

Comparing Weather and Daylight Hours

Developed by:

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Education Partner to
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Discipline / Subject:

Science (Weather, Seasons), **Math** (Graphing, comparing), **Technology** (Internet use, optional spreadsheet/graph extension)

Topic:

Compare weather and daylight hours between local area and Alaska

Grade Level:

2-8

Resources / References / Materials Teacher Needs:

Internet access

Tracking/graphing sheets

Upper Grades – text book or website to explain how Earth’s tilt affects daylight hours

Upper Grades – computer spreadsheet to record and graph results

Lesson Summary:

Students will track weather and daylight hours for their hometown, Anchorage AK and Nome AK. Once the data is collected, it can be organized and recorded onto tracking sheets and line graphs so that students can compare and contrast results, as well as observe trends.

Learning Objectives:

1. Compare student’s hometown weather to the weather found in Anchorage and Nome, Alaska
2. Use graphs to compare collected data from the 3 locations (upper grades, advanced learners)

Method of assessment for learning

Tracking Sheets (all grades)

Graphing Sheets (upper grades, advanced learners)

Procedural Activities

Locate hometown, Anchorage AK and Nome AK on a map. (optional – determine GPS coordinates for locations)

Students will access NOAA.gov, weather.com or other website to determine weather/daylight information for their hometown, Anchorage AK and Nome AK. Information is recorded on weekly tracking sheet. This can be part of a morning business activity, with the assignment to collect the data rotated among students and reviewed with the class. Class should determine differences (warmer/colder, more/less precipitation, etc.). Older/advanced students can calculate difference between values.

Upper grades and advanced learners:

Graph the data collected (on sheets provided or computer spreadsheet), using a different color for each location (colors should be recorded on the key provided at the bottom of the pages). Daily results can be connected to create line graphs.

Daylight Hours – Determine latitude for hometown, Anchorage and Nome. Discuss how latitude and Earth’s tilt affects seasons and daylight hours. Calculate daylight hours based on Sunrise and Sunset times for locations.

Materials Students Need: Internet access, Tracking/graphing sheets, writing utensils in 3 different colors.

Technology Utilized to Enhance Learning: Internet use to collect data. Optional use of computer technology to record/chart/graph collected data.

Other Information: If your students are creating an ‘Iditarod Portfolio’, the tracking sheets can be reproduced for each student to include with their individual graphing pages.

Modifications for Special Learners/ Enrichment Opportunities:

Additional exploration: a visual of daylight hours can be seen here:

<http://astro.unl.edu/classaction/animations/coordsmotion/daylighthoursexplorer.html>

This website will allow you to enter the latitude of any location and see a graph of the number of daylight hours. Students will see that no matter the latitude, the daylight hours at the vernal/autumnal equinox are 12 hours, but the further you are from the equator, the longer the daylight hours in summer and the shorter the daylight hours in winter.

Another website with great visuals for daylight hours is: <http://www.daylightmap.com/>

*Thank you for participating in the
Iditarod Education Program!*

Name: _____

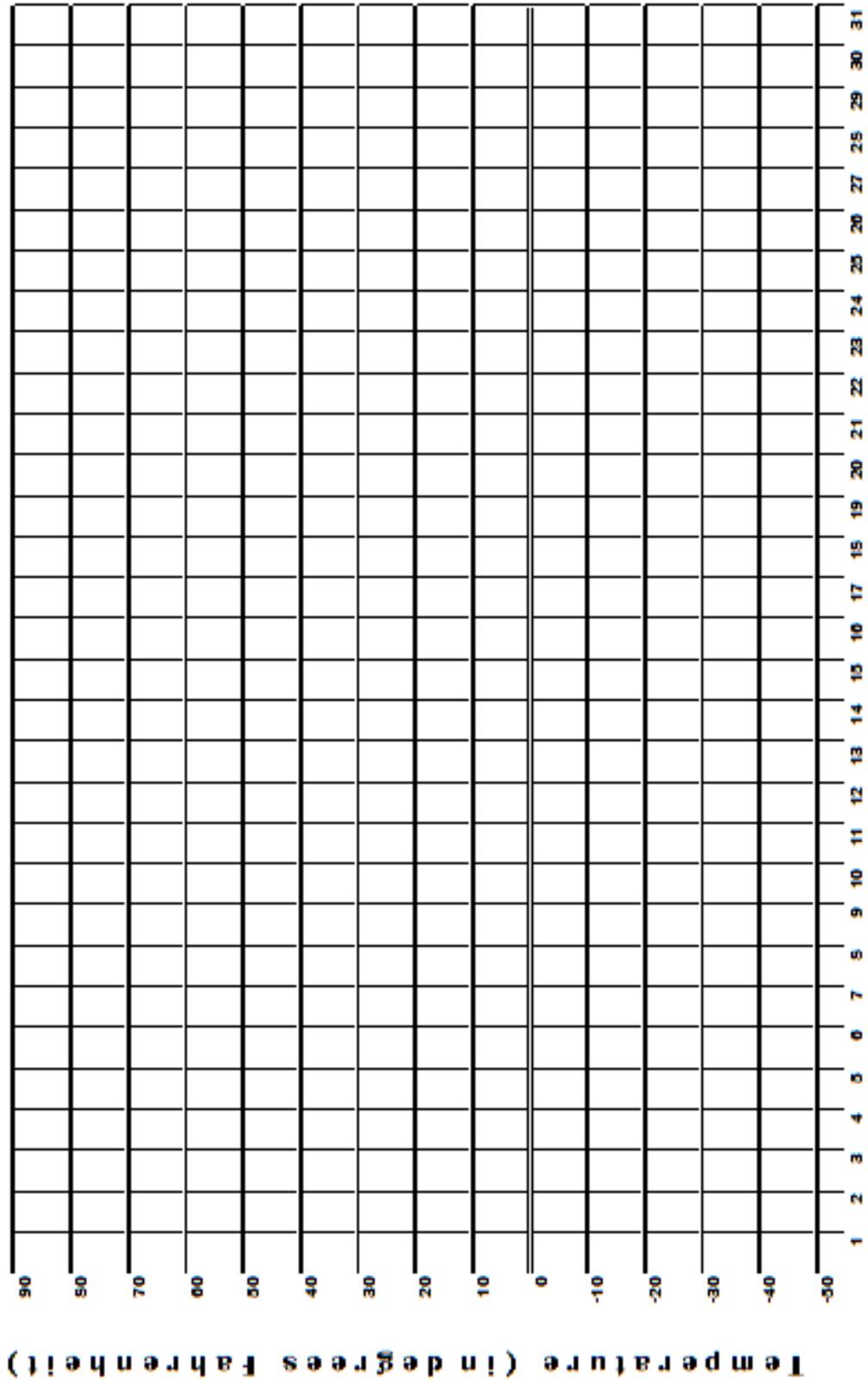
Weather Recording Week Of: _____

Weather - your home and Alaska

| | | Date | Sunrise | Sunset | High Temp | Low Temp | Wind speed | Precipitation |
|---|-----------|------|---------|--------|-----------|----------|------------|---------------|
| Your Location | Monday | | | | | | | |
| Anchorage, Alaska (start of Iditarod Race) | | | | | | | | |
| Nome, Alaska (end of Iditarod Race) | | | | | | | | |
| Your Location | Tuesday | | | | | | | |
| Anchorage, Alaska (start of Iditarod Race) | | | | | | | | |
| Nome, Alaska (end of Iditarod Race) | | | | | | | | |
| Your Location | Wednesday | | | | | | | |
| Anchorage, Alaska (start of Iditarod Race) | | | | | | | | |
| Nome, Alaska (end of Iditarod Race) | | | | | | | | |
| Your Location | Thursday | | | | | | | |
| Anchorage, Alaska (start of Iditarod Race) | | | | | | | | |
| Nome, Alaska (end of Iditarod Race) | | | | | | | | |
| Your Location | Friday | | | | | | | |
| Anchorage, Alaska (start of Iditarod Race) | | | | | | | | |
| Nome, Alaska (end of Iditarod Race) | | | | | | | | |

Temperature Tracking - Month of _____

Student Name: _____

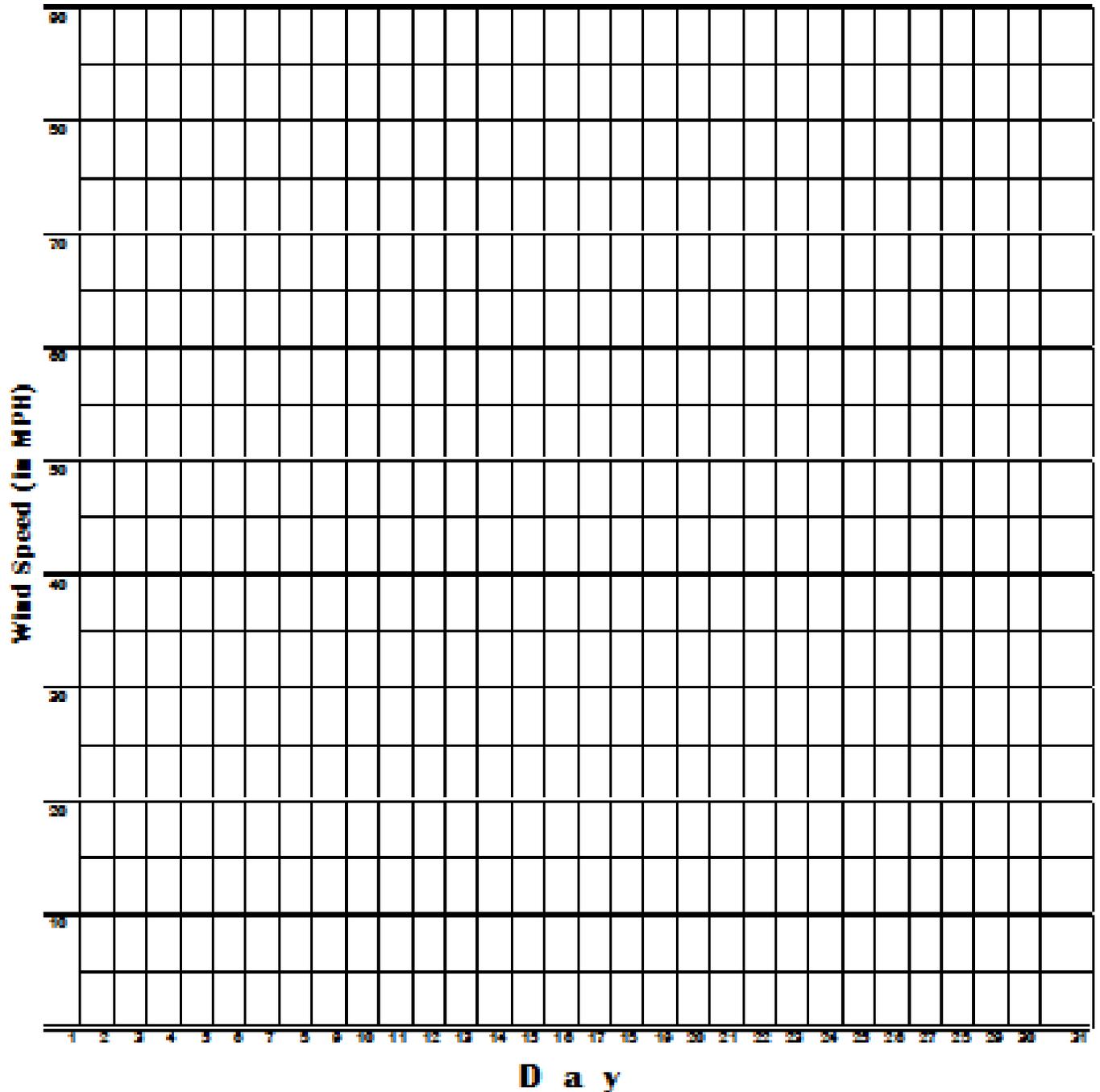


Color Key:

| | |
|--|-------------------------|
| | Your Location (_____) |
| | Anchorage |
| | Name |

Wind Speed Tracking - Month of _____

Student Name: _____

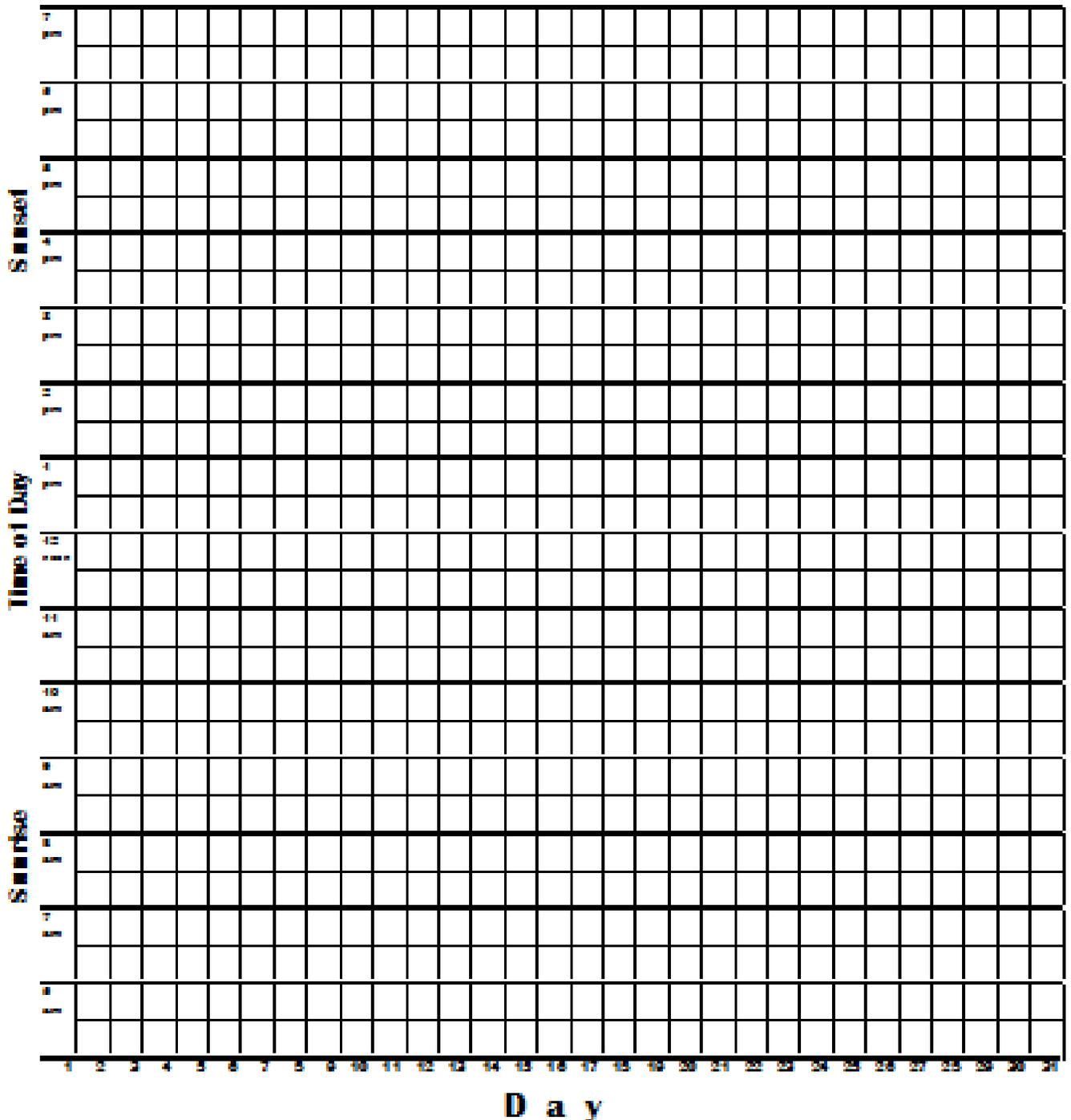


Color Key:

| | |
|--|-------------------------|
| | Your Location (_____) |
| | Anchorage |
| | Name |

Sunrise/Sunset Tracking - Month of _____

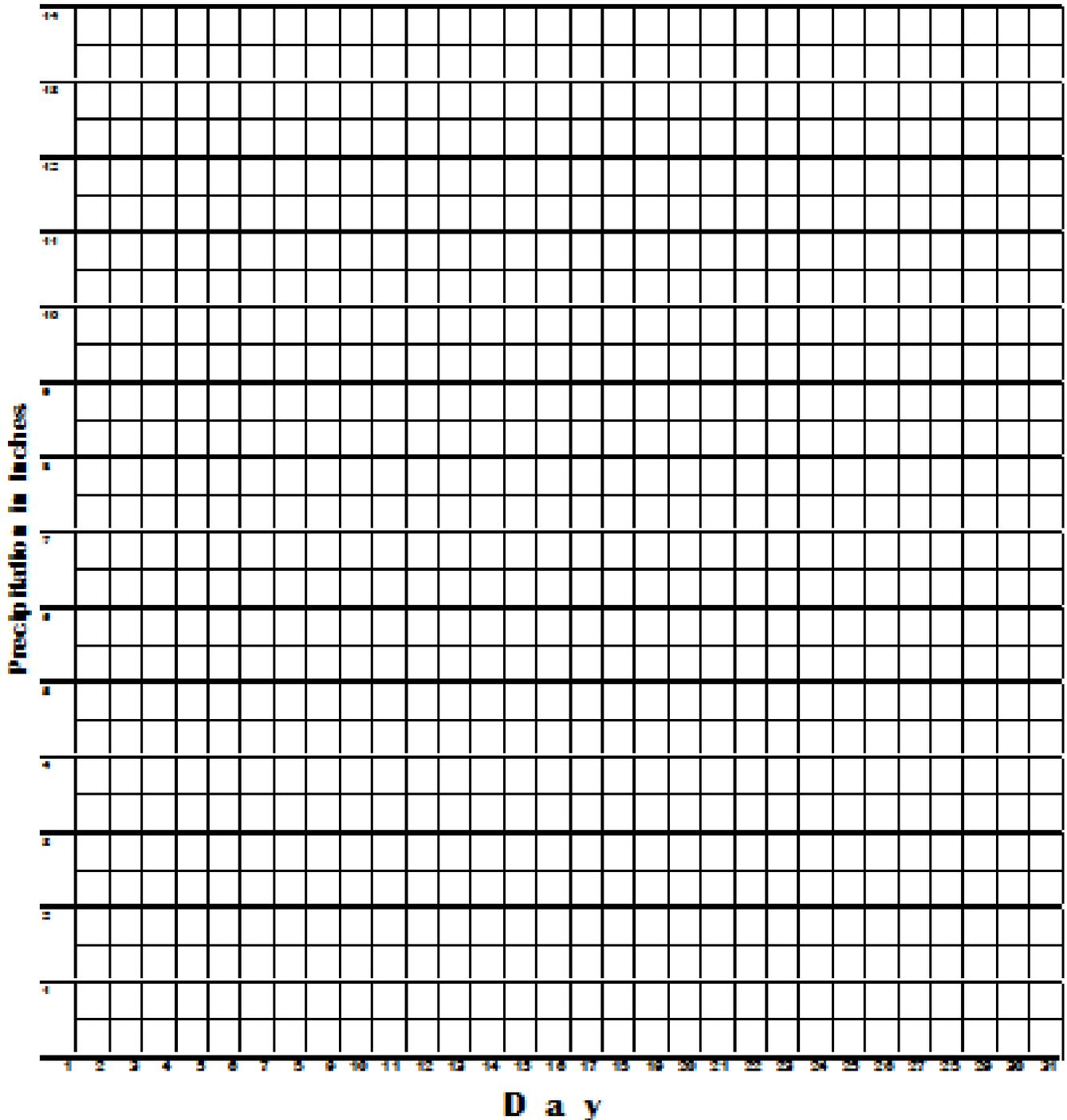
Student Name: _____



Color Key: Your Location (_____)
 Anchorage
 Nome

Precipitation Tracking - Month of _____

Student Name: _____



Color Key:

- Your Location (_____)
- Anchorage
- Nome

Educational Standards Addressed

Alaska

Alaska Content Standards (2006)

Technology

A – A student should be able to operate technology-based tools.

B – A student should be able to use technology to locate, select, and manage information.

C – A student should be able to use technology to explore ideas, solve problems, and derive meaning.

D – A student should be able to use technology to express ideas and exchange information.

Library/Information Literacy

B – A student should understand and use research processes necessary to locate, evaluate, and communicate information and ideas.

Mathematics

A – A student should understand mathematical facts concepts, principles, and theories

C – A student should understand and be able to form and use appropriate methods to define and explain mathematical relationships.

D – A student should be able to use logic and reason to solve mathematical problems.

E – A student should be able to apply mathematical concepts and processes to situations within and outside of school.

Science

D – Concepts of Earth Science. A student should understand and be able to apply the concepts, processes, theories, models, evidence and systems of earth and space sciences.

Geography

A – A student should be able to make and use maps, globes, and graphs to gather, analyze, and report spatial (geographic) information.

B – A student should be able to utilize, analyze, and explain information about the human and physical features of places and regions.

C – A student should understand the dynamic and interactive natural forces that shape the Earth's environments.

Common Core

Mathematics

Represent and Analyze Data