topic, gather relevant information, and use technology to interact with others.

3. CCSS.ELA-Speaking and Listening SL.5.2, 5.4, 5.5, 5.6

Report on a topic using appropriate, relevant, and organized information; use multiple media in communication, and differentiate among contexts to use appropriate language.

4. NGSS. Heredity 3-LS-3 Structure and Function 4-LS1-1 MS-LS-4 Natural Selection/Adaptation

5. Oregon Educational Technology ET.3 ET.6

Select, use, and troubleshoot tools effectively; Locate, organize, and use information from a variety of sources and media, evaluate for appropriateness to tasks.

Learning Objectives	Assessment
1. TLW demonstrate mastery of reading standards by gathering information from printed and visual media.	1. Reading will be assessed with a 4-pt rubric
2. TLW demonstrate mastery of writing standards by integrating information into written, visual, and audio presentations.	2. Writing standards will be assessed by evaluating their written and visual products, using rubrics for each standards
3. TLW demonstrate mastery of speaking and listening standards by creating multimedia projects, and presenting them at school.	3. Speaking/Listening standards will be assessed by evaluating their multimedia presentation..
4. TLW demonstrate mastery of science standards by integrating accurate	4. Science standards will be assessed by evaluating their graphic organizers, rough drafts, and final products, scoring for accuracy and completeness. 5. Technology standards will be assessed by informal observation of internet

<p>descriptions of sled dogs' physical adaptation.</p> <p>5. TLW demonstrate mastery of educational technology standards by accessing internet resources, and by using productivity software to create written, visual, and audio presentations.</p>	<p>navigation, and by evaluating their multimedia products.</p>
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Procedural Activities:

These are listed semi-sequentially. Some will run concurrently, and some have obvious project timelines. Time for each activity will vary, and is planned to take about a month.

Part 1. Gathering Information from both printed text and visual media.

- Introduce the Science of Sled Dogs by watching videos Winter Patrol on the Denali National Park website and/or Why They Run, (purchased from the Iditarod Insider). Some years, I've started by reading John Muir's Stickeen, followed by one of the many awesome books about sled dogs.
- Navigate through the DNP education website to find the puppy webcam and other visual resources. Navigate through the DNP website to find Science of Sled Dogs Student Reading, and Science of Sled Dogs Electronic Field Trip (2011).
- Key links: <http://www.nps.gov/dena/forteachers/learning/sled-dogs.htm>.
<http://www.nps.gov/dena/forteachers/upload/Science-of-Sled-Dogs-EFT-2011.pdf>.
<http://www.nps.gov/dena/forteachers/learning/upload/Denali-Sled-Dogs-Student-Reading.pdf>
- Read and take notes about the adaptations of sled dogs, collecting information into a Keynote/Google Slides journal (see technology notes, below). Then, collect information about how mushers select, breed, train, and organize sled dogs for success, using information from the videos and from the text Mush! Sled Dogs of the Iditarod.
- Research, using other sources of information, about the ideal traits of sled dogs, and how mushers select, breed, and organize their dogs, using internet sites of mushers and sled-dog associations. Continue using the organizers (two-column or slides) to collect new information.
- Research the paleo history of sled dogs and humans in Siberia/Alaska. I've used the internet. I have some wonderful "musings" by Joe May, which I

captured while following Facebook, as well as scientific books that are beyond elementary student level (see bibliography).

Part 2. Create fan cards and/or watercolor paintings of sled dogs. (Runs concurrently with other parts)

1. Introduce and make available websites of mushers who do a good job presenting their dogs with photos and information. Students choose from these dogs, or search through Google for generic Iditarod sled dog images. They can choose to adopt the actual dog that they have found, or to just use their image and create their own identity and information for the dog.
2. Using Keynote or Google Slides, and a trading card template, each student creates a “fan card” for their dog, including a photo of the dog and information gleaned from the internet. Template:
<https://drive.google.com/file/d/1Ofuk1Joj3K1LKEQc51IGV1rvc51Knu5P/view?usp=sharing>
3. Create watercolor paintings of the dogs: Rough draft drawings with pencil on printer paper. Pencil on watercolor paper, then permanent marker over the lines. Use watercolor pencils and water, or watercolor paint, to add color.
4. Upload watercolor painting (photo of) or trading card to a collaborative Google Slides document, with each student/dog claiming one slide.

Part 3. Writing an Informative Essay.

Starting with their graphic organizer notes, students draft an essay about their chosen or imagined sled dog. The essay must include information the adaptations of sled dogs (tongue, fur, circulation, tails, attitude, appetite, etc) and the information about how mushers work with dogs. They should point out the specific traits of their dog, describe their role in a sled dog team, and describe their dog's "history".

Part 4. Creating and sharing a Presentation.

Using information included in their essay, and a variety of visual images, students create a Keynote presentation (similar to Powerpoint). They should include photos of their own drawings as part of the visuals, and images from the internet. They must appropriately credit any images "borrowed" from the internet, or make their own drawings to photograph. Instruction in Keynote will be provided throughout this part of the project, including questions of appropriateness and quality of images and information.

Part 5. Extension: Creating an iMovie Trailer about their "Super dog"

Using elements created for the Keynote, students can create an iMovie trailer about their super sled dog. These take a large number of well-planned images, in addition to information that is both accurate and helpful. Students will want take video segments to include, as well as integrate still photos and images. This part will most likely be completed only by students who are excellent self-managers, are well organized, and have strong tech skills.

Materials Students Need:

Internet access to Denali National Park Website, the book *Mush!*, Images of sled dogs, and a variety of media for researching and presenting information*.

Graphic organizers: "The Dogs", and "The Teams"

Tablet with writing and presentation apps.

Printer paper, watercolor paper, ultra-fine point permanent markers, watercolor pencils or paint.

Technology Utilized to Enhance Learning: Technology Utilized to Enhance Learning:
1:1 Tablets: I ditarod.com. Social media and websites of mushers.

Google Classroom and Seesaw for managing navigation and workflow.

Writing apps: Pages/Google Docs, MSWord

Presentation apps: Keynote/Google Slides/Powerpoint .

Presentations can be a powerful “multimedia journaling” tool. Students take notes directly onto slides, using each slide for a main idea, and adding details in bullet points. Then, students gather images that best represent the information on the page. Students also can add audio and video content. Note-taking evolves seamlessly into presentation.

Keynote template for trading cards:

<https://drive.google.com/file/d/1Ofuk1Joj3K1LKEQc51IGV1rvc51Knu5P/view?usp=sharing>

Class blog: Seesaw

*Alternatives: This is a truly multi-media project. Many parts can be adapted to other technologies.

Dog images can be found online and displayed for students, or they can be found in publications, such as books and magazines. I use Born to Run, both the book by Albert Lewis and the calendars.

Note-taking organizers, such as two-column notes, can be used for research, instead of multimedia slides. Paper and ink can be a perfectly appropriate medium for creating powerful presentations.

SAMR model: Individually, the technologies Modify. Put together, they Redefine.

Materials Students Need: Internet access, Tablet with writing and presentation apps.

Technology Utilized to Enhance Learning:

- 1:1 Tablets: Iditarod.com. Social media and websites of mushers.
- Google Classroom and Seesaw for managing navigation and workflow.
- Writing apps: Pages/Google Docs, MSWord
- Digital journaling apps: Keynote/Google slides/Powerpoint/Numbers/Google Sheets
 - “multi-media journaling” is a powerful tool. Students take notes directly onto slides, using each slide for a main idea, and adding details in bullet points. Then, students gather images that best represent the information on the page. Students also can add audio and video content. Note-taking evolves seamlessly into presentation.
- Presentation Apps: Keynote/GoogleSlides/Powerpoint/iMovie. Class blog: Seesaw
 - *Alternatives: This is a truly multi-media project. Many parts can be adapted to other technologies, but the “whole” requires a rich palette of technology tools. SAMR model: Redefine.

Other Information: To take this mega-unit further, I have used it to “gamify” the whole school year. Gamification is applying the motivational techniques of game to non-game settings. Gamification heightens awareness and immersion.