The Last Musk Oxen

The man was standing on a knoll, dressed in a tattered parka, staring intently across the vast frozen tundra. He was very hungry; pain and nausea grew in his stomach, his legs had become leaden. His group had not eaten fresh meat in a long time. Despite long hours every day, and every hunting technique he knew, game had eluded him and the small hunting party he led. Although game had been scarce, he had seen fresh sign and knew that a few animals still roamed nearby. Today he told himself, they must find meat for the pot, and he swore he would die rather than spend the night in another hungry camp.

All day they hunted without success in the still, cold air. Late in the afternoon, before the arctic sun slipped below the horizon, he topped a small rise in the tundra, and his heart quickened. Ahead, mostly hidden by a depression, was a small group of shaggy-haired animals, feeding contentedly, unaware. He sent the other hunters to circle the herd, and then began his stalk ever so carefully. At last, he could see the heave of each animal's chest as it breathed and the short puff of heavy mist when it exhaled. He knew he was close enough to use his muzzle-loading rifle. He took careful aim at the biggest bull and slowly squeezed the trigger. At the crack of the rifle, he saw the animal's knees buckle, and it slumped to the ground. He heard the other hunters fire. He reloaded and fired twice more. Not a single animal was left standing. The hunters were elated at their good fortune, but they had no idea of the true magnitude of their deed. They had just killed the last remaining musk oxen in Alaska.*

*This event occurred on the North Slope in 1850. In 1930, 34 musk oxen were brought to the U. of A., Fairbanks. Six years later, 31 musk oxen were transported to Nunivak Island where the herds grew and expanded into areas unoccupied by musk oxen in recent times.

Turn this page over to read the objectives for this lesson.

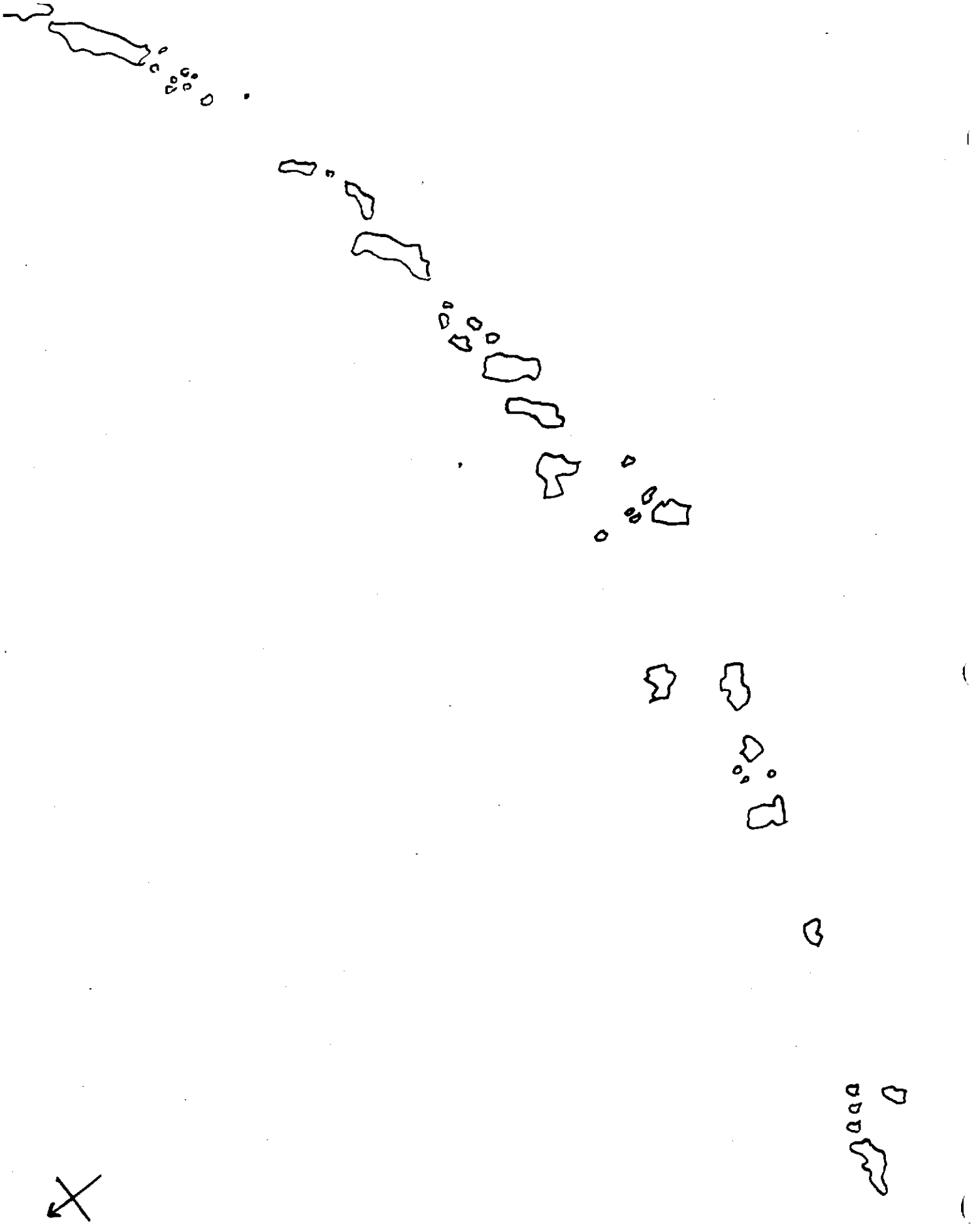
From "Alaska's Musk Oxen, Born Again," Grauvogel, Carl, Alaska Fish & Game, Vol. 17, No. 1, Jan-Feb 1985.

OBJECTIVES 1.4

Southwest

Here's what you will be studying in lesson 2. Upon completion, you should be able to answer these questions.

- How do geographic location and topography explain the climatic conditions of southwest Alaska?
- What is the geologic history of the Aleutian chain?
- How have geographic features influenced settlement and development in southwest Alaska?
- What are some of the major geographic features of southwest Alaska?
- How does permafrost affect the topography of the tundra?
- How many southwest communities can you locate on a map?




3
3
2
2
Kuskokwim River

Southwest Region

Review your Rand McNally map as you read the following passage.

If you lived in Quinhagak, a Yup'ik Eskimo community of approximately 500 people on the Kuskokwim Delta, 70 miles south of Bethel, you could look out the window to the north and see the Qanirtuuq River a hundred yards away. The river is the lifeline of the community, which survives by **subsistence** hunting and fishing.

In winter the villagers fish through the ice for trout and smelt. In summer the river takes them to their fish camps where they catch and prepare fish for their winter tables. Kuskokwim Bay provides salmon, herring and even halibut for the commercial fishermen in the village. The rich marine life of the ocean and rivers has supported humans in Southwestern Alaska for at least 8,000 years.

Beyond the river are miles of what seems to be flat land--not an obstacle in sight. But the tundra is really not flat. Walking on its irregular surface is difficult. Some of it is marshy and wet, and you would sink to your knees in muck and water. Other parts are covered by a spongey, thick mat of vegetation. You might choose such a spot for a comfortable nap while berry-picking on a beautiful spring or summer afternoon.

At various depths under the surface is permafrost, permanently frozen ground. Movement of the permafrost from freezing, thawing, erosion, and fracturing gives the tundra its uneven surface. Read the section "Permafrost" in the A.A. to find out more about the effects of permafrost.

We'll also learn more about permafrost in lesson 6.

Looking toward the east and the south from Quinhagak you could see the Kilbuk Mountains 20 miles away. They look like a thin wall between you and what lies beyond, but once you get into a plane and fly over those mountains, you realize, "Hey! There is a whole range here!" See for yourself on the map on page 97 of PGA.

To the west is Kuskokwim Bay. You look out there and you feel as though you are at the end of the earth. It puts things into perspective. You realize how big the world really is and how small you really are. You think about where you are in relation to the rest of the world.

WHAT REGION OF ALASKA ARE WE TALKING ABOUT WHEN WE SAY SOUTHWEST?

For the purposes of our study, the Southwest Region includes the area on the Bering Sea coast just north of Bethel and Nunivak Island south to Bristol Bay and out 1,400 miles to the western tip of the Aleutian Islands. This region includes the Pribilof Islands.

HOW DOES GEOGRAPHY INFLUENCE SETTLEMENT AND DEVELOPMENT IN SOUTHWEST ALASKA?

The Kuskokwim River, which drains into Kuskokwim Bay, has deposited sediments to form a vast delta. The delta is a marshy plain crossed by meandering streams, dotted with lakes, and characterized by tundra and permafrost. This area makes a wonderful feeding and breeding ground for waterfowl.

Bethel is the center for government, trade, and transportation in the delta area, while McGrath serves the upper Kuskokwim. The major economic activities are subsistence hunting and salmon fishing, and government.

Bethel, the largest Eskimo community in Southwest Alaska, is the jumping-off point for dozens of small outlying Yup'ik Eskimo communities.

Look at the map on page 97 in PGA. Find the Bristol Bay area in the lower right-hand corner. You probably know that this area has the best commercial salmon run in the world. Why? Bristol Bay is surrounded by several mountain ranges--the Ahklun Mountains, the Kuskokwim Range, and the Aleutian Range. The mountains are the source for a valuable lake system. The lakes in the Wood-Tikchik State Park along with the river drainages from these mountains, are the nurseries for Bristol Bay's famous sockeye salmon runs. You can see from the map that one of the major river drainages is the Nushagak. Salmon fishing is the economic base of Dillingham, the largest settlement in the area. Now read pp. 93, 98, 106-109 in PGA.

The Aleutian Island chain, probably one of the most isolated areas in Alaska, extends 1,400 miles toward Asia. The more than 50 islands in the chain form an arc separating the north Pacific Ocean from the Bering Sea. The waters are rich in marine vegetation and sea life, and human settlement is based on these ocean resources. The Shumagin and Pribilof Islands are also in this region.

Find the Shumagin Islands on your map from PGA, page 79. They are a major group of islands south of the Alaska Peninsula. Sand Point is located on the largest island of this group. Now find the Pribilof Islands, located far out in Bristol Bay, north of the Aleutian Chain. PGA, pps. 86-87 shows two pictures from the Pribilofs. Both these island groups, and all other public lands in the coastal waters of Alaska are part of the Alaska Maritime National Wildlife Refuge. Read about National Wildlife Refuges in PGA p. 181.

FYI (for your information)

IGADIK

Igadik was an Ungangan, or Aleut, from Unimak Island. He was a respected young man: not only was he the son of the chief, but he was also an excellent bidarki (kayak) handler and a very good hunter.

Igadik was one of a long line of Aleut explorers. His fame came from one particular adventure. It started when he was hunting for sea mammals in his bidarki, north of the island. A strong wind suddenly came up out of the south. It blew
him north, far into the Bering Sea. The storm continued for several days, blowing him farther and farther north. Finally the wind died down and the rain stopped, only to be replaced by a thick fog.

Igadik drifted in the fog for a while, until he realized that he was hearing familiar sounds: the voices of birds and fur seals. This meant he was near land. He paddled toward the sounds. Suddenly, looming out of the mist, he saw a dark cliff in front of him. And he saw millions of fur seals on the rocks below it. Mother seals were nursing their pups. Igadik knew he had found the breeding grounds of the fur seals that swam past the Aleutian Islands. The island is today called St. George, one of the Pribilof Islands.

Igadik stayed for a year, then returned to his home island of Unimak. He named the islands he found Amiq, and the story of his discovery was passed on for generations.

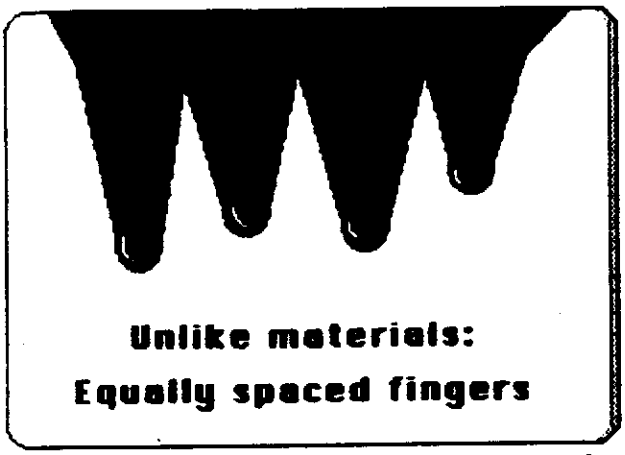
Today, we call the islands the Pribilofs, after a Russian trader who first saw them in 1786. If the Aleuts had written down Igadik's adventures, perhaps we would now call them the Amiq Islands.

Thanks to the Anchorage School District for "Supplemental Materials for Alaska History and Geography"

HOW WAS THE ALEUTIAN CHAIN FORMED?

Remember in Lesson 1, we talked about the Aleutian Islands being the extensions of volcanoes on the ocean floor. You may wonder why these volcanoes, such as Spurr, Redoubt, and Iliamna, tend to be evenly spaced.

Think of paint dripping down a wall. You may have noticed that the



drips form fingers almost evenly spaced. This happens when two substances of different material come in contact. Once a flow has been established, the rest of the paint follows down one of the fingers. The same thing is happening along the Aleutian Chain. As the oceanic crust submerges under the North American Plate, the rock becomes liquid due to heat and pressure. The heat and pressure cause the molten rock to rise and flow like fingers through semi-hard rock. (Remember, two different substances coming in contact.) When the molten rock reaches the ocean floor, it solidifies and builds a cone that eventually rises out of the water as a volcanic island. At this time read PGA pp. 75-91.

HOW DO GEOGRAPHY AND TOPOGRAPHY INFLUENCE THE CLIMATE?

We mentioned the **transitional climate** zone in Lesson 2 when we discussed Southcentral Alaska. Yet here on the Bering Sea coast the reasons for a transitional zone are a little different. Here, too, the climate is influenced by the sea, yet the Aleutian Island chain forms a barrier against winds sweeping northward across the north Pacific. This causes the air in this region to be very dry. The temperatures are cool in summer, but winter temperatures are similar to the continental zone--COLD. See A.A. pp. 28-31.

A good description of the Aleutian climate and weather can be found on p. 76 of PGA and under "Climate" in the A.A. Please read these pages now.

WHAT ARE SOME OF THE MAJOR COMMUNITIES AND GEOGRAPHIC FEATURES OF THIS AREA?

In order to familiarize yourself with other geography and communities of Southwest and the Aleutian Islands, study the map on pp. 79 and 97 in PGA. We've discussed the Aleutian Island Chain and some of the communities of this area. We've also mentioned several of the communities, like Bethel, Dillingham, and Quinhagak.

TO DO: LEARNING LOG

1. What do I now know that I didn't know before?

2. What do I still want to know?*

*May be used by student for individual research projects.

EXTENSION ACTIVITY 1 1.4

***Southwest Alaska map**

You have acquired some knowledge about the southwest region. On the following pages you will find a map of this region. Keep arrows parallel. Match dots of D1 to dots of D2. Match overlapping boundaries. Match dots D3 over dots D2. Match corresponding boundaries.

You should insert at least the following:

- Three major geographic features.
- Five communities of varying population densities.
- And any other information you have learned.

Be sure to devise a legend of the symbols you use.

*You will not be handing this in until Assessment 2.

EXTENSION ACTIVITY 2 1.4

Southwest Research Options

Here are some topics which may interest you enough to research them. Choose the one you like best, then find out more about it by using books, magazines, interviews, state agency material, or any other source.

1. What factors might cause the Southwest to have a low population? Conduct some research, using sources from the resource section of teacher's guide.

2. What is permafrost? How is it formed? How does it affect the vegetation? What problems does it create? (i.e. transportation, construction drainage) Develop some diagrams or pictures that illustrate your findings.

3. The Alaska fur seal breeding ground is located on the Pribilof Islands. Investigate how the harvest is controlled and managed. You may present your investigation through one of several ways:

   - photo essay of the steps in the harvest
   - role playing, for example, portray one of the Aleut sealers livelihood is based on what harvesting seal hides and presenting what his job is and what regulations he must follow.

4. Interview (written, audiotape, videotape) several older residents of your area. Have they noticed any climatic changes which have gradually taken place in your area, over the years. (i.e. less snowfall, more rain, colder temperatures, warmer temperatures?)
   Why do they think these changes have taken place? What changes have you noticed in <u>your</u> lifetime? Why do <u>you</u> think they have occurred? (See "Climate" in <u>The Alaska Almanac</u>).

5. Research an island or a group of islands in the Aleutian chain. What is the topography, climate and vegetation like? Do animals or people live there?

EXTENSION ACTIVITY 3 1.4

Videotape

MATERIALS:

Videotape 1, "Taiga," program 3
VCR and monitor

TO DO:

BEFORE:

This geographic area contains both tundra and taiga ecosystems. Anticipate where the taiga may end and the tundra begin. Speculate about what geographical or topographical conditions may cause the change in ecosystems.

Review the vocabulary for Lesson 3.

DURING:

Watch program 3, "Taiga."

AFTER:

Complete the following assignment and submit it to your teacher.

Carrying Capacity: What is meant by carrying capacity? If you compare two containers of different sizes, you can estimate which has the larger "carrying capacity" for water. Just as the carrying capacity of a jar is the amount of water it will hold, the carrying capacity of a particular geographical area is the number of a certain kind of plant or animal it can support. The carrying capacity of an area may be different for different species; its carrying capacity for squirrels might be 140, but only two for owls. The carrying capacity for one species may also vary from year to year due to changes in vegetation, rainfall, competition from domestic species, etc.

1. Describe some of the factors that determine carrying capacity for a species of animal.

2. Can you think of instances in which a species exceeded the carrying capacity of its habitat? What happened?

3. What happens when humans exceed the carrying capacity of the area in which they are living?

4. Has the number of people in your village or city exceeded the land's carrying capacity? Explain.

5. In the Southwest Region, where would you expect to find taiga?

6. In the Southwest Region, where would you expect to find arctic tundra?

EXTENSION ACTIVITY 5 1.4

Southwest and Northwest Alaska

MATERIALS:

Tape Recorder
Alaska Rand McNally Map
Paper and pencil
Audiotape; Unit 1, Side 1

TO DO:

While you are listening to the tape on the Southwest and Northwest locate on your Alaska Rand McNally map the geographic places mentioned. You might want to listen to the tape, write down the place names mentioned and then locate them on your map.

You now should have a general idea about the geography of the Southwest and Northwest Regions. Let's see if you can locate some of these geographic places in another way by using latitude and longitude. To refresh your memory--Lines of Latitude, called "parallels," circle the globe at equal distances from the Equator (think about the steps of a ladder). They are numbered in degrees north and south of the equator. An "N" indicates north latitude; an "S," south latitude.

Lines of longitude, called "meridians" are numbered in degrees east and west of the Prime Meridian. An "E" indicates east longitude; "W" indicates west longitude. (Think about the ladder rails).

Using the Alaska Rand McNally map, name the geographic place that is located at the following longitude and latitude:

Longitude	Latitude	
158°W	59°N	_____
169°W	66°N	_____
162°W	67°N	_____
166°W	60°N	_____
160°W	58°N	_____
162°W	61°N	_____
166°W	64°N	_____
170°W	63°N	_____
164°W	64°N	_____
167°W	68°N	_____
170°W	62°N	_____

EXTENSION ACTIVITY 6 1.4

Geographic Database, continued

MATERIALS:

Computer
Appleworks
Data Disk #1
The Alaska Almanac, additional resource material as available
Printer
(If you do not have a printer you will need to send your data disk to the advisory teacher)

TO DO:

BEFORE:

Load Appleworks and the data file, Activity 2.2 on Data Disk #1, into the computer.

DURING:

1. Type in the information to describe the Southwest Region. Press RETURN after typing each entry.
2. Type OPEN-APPLE S to save the information on the database.

AFTER:

Remove the disks. Store your data disk in a secure place.

Comments: You will continue this activity during the next lesson.

If you have access to the electronic mail system, you must convert your Appleworks file to an ASCII file. (See Appleworks Reference Manual) Upload your file to the advisory teacher.

ALASKA TRIVIA 1.4

Southwest Specialties

TO DO:

Use various resources and your ingenuity to answer the following questions to the best of your ability.

1. The Yukon Delta National Refuge encompasses 19,624,458 acres and is the second largest Wildlife Refuge in the state.

   What is the name of and where is the largest Wildlife Refuge in the State? (Hint: It is the focus of a major issue in the development and future of the oil industry in Alaska.)

   _____

   _____

2. Is Nelson Island an island?

   _____

   _____

3. What is Alaska's longest mountain range?

   _____

   _____

4. Where is Alaska's naval base?

   _____

   _____

5. What is the largest Aleutian Island?

   _____

   _____

Now find a fact about southwest Alaska that you think is particularly interesting. Make up your own question and answer it.

ASSESSMENT 1 (Lessons 1 - 4) 1.4

You have completed Lessons 1-4. Now it is time to find out how much you have learned. Go back and review the objectives for each lesson. Your home teacher has Assessment 1 in his or her test packet. Your home teacher must monitor you while you are completing Assessment 1.

CHECKLIST 1.5

Name: _____

Date: _____

You will need to send the following to your advisory teacher after completing Lessons 5–8 and Assessment 2.

___ **Assessment 2**

Lesson 5

___ Learning Log

___ 1 Extension Activity (list)

___ _____

___ Northwest Map (Puzzle Map)

___ Sourdough Lingo

Lesson 6

___ Learning Log

___ 1 Extension Activity (list)

___ _____

___ Arctic Map (Puzzle Map)

___ Sourdough Lingo

Lesson 7

___ Learning Log

___ 1 Extension Activity (list)

___ _____

___ Interior/Yukon Map (Puzzle Map)

___ Sourdough Lingo

Lesson 8

___ Learning Log

___ 1 Extension Activity (list)

___ _____

___ Puzzle Map of Alaska (Extension Activity 1, Lessons 2-7)

___ Sourdough Lingo

___ Any extra credit

Unit 1, Lesson 5 — Northwest Region

Here is Lesson 5. In it you will learn about the geography, topography, and climate of the Kobuk River region.

It will take 4-5 class periods to complete the minimum requirements.

COMING UP: Look through Lesson 9's extension activities now to see if you need to order any materials.

WARM-UP: Complete this first.	☐ Alaska's Sahara, p. 115
INFORMATION: Complete this next.	☐ Northwest Region, pp. 117-118
EXTENSION ACTIVITIES: Complete # 1 and at least one other.	☐ 1. Northwest, map, p. 119 ☐ 2. Cape Krusenstern Archaeological Site, p. 125* ☐ 3. Tundra, video, p. 126* ☐ 4. Captain's Log of the "John Riley," writing, p.128* ☐ 5. Geographic Database, computer, p. 129* ☐ 6. Extended Reading*, choose from: "Allakaket," M. Henzie; "Kaltag," E. Kalland; "Ruby," A. Brown; "Koyukuk," M. Solomon ☐ 7. Southwest and Northwest, audio* (you may do this activity only if you did not choose it as a Lesson 4 activity.), p.106 * May be sent via e-mail if student has access.
SOURDOUGH LINGO*: Complete this as you study the lesson.	☐ sound cape moderate plateau plain Arctic Circle
ALASKA TRIVIA*: Optional	☐ Can You Answer These? p. 130
ASSESSMENT:	There is no assessment after this lesson.

Alaska's Sahara

There is a desert in Alaska, north of the Arctic Circle!

Here are some clues to help you locate this desert.

After you figure out the clues, use them to locate the desert on a map of Alaska. Mark the desert on your map for extension activity 1.

1. Unscramble these letters to find a geographic location:

   GIWNRA TMS

2. It's a place where ancient bones and artifacts have been found. It's a place where wild onions grow and was used as a portage by boatmen and caribou.

3. The desert is located near the Eskimo village Kiana. It was the supply center for Squirrel River placer mines, 1909.

4. A clue to the name of a river near the sand dunes:

   To kill or catch game for food or sport.

5. A clue to the river on which you will find the dunes:

   Eskimo word meaning "Big River"

6. The desert is located near "Ashignok" (meaning "green-stone") Mountain and is the same as the Eskimo name "Shungnak."

Now turn this page over to read the objectives for lesson 5.

OBJECTIVES 1.5

Northwest

Here's what you will be studying in lesson 5. Upon completion, you should be able to answer these questions.

- How do geographic location and topography explain the climatic conditions of northwest Alaska?
- What is the geologic history of Great Kobuk Sand Dunes?
- How have geographic features influenced settlement and development in northwest Alaska?
- What are some of the major geographic features of this area?
- Can you locate at least five communities on your map?

Northwest Region

HOW HAS GEOGRAPHY INFLUENCED SETTLEMENT AND DEVELOPMENT IN THE NORTHWEST REGION?

Before we begin our discussion of the Northwest Region, it is important you realize that this course has divided Alaska into regions slightly different than the PGA text. Please take the time to look at the regional map of Alaska in Lesson 1. Compare this with the maps on pp. 97 and 117 in PGA. Notice how the geographical divisions are different.

This region encompasses an extensive coastline, from St. Michael in Norton Sound to Cape Lisburne on the Chukchi Sea. It includes King, St. Lawrence, and Little Diomede Islands. It is sparsely populated and most communities hug the coast to harvest the abundant sea life. There are practically no roads in this region. In winter people travel by dog team, snow machine, or three-wheeler. In summer, people travel by boat along rivers or the coast. And of course there is the airplane for travelling too.

As with the Southwest Region, the rivers here are an integral part of the people's lives. The Noatak and Kobuk Rivers, the two largest rivers in this region, flow from the crest of the DeLong Mountains and the Brooks Range to Kotzebue Sound. Look on the map from PGA. page 117 to see these rivers.

At this time, please read about the Northwest Region in PGA pp. 93-97 and study the pictures on pp. 100-105. Some of this will be a review for you because in PGA, Northwest Region is included with the Southwest Region as part of the "Bering Sea Coast."

WHAT ARE THE MAJOR GEOGRAPHIC FEATURES OF THE NORTHWEST REGION?

If you take a look at the map on p. 97, you will notice the diverse topography of the Northwest Region.

It has all types of land features including mountains, **plateaus**, coastal **plains**, interior **basin** valleys, and tundra. The coastline is characterized by **barrier spits**, islands, **capes**, and **sounds** that are very important to the livelihood of the people. Take the time right now to define any of the previous bold-faced words that you do not know.

Permafrost is everywhere throughout this region, but it is not as thick as in more northern areas. The permafrost is thawed only near deep lakes and major streams and rivers. There are no glaciers in the region, but several snowfields last from year to year.

Now we'll discuss one of the most unusual and fascinating features of the Northwest Region and, indeed, of all Alaska: The Great Kobuk Sand Dunes.

They seem totally out of place in a land of tundra and perpetually frozen ground, and yet the 25 square miles of active drifting sands represent but a small fraction of the total dune field. Another 300 square miles of surrounding lowlands are wrinkled with stabilized sand dunes.

The dunes date back to Pleistocene times when mountain glaciers were active in the Brooks Range. Broad, braided rivers carried abundant outwash material, and deposited them along their banks. Strong winds swept the sands and silts away to form the great dune fields. When the glaciers disappeared, so did the source of new material for the dunes. Ridges of sand were gradually overgrown by vegetation and became stable. What is fascinating about the Great Kobuk Sand Dunes is that they have resisted revegetation for so many centuries.

Why do the Great Kobuk Sand Dunes remain active? The answer lies in a particular combination of winds and topography. The east wind is responsible for the main motion of the dunes, but the north wind maintains them. It is no accident that the dunes lie against the foot of the mountains, for if that wall

of rock were not there, the north wind would have carried the sands off to the south. These same winds prevent any seedling from taking root on the porous, sun-baked surface of the deep sands; under such conditions revegetation is impossible.

So the landscape is alive and changing as the sands inch slowly westward. At the same time, pioneer plants slowly establish themselves along the calmer margins of the dunes. Without a source of new sand, these dunes too must eventually die.

The Bering Strait is a familiar geographical feature and we will be discussing the Land Bridge Theory in the next Unit, "Alaska Then." An archaeological find unique to the Northwest Region was discovered by Louis Giddings in 1940, at Onion Portage. We will be discussing this topic in the next unit also.

To learn more about the important geographic features of the Northwest Region, please review PGA pp. 97 and 117.

WHAT ARE SOME OF THE NORTHWEST COMMUNITIES?

The Northwest Region has 5 percent of the total state population and 11 percent of the land. Nome, with a population of approximately 2,900, and Kotzebue, with a population of approximately 2,500, are the largest communities and the major supply, service, and tourist centers of the region.

Some other communities and their populations, according to a 1980 census, are: Selawik (554), Point Hope (464), Unalakleet (784), Savoonga, (470) and Gambell (498). Also see "Population" in the A.A. Locate these communities on your map of the Northwest Region.

HOW HAS GEOGRAPHY AND TOPOGRAPHY INFLUENCED THE CLIMATE?

Because of the **moderating** effect of the ocean, the climate of the Northwest Region is transitional on the coast. As one travels inland towards the Brooks Range, the climate quickly changes into a continental zone.

There is more seasonal variety along the river valleys due to the difference in water and land temperatures. Remember water temperatures tend to change more slowly and much less than land temperatures.

Because of the influence of the Chukchi and Bering Seas, the air along the coast tends to be colder. Cold air does not carry as much moisture as warm air and so precipitation is less. We discussed the effect of warmer water temperatures along with the influence of air pressure and temperature in Lesson 2. Review "Climate" in the A.A. and review PGA, pp. 95 and 97.

TO DO: LEARNING LOG

1. What do I know now that I did not know before?

2. What do I still want to know?*

*This section may be used for individual or group activities/ projects.

EXTENSION ACTIVITY 1 1.5

***Northwest Alaska: Map Study**

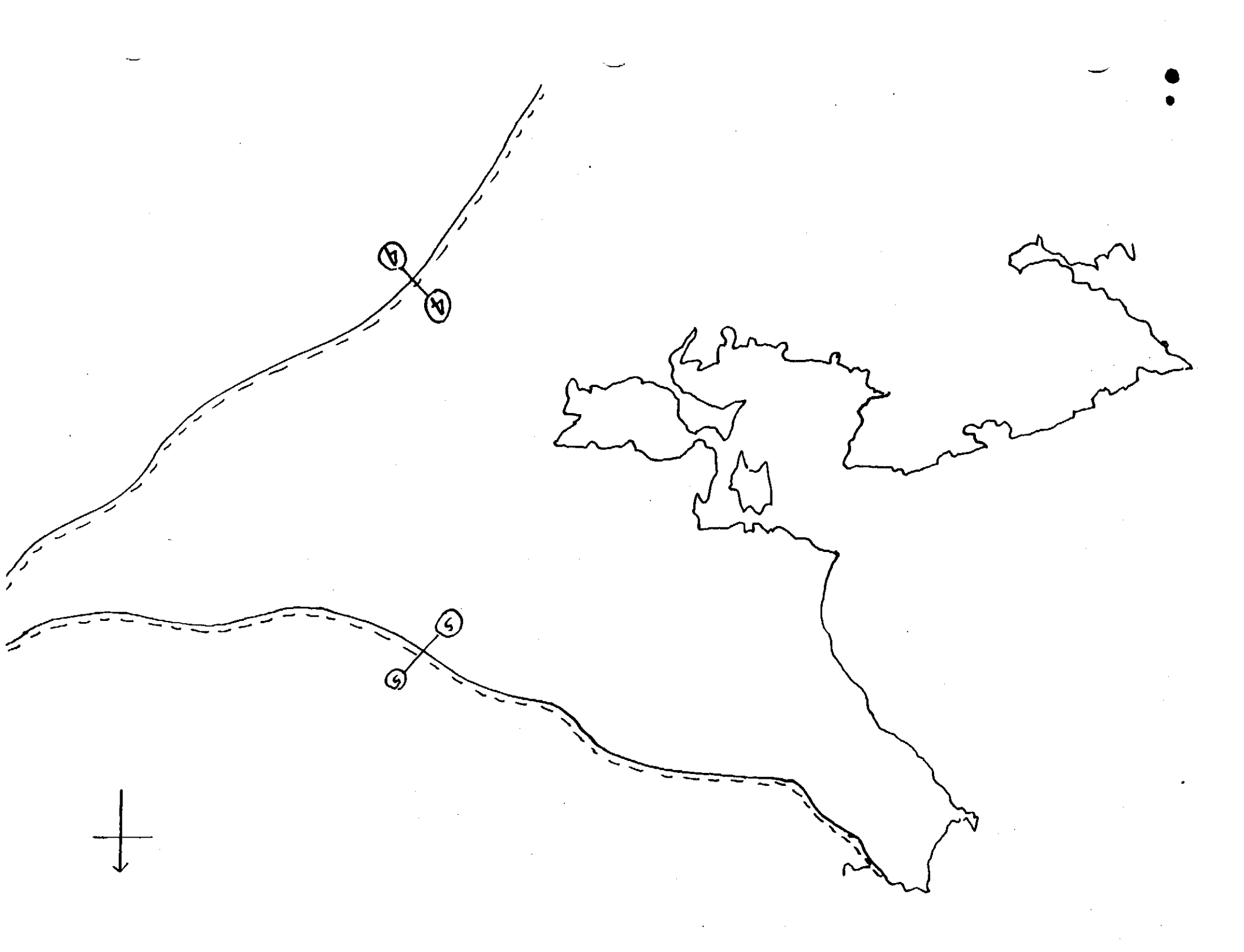
You acquired some knowledge about the northwest region. On the following pages you will find a map of this region. Keep vertical arrows parallel. Match dots of B2 over dots of B1 and match corresponding boundaries.

You should insert at least the following:

- Three major geographic features
- Five communities of varying population densities.
- And any other information you have learned.

Be sure to devise a legend of the symbols you use.

*You will not be handing this in until Assessment 2.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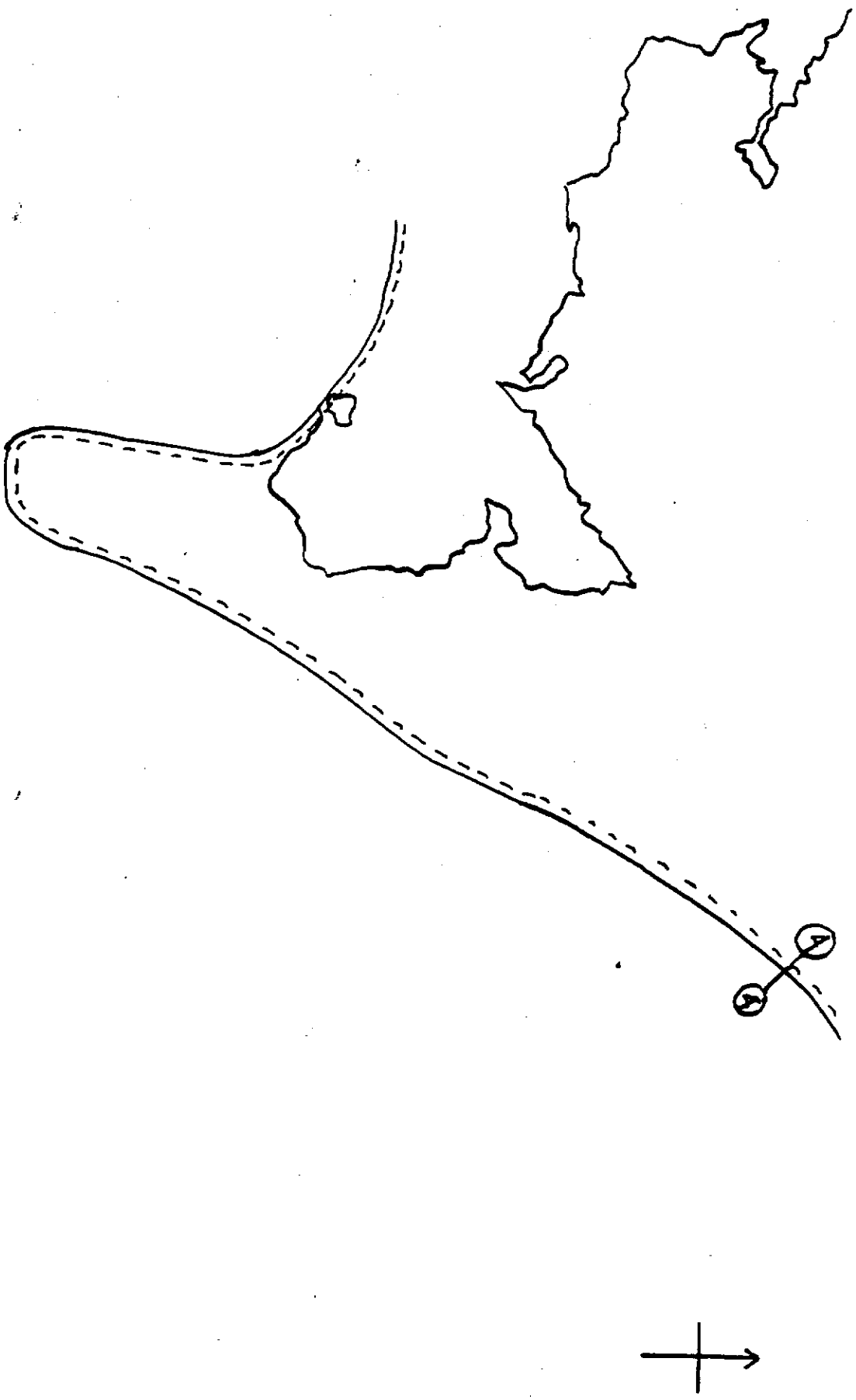


EXTENSION ACTIVITY 2 1.5

Cape Krusenstern Archaeological Site

Archaeologists discover history by studying the remains of older civilizations in relation to the environment in which the artifacts were found.

In 1958, at Cape Krusenstern, northwest of Kotzebue, archaeologist Louis Giddings, noticed a series of low ridges as he walked back from the beach. The ridges were parallel to and behind the existing beach. Giddings hypothesized that each should be older than those between it and the sea, and they should hold the remains of people who lived on the beach crest at the time it was the shoreline.

Giddings and his team mapped 114 ridges extending 2 miles back from the present shoreline. All beach ridges or cheniers were formed during the last 5000 years; on the average a new beach formed about every 40 to 50 years. Giddings was able to identify eight cultural stages, the oldest going back to 3000 B.C.

An excellent source of information and pictures is Ancient Man of the Arctic by Louis Giddings.

Do some investigating in your own community. If you have a museum, you have a wealth of knowledge right at your finger tips. Find out what you can about any old bones, artifacts, and dwellings found in your community. If you do not have a museum, perhaps you know someone who would be good to interview. Use your local or school library. Under what circumstances were the artifacts found? Where were the artifacts found? How old are they? What have you learned about your community's heritage and geographical history?

The above questions are to help guide you through your investigation. You may present your findings as a diorama of an archeological find, as a pictorial essay if photos are available, or you may role play and present your findings and conclusions as if you were the archaeologist at the site. Stories of the imagination can be fun.

EXTENSION ACTIVITY 3 1.5

Tundra

MATERIALS:

Videotape 1, "Tundra," program 4

TO DO:

BEFORE:

Look at the circumpolar map. Try to predict where tundra may be found around the world.

Look at the Alaska map and try to predict where you think arctic and alpine tundra will be found.

Be looking for these terms in the video, and be prepared to define them later:

adaptation	arctic
circumpolar	hibernation
Inupiat	migrate
solstice	tundra
Yupik	

DURING:

Watch the video program, jotting down terms or important ideas about tundra. Remember that you can pause or stop the video any time, and you can watch the program as many times as you want.

AFTER:

Answer the following questions and submit them to your teacher.

1. What are ten characteristics of tundra?

_____

_____

_____

2. What type of tundra would you generally expect to find in the Northwest Region? Why?

_____

_____

Tundra

3. What are two major differences between arctic and alpine tundra?

_____

_____

4. Why do relatively few species of plants and animals live on the tundra?

_____

5. According to the video, tire tracks will still be visible for as long as 20 years after they are made in the tundra. Why do you think the tundra is so slow to recover?

_____

_____

6. What characteristics do tundra plants and animals have that enable them to survive?

_____

_____

7. What are three adaptations made by animals of the tundra to survive the environment?

_____

_____

_____

8. List two reasons why the arctic tundra is important.

_____

_____

9. Define these terms:

adaptation: _____

circumpolar: _____

Inupiat: _____

arctic: _____

EXTENSION ACTIVITY 4 1.5

Captain's Log of the "John Riley"

TO DO:

The boat, "John Riley," was built at St. Lawrence Island at the beginning of the Kobuk gold rush in 1898 and carried hundreds of miners to gold fields in the Kotzebue area. The boat often hung up on the bottom of the shallow sound and river system. There were many 'Riley wrecks' in her colorful career. One wreck forced the crew to winter over in the location. Their camp became an impromptu village.

Using your text, PGA, create the captain's log for this particular journey of the "John Riley." Describe what their lifestyle would be like based on the climate, geography and topography. Your journal should be at least two pages in length.

EXTENSION ACTIVITY 5 1.5

Geographic Database, continued

MATERIALS:

Computers
Appleworks
Data Disk #1
The Alaska Almanac, additional resource material as available
Printer
(If you do not have a printer you will need to send your data disk to the advisory teacher.)

TO DO

BEFORE:

Load Appleworks and the data file, Activity 2.2 on Data Disk #1, into the computer.

DURING:

1. Type in information to describe the Northwest Region of Alaska. Press the RETURN key after typing each entry.

2. Press OPEN-APPLE S to save the information on the database.

AFTER:

Remove the disks. Store your data disk in a secure place.

COMMENTS:

You will continue this activity during the next lesson.

If you have access to the electronic mail system, you must convert your Appleworks file to an ASCII file. (See Appleworks Reference Manual) Upload your file to the advisory teacher.

ALASKA TRIVIA 1.5

Can you Answer These?

Here are some good Northwest Alaska questions to try.

- What city is on the tip of the Baldwin Peninsula?

- What city's offshore island is Sledge?

Now think up your own question and answer.

Question:

_____

_____

Answer:

_____

Unit 1, Lesson 6 — North Slope

Here is Lesson 6. In it you will learn about the geography, topography, and climate of Alaska north of the Brooks Range.

It will take you 4-5 class periods to complete the minimum requirements.

COMING UP: Look through Lesson 10's extension activities now to see if you need to order any materials.

WARM-UP: Complete this first.	☐ The Cruise of the Manhattan, p. 133
INFORMATION: Complete this next.	☐ North Slope, pp. 135-137
EXTENSION ACTIVITIES: Complete #1 and one other.	☐ 1. North Slope, map, p. 138 ☐ 2. Tundra Geometry, p. 143 ☐ 3. Tundra, video, p. 144 ☐ 4. Geographic Database, con't., computer, p. 146* ☐ 5. North Slope, audio, p. 147* ☐ 6. Climate Differences, con't., p. 148* ☐ 8. Extended Reading, choose from*: "Henry Beatus Sr.," Hughes; "Brooks Range Passage," D. Cooper; "One Woman's Arctic," S. Bumford; "Lords of the Arctic," R. Dairds * May be sent via e-mail if student has access.
SOURDOUGH LINGO*: Complete this as you study the lesson.	☐ pingo ice-wedge polygon arctic climate
ALASKA TRIVIA*: Optional	☐ North Slope Trivia, p. 150
ASSESSMENT:	Review your objectives for this lesson. There is no assessment this week.

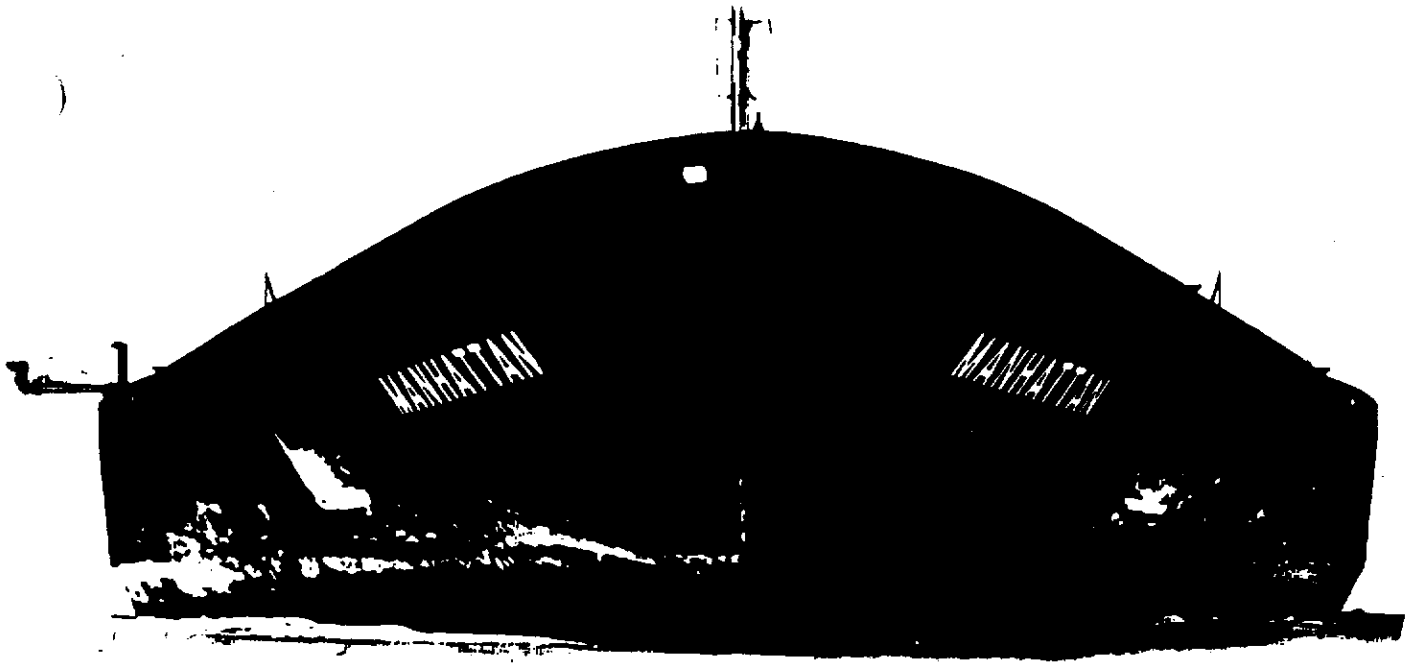
The Cruise of the Manhattan

After oil was discovered beneath Alaska's North Slope, it was essential to find an icebreaking tanker that could make it through the Northwest Passage from the Atlantic to the Arctic Ocean.

No ice breaking tankers existed in 1968. The solution was to find an existing ship and convert her into a self-sufficient icebreaker.

The "S.S. Manhattan" was selected. At the time she was 1,000' in length, displacing 150,000 tons. Part of the rebuilding involved putting a 10-foot-deep extra thickness ice belt along the hull at the waterline, installing a system that would quickly transfer water from one side to the other for crushing ice on the beam, constructing accommodations for 70 additional men, and adding a helicopter flight deck, offices, laboratories, test gear, extra lifeboats, and extra navigation and radio equipment.

Now that you have read about the "Manhattan," turn this page over and read the objectives for this lesson.



THE CRUISE OF THE MANHATTAN

photo by MERRITT R. HELFFERICH

Melville Sound—front view of the *S.S. Manhattan* discloses a sea monster rising from ice.

OBJECTIVES 1.6

North Slope

Here's what you will be studying in Lesson 6. Upon completion, you should be able to answer these questions:

- How can location and topography explain the climatic conditions of the North Slope.
- How are pingos formed?
- How have geographic features influenced settlement and development in North Slope?
- What are general characteristics of the arctic climate?
- What are some of the major geographic features of the North Slope?
- Where are some of the North Slope communities located?
- How does permafrost affect the tundra vegetation?

North Slope

Before you begin your study of the North Slope region, familiarize yourself with its geography and communities by studying the map in PGA p. 117. Remember, this map includes portions of the Northwest Region as well as the North Slope. Compare the map in your student guide with the PGA map. Notice the map on p. 117 includes the south slope of the Brooks Range down to Selawik on the Arctic Circle.

For the purposes of this course, the division runs from Cape Lisburne on the Chukchi Sea, along the crests of the Brooks Range, including Anaktuvuk Pass and the Philip Smith, Romanzof, and British Mountains to the Canadian Border. Several rivers flow north from the Brooks Range to the Chukchi and Beaufort Seas. The interesting coastline here is characterized by many capes and bays. Take a good look at the coastline on p. 117. Notice all the points?

Now read PGA pp. 111-116, "Arctic." Find the answer to the following question. How has the geography of the North Slope influenced settlement and development of the area?

WHAT ARE SOME NORTH SLOPE COMMUNITIES?

The North Slope is a vast area stretching more than 600 miles from the Canadian border west to Cape Lisburne. North and south it stretches from Point Barrow to the crest of the Brooks Range. This region embraces about 14 per cent of Alaska's land but is occupied by only 1 per cent of Alaska's people. More than half of these people live in Barrow, the northernmost community in the United States.

Barrow is an ancient Inupiat whaling and subsistence village that has become the cultural and trade center for the North Slope in recent years. It, like other Arctic villages, is located along the Arctic Ocean coast where migrating whales could be spotted easily and killed for subsistence. Seals, sea lions, walruses, and fish were also plentiful in these areas.

Today, your jet lands on the airfield next to the maze of pipes, buildings, and gravel pads that is Prudhoe Bay. You get out and walk among the tanks and buildings, and gaze at the Brooks Range, shimmering on the southern horizon. You think to yourself, "What a crazy place to put an oilfield! Why is the oil here, of all places?"

Over millions of years, as mountains of the North Slope were thrust up, they eroded from wind and rain. The eroded mass was blown into surrounding seas. Marine organisms were covered and trapped between layers of sandstone, shale, and rock. Heat pressure and chemical interaction transformed the organisms into petroleum. Today, that petroleum supports the major industry not just of the North Slope region, but of all Alaska. An excellent source of information about the Arctic or North Slope is Alaska Geographic Society's, Vol. 1, No. 1, The North Slope. Find some of the other North Slope villages on the map in PGA, p. 117. Use the A.A. to compare their size.

WHAT ARE SOME OF THE MAJOR GEOGRAPHICAL FEATURES OF THE NORTH SLOPE REGION?

The Southern border of the North Slope Region is the Brooks Range, a rugged, glaciated barrier that runs from the Canadian border completely across northern Alaska to the Arctic Ocean. The Brooks Range is almost treeless and widely underlain by permafrost.

It separates the watersheds draining north and west into the Arctic Ocean from those draining west and south into the Bering Sea.

Just recently geologists have been giving credence to the theory that the Brooks Range was uplifted approximately 100-200 million years ago, before the uplift of the Rockies, 65 million years ago. Therefore, the Brooks Range is not structurally related to the Rocky Mountains. This theory was reported in Neil Davis' Alaska Science Nuggets.

The arctic coastal plain is dominated by thousands of shallow **thaw lakes.** These lakes are frequently drained and reformed because of the constant freezing and thawing of the wet soils. The plain is interrupted by occasional bluffs, and sea cliffs up to 50 feet high may line the coast. Deltas form at the mouths of rivers and streams.

The largest river in the Arctic Region is the Colville. It runs east and north from the Brooks Range 200 miles to empty into the Beaufort Sea.

WHAT ARE PINGOS?

A pingo is an up-doming of the tundra surface caused by the growth of ice below it. See the pictures from PGA pp. 114-115. The kind of pingo we will be discussing here is the type that forms in a drained lake basin. Underneath the lake waters, a zone of unfrozen sediment extends into the permafrost. When the lake drains, the water and moisture in the unfrozen sediment gradually freezes and expands in a lens shape, causing the lake bed to rise.

This freezing occurs over hundreds of years, long enough for the lake bed to become vegetated. The pingo, therefore, appears to be a dome of tundra. Pingos may be 50 to 500 feet across and 100 or more feet high. A pingo often has vegetation different from the surrounding tundra.

When the top of a pingo splits, the ice lens melts and the top of the pingo gradually collapses, sometimes causing a crater. Pingos are estimated to be between 1,000 to 4,000 years old.

WHAT ARE ICE-WEDGE POLYGONS?

Ice-wedge polygons are found near poorly drained tundra in fine sediment. The sediment cracks upon freezing, and within these fractures, wedges of ice form and grow. As an ice wedge grows, it exerts forces and causes the surrounding soil to be thrust in a low ridge. From the air, the pattern looks like a dried up mud puddle. The ridges rise up and the center becomes like a trough. The whole thing resembles the shape of a baking pan. As you can imagine, polygons make travel across the tundra difficult.

HOW DOES PERMAFROST AFFECT THE VEGETATION OF THE ARCTIC REGION?

Permafrost is covered by an active layer of ground that thaws in the summer and re-freezes in the winter. This layer varies in depth from less than a foot to about three feet, compared to up to 2,000 feet for permafrost. Because the arctic soil layer is so shallow, and because of the dryness and harsh climate, many plants of the tundra are only a few inches tall. They have great effect on the permafrost, though, because they act as insulators, and help to keep the permafrost from melting. Since permafrost never melts, this prevents the few inches of rainfall from penetrating the subsoil. Because the rain is held near the surface by permafrost, the Arctic region maintains a wet tundra environment with only a few inches of annual rainfall--an amount that would barely maintain a desert at a lower latitude. Read more about permafrost and vegetation on p. 113 of PGA.

WHAT IS THE ARCTIC CLIMATE LIKE?

Strong winds, low temperatures, and light precipitation characterize the arctic climate. The precipitation is so light that this area qualifies as a desert. However, the Arctic Region is covered by snow and ice much of the year, and at Barrow, the sun does not rise for 67 days from November 18 to January 24. During the rest of the year, there is enough sunlight and moisture to change the brown winter tundra into a summer carpet of miniature, flowering plants. Many kinds of birds nest here, and herds of caribou pass by on their annual migrations.

The Chukchi Sea to the northwest and the Beaufort Sea to the northeast are ice-covered for up to nine months a year. Navigation is usually limited to July through October, but this varies from year to year. Large ice masses are common at all times.

HOW DO GEOGRAPHY AND TOPOGRAPHY AFFECT NORTH SLOPE CLIMATE?

In most areas that border an ocean, the moisture and currents from the ocean, play a large part in determining the climate of that area. Since the coastal plain of the North Slope borders the Arctic Ocean, you would expect this ocean influence to moderate the climate. However, the ice on the Arctic Ocean eliminates the maritime influence you would expect along a sea coast. At this time review PGA pp. 111-113 and "Climate" in the A.A.

TO DO: LEARNING LOG

1. What do I know now that I did not know before?
2. What do I still want to know?*

*This section may be used for individual or group activities/ projects.

EXTENSION ACTIVITY 1 1.6

***North Slope Map**

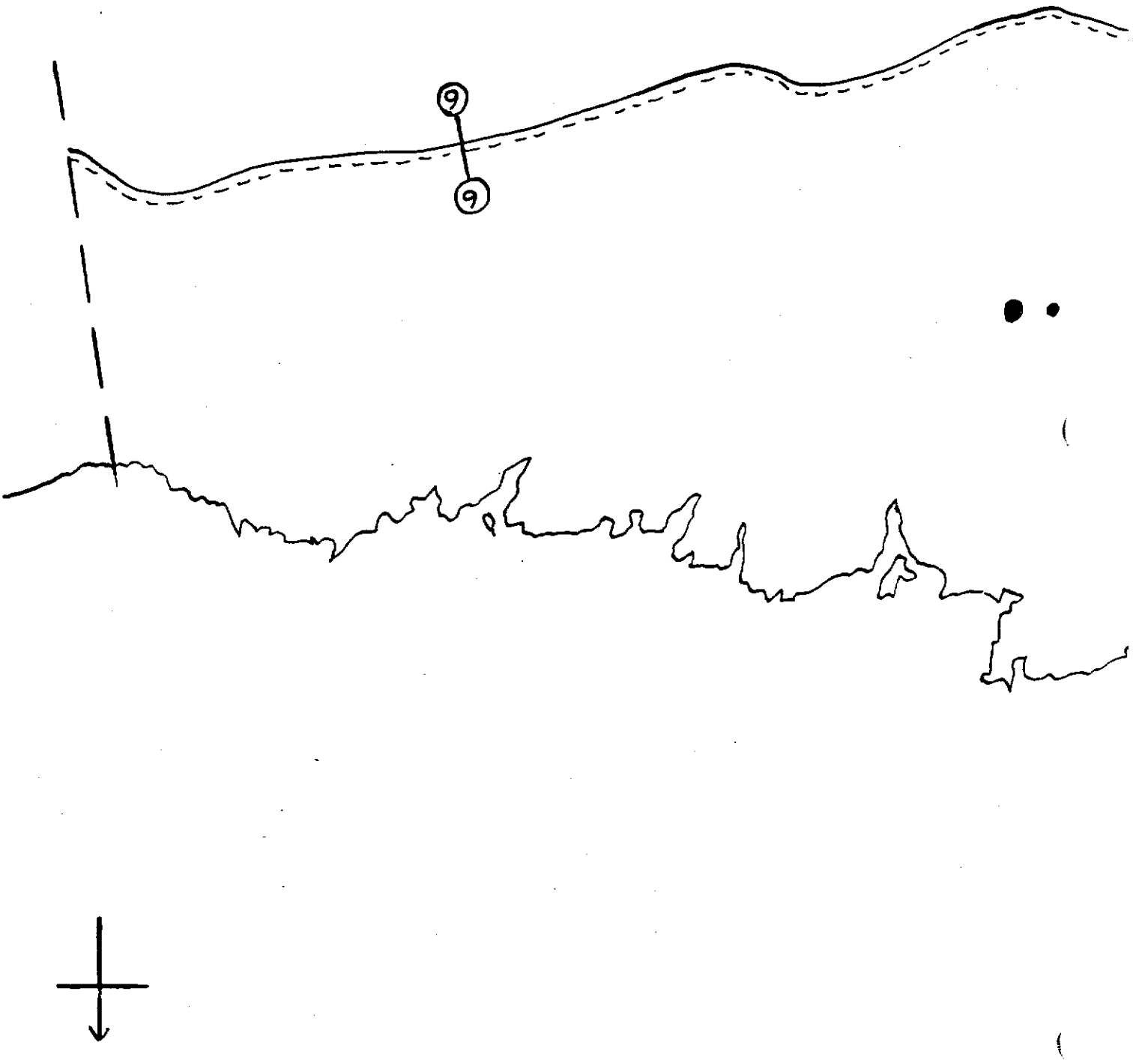
You have acquired some knowledge about the North Slope region. On the following pages you will find a map of this region. Keep vertical arrows parallel. Match left dot of A2 to dot of A3. Match right dots of A2 to dots of A1. Match overlapping boundaries.

You should insert at least the following:

- Three major geographical features
- Five communities of varying population densities.
- And any other information you have learned.

Be sure to devise a legend of the symbols you use.

*You will not be handing this in until Assessment 2.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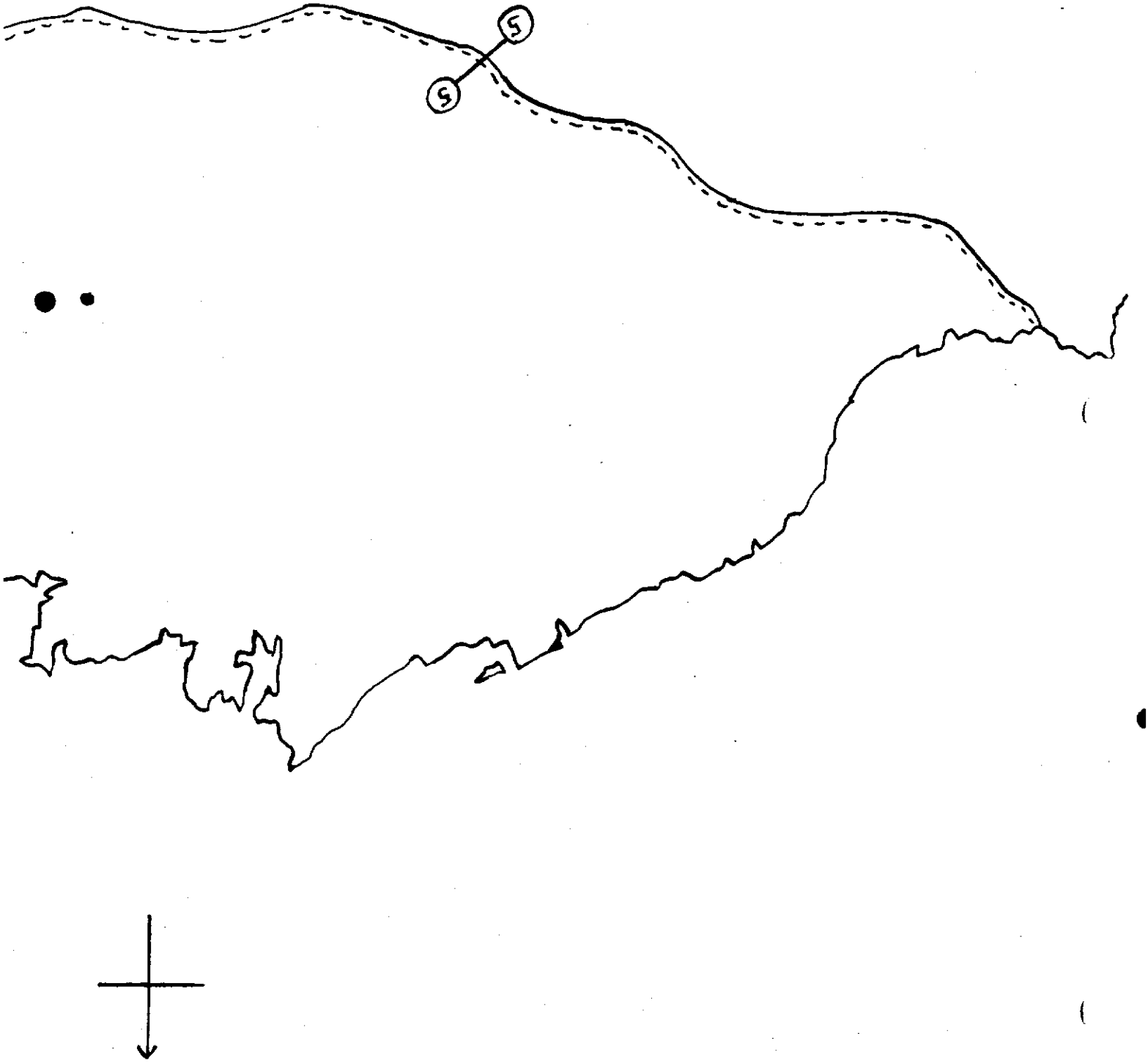
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EXTENSION ACTIVITY 2 1.6

Tundra Geometry

TO DO:

Fly with me from Fairbanks to Deadhorse. Look below. Does the view look like a geometry lesson? Many lakes are round, and miles of land are covered by circles within circles. On the tundra, polygons formed by ice wedges stretch to the horizon. Pingos rise from the moist tundra plains like upside-down flattened ice-cream cones. You will wonder what giant has carved these surrealistic geometric figures onto the tundra. It is ice, permafrost, and the persistent, awesome power of thawing and freezing.

Draw an arctic landscape using just straight lines, geometric shapes, and color. Your imagination is the limit.

EXTENSION ACTIVITY 3 1.6

Tundra

MATERIALS:

VCR and Monitor
Videotape 1, "Tundra," program 3
Assorted creative materials--corks, balloons, pipe cleaners, feathers, construction paper, paints, scissors, glue, etc. These do not need to be things you purchase, but rather things you have available in your home or school.

TO DO:

BEFORE:

Review the vocabulary words from the video extension activity in Lesson 5.

Be thinking about the conditions in the tundra (especially arctic tundra) that make living conditions unique. How have people and animals adapted to those unique conditions?

DURING:

Review or watch the video program. Remember to jot down your ideas or questions. You may watch the video as many times as necessary to find the information you are looking for.

AFTER: Choose one of the following.

This activity will help you gain an understanding of the adaptations necessary to survive on the tundra. You will choose either A or B to complete and submit to your teacher.

You will observe either personally (if you live in an area of the tundra) or on the videotape natural adaptations and apply these observations to either "wildlife" or a structure that you design.

A. Using information from the "Tundra" video and your own observations and sketches, list ways that plants and animals have adapted to the tundra. These adaptations should include ways plants and wildlife can better obtain food and water, avoid predators and withstand cold and wind. If you have more than one student in your location, share the list you generate with them, and add any ideas they may have for your list.

Once you have your list, apply these adaptations to a plant or animal of your imagination. Use materials available in your home to create your plant or animal. Write a general description of your plant or animal which includes:

Food: if it is an animal, what does it eat? Where and how does it find its food?

Growth: if it is a plant, does it grow and multiply with seeds, roots, underground stems or runners?

Moisture: How does it obtain fresh water to replace the moisture lost through evaporation?

Shelter: Where does it live? How is it protected from wind and cold?

Protection: What might want to eat it? How does it avoid this? Can it fly? Swim? Run away? Does it have a protective coating? Does its color camouflage it? What other problems does it face?

After you have written your description of your "wildlife," evaluate it. Do you think this plant or animal is well adapted to live on the tundra? Why or why not?

Submit your creation (or a photograph if it is too large to send in a box) and your description and evaluation to your teacher.

B. Using information from the "Tundra" video and your own knowledge of arctic tundra, list ways that a structure would have to be designed to adapt to this environment. This building would be designed to take advantage of the tundra habitat, allow for hazards, and have minimal impact on the environment. Factors to consider are permafrost, cold winters, varying hours of daylight, and wind.

Once you have your list, apply it to building your structure out of easily available materials. Write a description of your structure that includes:

Foundation: What kind of foundation does the building have? What will be its impact on the permafrost?

Main building: What is the shape and size of the building? Is it resistant to wind and cold?

Impacts: How will the building affect the plant and wildlife of the area? How might negative effects be reduced?

Energy efficiency: How is the building heated? Is it resistant to heat loss? Does it take advantage of winter and summer sun for light without sacrificing heat?

After you have written your description, evaluate your building. Is it well-adapted to the tundra? Why or why not?

Submit your building (or a photograph), the description and your evaluation of your building to your teacher.

EXTENSION ACTIVITY 4 1.6

Geographic Database, continued

MATERIALS:

Computer
Appleworks
Data Disk #1
The Alaska Almanac, additional resource materials as available
Printer
(If you do not have a printer you will need to send your data disk to the advisory teacher.)

TO DO:

BEFORE:

Load Appleworks and the data file, Activity 2.2 on Data Disk #1, into the computer.

DURING:

1. Type in information to describe the Arctic Region of Alaska.

   Press the RETURN key after typing each entry.

2. Press OPEN-APPLE S to save the information on the database.

AFTER:

Remove the disks. Store your data disk in a secure place.

COMMENTS:

You will continue this activity during the next lesson.

If you have access to the electronic mail system, you must convert your Appleworks file to an ASCII file. (See Appleworks Reference Manual) Upload your file to the advisory teacher.

EXTENSION ACTIVITY 5 1.6

North Slope Tape

MATERIALS:

Tape recorder
Alaska Rand McNally Map
Newspaper
Poster paper
Paint supplies
Paper and pencil
Audiotape; Unit 1, Side 2

TO DO: (Choose two of the options below)

A. While you are listening to the tape on the Arctic/North Slope region locate on your Alaska Rand McNally map the geographic places mentioned. Make a list of the geographic places.

B. From a newspaper search for articles that illustrate the harshness of the Arctic/North Slope region. Clip an article, attach it to notebook paper and write a comment about the story--was the article interesting? Did the geography play some part in the story and how?

C. Develop a fact sheet about the Arctic/North Slope region--A bit of research might be needed to complete this assignment. Include facts like: Highest temperature ever recorded, lowest, square miles, etc. If something strikes your interest, list it. Include at least ten facts.

D. Create a travel poster that a travel agency in Philadelphia, PA can use to illustrate the Arctic/North Slope Region.

EXTENSION ACTIVITY 6 1.6

Climate Differences, continued

MATERIALS:

Computer
Appleworks
Data Disk #1
The Alaska Almanac, other resource material as available
Printer
(If you do not have a printer you will need to send your data disk to your advisory teacher.)

TO DO:

BEFORE:

Investigate the climate of the North Slope. Locate information about the arctic climates from several sources.

DURING:

1. Load Appleworks and insert Data Disk #1 into the computer.
2. Load the word processing file, Activity 3, up on the screen from Data Disk #1.
3. Type your information about the arctic climate into the word processing file, Activity 3.
4. Optional You have been working with a database for Alaska's geographic characteristics using what you have learned about Alaska's climate, construct a new database. What fields will you use, and what are the kinds of reports you will want to use? Consult your Appleworks manual for information on constructing a new database.

COMMENTS:

If you have access to the electronic mail system, you must convert your Appleworks file to an ASCII file. (See Appleworks Reference Manual) Upload your file to the advisory teacher.

ALASKA TRIVIA 1.6

North Slope Trivia

Can you answer the following questions?

1. What region of Alaska is often misspelled by omitting the first "c"?
2. What major river lies entirely in the Brooks Range?
3. What is the Arctic's principal river?
4. What is the name of the area where Alaska and Canada meet the Beaufort Sea?

Unit 1, Lesson 7 — Interior/Yukon Region

Here is Lesson 7, which discusses the geography, topography, and climate of a major part of the Yukon River drainage.

It will take you 4-5 class periods to complete the minimum requirements.

COMING UP: Assessment 2 follows Lesson 8. Also, look through the extension activities for Lesson 11 now to see if you need to order any materials.

WARM-UP: Complete this first.	☐ Alaska's Geographic Center, p. 153
INFORMATION: Complete this next.	☐ Interior/Yukon Region, pp. 154-58
EXTENSION ACTIVITIES: Complete #1 and one other.	☐ 1. Interior/Yukon, map, p. 159 ☐ 2. Thermal Springs, project, p. 167 * ☐ 3. Waterways, project, p. 167 * ☐ 4. Very Interesting, p. 168* ☐ 5. Ghost Towns of Alaska, writing, p. 168* ☐ 6. Tundra and Taiga, video, p. 169* ☐ 7. Geographic Database, con't., p. 171* ☐ 8. Interior/Yukon Region, audio, p. 172* ☐ 9. Up and Under, audio, p. 172 ☐ 10. Extended Reading, choose from*: "Tanana," J. Roberts; "Alatna," O. Nictune; "Evansville," F. Tobuk; "E.T. Barnette," T. Cole; "This Old House," J. Wold; "The Sourdough Expedition," ; "White Winds," J. Wilcox * May be sent via e-mail if student has access.
SOURDOUGH LINGO*: Complete this as you study the lesson.	☐ thermal permeable continental divide
ALASKA TRIVIA*: Optional	☐ Interior/Yukon Trivia, p. 173
ASSESSMENT:	Review your objectives for this lesson. There will be an assessment after Lesson 8.

WARM UP 1.7

Alaska's Geographic Center

Lake Minchumina, 66 miles NNW of North America's highest mountain, is the approximate geographic center of Alaska. From the nine-mile-long lake there is an unsurpassed view of Denali. Minchumina is a Tanana Indian name meaning "clear lake."

Find Lake Minchumina on your Alaska map. Then find one fact, picture, or additional detail about Lake Minchumina.

Now that you know about Alaska's geographic center, read the objectives for this lesson below.

OBJECTIVES 1.7

Interior/Yukon Region

Here's what you will be studying in Lesson 7. upon completion, you should be able to answer these questions:

- How do geographic location and topography explain the climatic conditions of interior Alaska?
- How are thermal hot springs formed?
- How have geographic features influenced settlement and development in interior Alaska?
- Can you locate at least five Interior communities that have varying population densities on a map?
- How does the geography along the Yukon River change from the delta to the Canadian border?

Interior/Yukon Region

Review your Rand McNally map as you read the following passage.

The Interior/Yukon Region is Alaska's vast mid-section. It includes the area through which the Yukon River flows, and includes the river's delta. When you realize the Yukon is 1,875 miles long, 1,400 of those miles in Alaska, and the Interior takes up almost one third of Alaska, you may be wondering, "How in the world am I going to keep it all straight?!" Never fear, this will be painless. The Interior/Yukon Region may be big, but it is b-e-a-u-tiful.

The first thing you want to do is check out what specific area we are talking about. Make yourself comfortable. If you can find a space on the floor to lay things out, that would be perfect. You are going to need a lot of elbow room. Put together your map in this Student Guide, and compare it with the map in PGA p. 97. The southern boundary includes Hooper Bay and Chevak and basically follows the Yukon River to Holy Cross, where the division branches off toward the Interior. Now turn to PGA p. 59. The southern division in the Student Guide runs along the western slope of the Kuskokwim Mountains and then does a little dip to include Denali National Monument and follows the Alaska Range to the Canadian border.

Are you still with me? We are going to describe the northern boundary now. Do you still have your Student Guide map out? Good. Turn back to PGA p. 97. While comparing the two maps, notice the northern boundary on your S.G. map includes St. Michael, dips around the Nulato Hills and then follows the Yukon River to where it meets the Koyukuk River. On PGA p. 97 you can no longer follow the boundary past Kaltag. Everybody ready? Now turn to PGA p. 59. This map picks up at Nulato, which is just north of Kaltag. Basically at this point, the boundary in your Student Guide and the map in PGA pp. 59 are the same, both following the southern slope of the Brooks Range to the Canadian border. Ta Daa! We did it!

Go over this a couple of times. Use your finger to follow along and locate the geographical features used to describe the boundaries. Take your time and feel comfortable with this before you go on.

Please read "Interior," PGA pp. 55-58 and study the pictures on pp. 55-73. Also review PGA pp. 93-109, "Bering Sea Coast." Concentrate on the Yukon Delta.

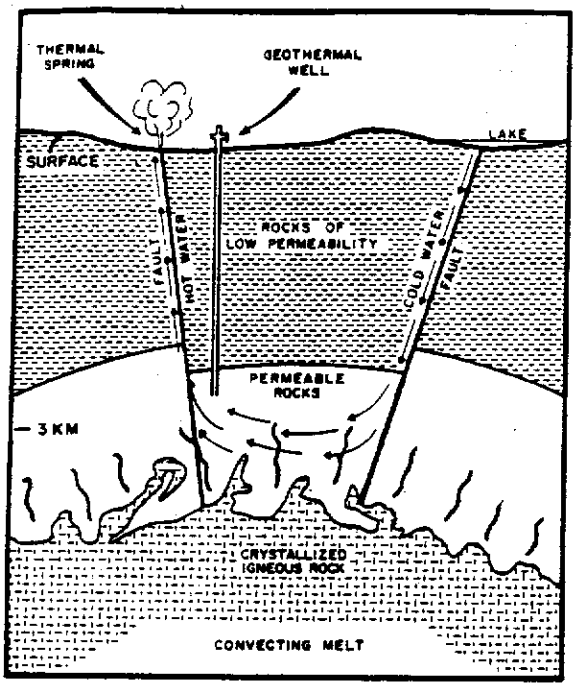
HOW DO TOPOGRAPHY AND GEOGRAPHY INFLUENCE THE CLIMATIC CONDITIONS OF THE INTERIOR/YUKON?

The two climatic zones in this region are transitional, around the Yukon delta on the west, and continental in the Interior. The temperature ranges for the entire region can fall between 100°F in Fairbanks in the summer to -60°F anywhere in the region in the winter. The precipitation is lighter than maritime and transitional, yet heavier than the North Slope Region. Also review "Climate" in the A.A.

WHAT IS THE GEOLOGIC HISTORY OF THERMAL SPRINGS?

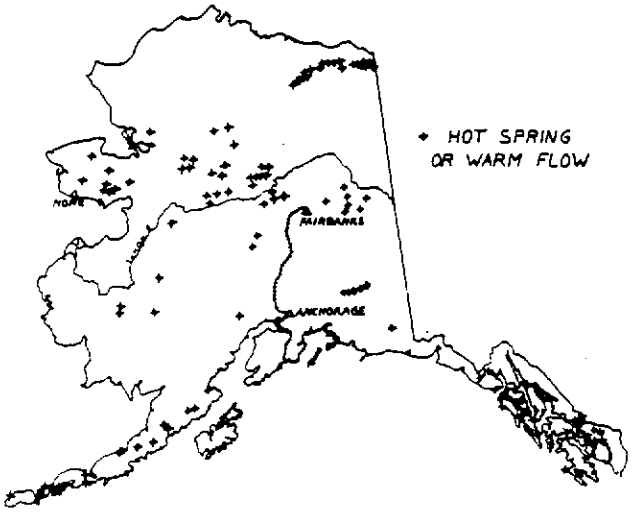
For a brief introduction on thermal springs, please read "Hot Springs" in the A.A.

Recently, scientists have formulated a new theory, which states that the water from hot springs is recirculated ground water. Older theories held that the water was released from molten magma far below the earth's surface.



Why Hot Springs? *The hot water fell as rain or snow. (Drawing by R. Forbes and N. Biggar,* The Northern Engineer *5(1), 1973.)*

As you will notice on the map, the hot springs tend to group together in linear fashion. Thermal springs are associated with linear geologic structures such as fracture zones or volcanic belts.



Alaska's Hot Springs: *More than a hundred hot springs dot the Alaska landscape. They are generated by the return to the surface of water that first fell as rain or snow upon land at higher elevation and then was heated at depth.*

Almost all of the water released in hot springs started out as precipitation. From the surface it penetrates through faults or water-**permeable** layers far enough down so it becomes heated and then is pushed up by pressure to the surface again.

In the Aleutian Island chain, the water does not have to go down as far because the source of heat is not as far from the surface. In northcentral Alaska the water must go pretty deep to become heated by still-warm rock solidified long ago.

The source of this information is Neil Davis' Alaska Science Nuggets.

HOW HAVE GEOGRAPHIC FEATURES INFLUENCED SETTLEMENT AND DEVELOPMENT IN THE INTERIOR/YUKON REGION?

Eskimos in the Yukon region called it Kuikpak. Interior Athabascans gave it its present name. Both interpretations called it "big river." As in many other parts of Alaska, the rivers are the lifeline of the people who live along them. For the Yup'ik Eskimo communities (Alakanuk, Russian Mission, Holy Cross, Kaltag, etc.) and Athbascan Indian communities (Nulato, Koyukuk, Tanana, Chalkyitsik, etc.) the Yukon River provides what is necessary for survival: food, transportation, and a means of existing in a cash economy. For most communities along the Yukon and its tributaries, it remains the the focal point of life.

As you continue your study of Alaska you will realize the role the Yukon River and its tributaries played during the gold rushes of the late 1800's. Because they were the access routes to all the gold strikes, the rivers sprouted mining and supply camps, many of which grew into permanent settlements. Some have become ghost towns, yet others are still productive communities, for example, Fairbanks, Eagle, and Ruby.

It is a fascinating history. Why do some of the other communities exist where they do? Circle and Fort Yukon were established as trading posts in the late 1800's. Beaver was a river landing in the early 1900's and then became a supply point for early gold diggings. Purgatory originally was the home of two brothers who hunted, trapped, fished, and raised vegetables. Nenana was an area known as Tighotthele by the Athabascan Indians and in 1902 a man built a trading post here. He traded with the nomadic Athabascans and supplied goods and lodging to river travelers. We could mention many more communities each with its own unique reason for being. A good brief history of the Interior communities is Alaska Geographic Society's Alaska's Great Interior.

When oil was discovered in Prudhoe Bay, 400 miles north, Fairbanks became the headquarters for Alyeska Pipeline Service Company, builder of the Trans-Alaska pipeline. Starting in 1973, the company spent $1 million per day for two years in Fairbanks. In less than two years the city's population grew from 40,000 to 65,000 people! Close to 100 new companies moved into Fairbanks causing housing shortages, traffic problems, crowded schools, overtaxed services, and more crime.

Times have changed since then. The price of oil fell from $26 a barrel to $13 per barrel between 1985 and 1987 and the whole state economy was shaken. Ninety percent of our state revenues came from oil royalties and taxes. People lost their jobs because the government cut spending. Homes became available for sale at very attractive prices because people lost their jobs. Schools closed because enrollment dropped as people left the state to find work. Government services were cut or trimmed. We will discuss this topic in more detail in Units 2 and 4.

HOW DO THE SIX SUB-REGIONS OF THE INTERIOR/YUKON REGION COMPARE WITH EACH OTHER?

As you read the following, look at the maps in PGA pp. 97 and 59.

In 1867, under the command of William H. Dall, the American Telegraph Expedition made their way up the Yukon to Fort Yukon. They were responsible for the first detailed survey and mapping of the Yukon. Take a few minutes to escape from reality and pretend you were on that journey. Suppose you had kept a journal, describing the land. What would you have seen? (The boat was originally supposed to be a small steamer called the "Lizzie-Horner," but because of mechanical problems your party ended up travelling in canoes).

Here is our imaginary journal:

DAY 1

As we were about to embark we heard tales of three islands southwest of here, in the Bering Sea, about 220 miles west. The islands (Hall, Pinnacle, and St. Matthew) are a series of volcanic ridges with low valleys between them. At the highest elevations are volcanic cones. Extreme winds and summer fog are common. No one lives on these islands, they say. (Today they have been set aside as the Bering Sea National Wildlife Refuge). We'd like to explore them, but we are headed inland, up the Yukon River.

DAY 7

The lower Yukon includes the coastal area north of the Kuskokwim River to Norton Sound. The land is characterized by ground that is frozen all year! The land is flat tundra with so many lakes and ponds. I cannot seem to count them all! This is the way it has been all the way to Kaltag. For a little diversion we could see the Kuskokwim Mountains to the Southeast and the Nulato Hills north and west, but only when the clouds disappeared. One of the large tributaries in this region was the Innoko River.

DAY 10
Kaltag to Rampart make up the central portion of this magnificent river. The ground is frozen permanently here, too, yet the top layer is swampy. There are rugged glaciated mountains up to 5,500 feet high! Valleys have flat floors 1 to 5 miles wide. Again, I see thousands of lakes and ponds.

We encountered several of God's little gifts to man along this portion of the trip. One cannot imagine the relief, the joy, the warm pleasure I found while soaking my aching, wet bones in the thermal springs. We all hate to trade the warmth of the springs for the cold canoes, but we must press on.

DAY 20
We have come into Koyukuk country. I do not know why but I have developed a curiosity about this giant tributary called the Koyukuk River. This river flows 320 miles Southwest from the Endicott Mountains in the Brooks Range to meet up with the mighty Yukon near the village of Koyukuk.

The north boundary of this region is the **continental divide** *of the Brooks Range. (Do you know what the continental divide is? In the North American continent the continental divide is a stretch of elevated land, some of it in the Rocky Mountain system, which divides the the drainage basins of the major river systems. In the continental United States, the continental divide separates the river basins into those flowing east and those flowing west).*

DAY 30
Ah, the upper Yukon. We are almost to the end of this journey. I question my strength and my will to continue on just one more day. This section of the Yukon stretches from Rampart to the Yukon Flats and the Porcupine plateau. The Yukon Flats are marshy, lake-dotted flatlands, where the Yukon begins to turn southwest toward the Bering Sea. The Yukon Flats is a paradise for wildlife. The Porcupine plateau has a few gentle slopes rising up to 5,800 feet.

DAY 35
We are at the Canadian border. We are at the end of this journey. The work is over. Time to rest our souls. At this time I choose not to think of the trip back to St. Michael. My spirit is too weak. This last region is drained by the White River. There are uplands with some domes rising as high as 6,800 feet.

One area of this region that the expedition would not have seen is the Tanana area. This subregion lies entirely within the drainage basin of the Tanana River. It includes part of the Kuskokwim Mountains, the Alaska Range, and the Wrangell Mountains.

Just a reminder that the above journal is fictitious and is not historically accurate, but often it is fun to make believe you are an explorer or a guide--it makes learning more exciting.

WHAT ARE SOME OF THE MAJOR GEOGRAPHICAL FEATURES OF THE INTERIOR/YUKON REGION?

We have spent quite a bit of time going over the geography of the region and using our maps. Take some time to review the different subregions while studying the maps. What major features stick in your mind?

WHAT ARE SOME OF THE MORE POPULOUS COMMUNITIES OF THE INTERIOR/YUKON REGION?

We mentioned several communities earlier in our introduction. By looking in the A.A. under "Population" and using your maps, locate some communities and check out how many people live there. This Region, of Alaska contains about 20 percent of the state's population.

From what we have studied about the Yukon/Interior Region you have learned that it is a vast region of Alaska, which is essentially the drainage system of the Yukon and its tributaries. The focal point of the plant, animal, and human communities in this area is the Yukon itself.

TO DO: LEARNING LOG

1. What do I know now that I did not know before?

2. What do I still want to know?*

*This section may be used for individual or group activities/ projects.

EXTENSION ACTIVITY 1 1.7

***Interior/Yukon Map**

You have acquired some knowledge about the Interior/Yukon region. On the following pages you will find a map of this region. Keep vertical arrows parallel. Match dots of C1 to bottom of dots of C2. Match right dots of C2 to left dots of C3. Match corresponding boundaries.

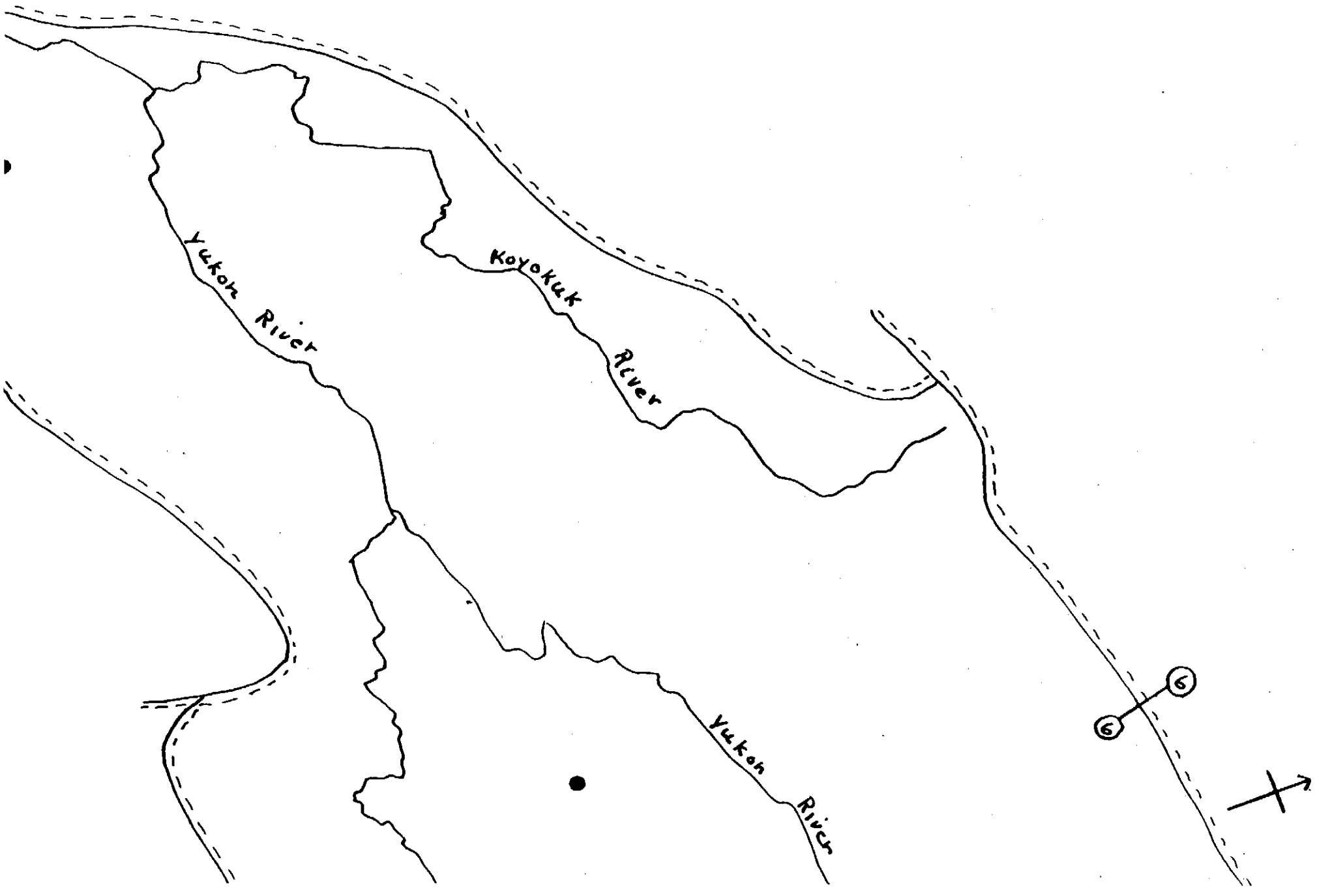
You should insert at least the following:

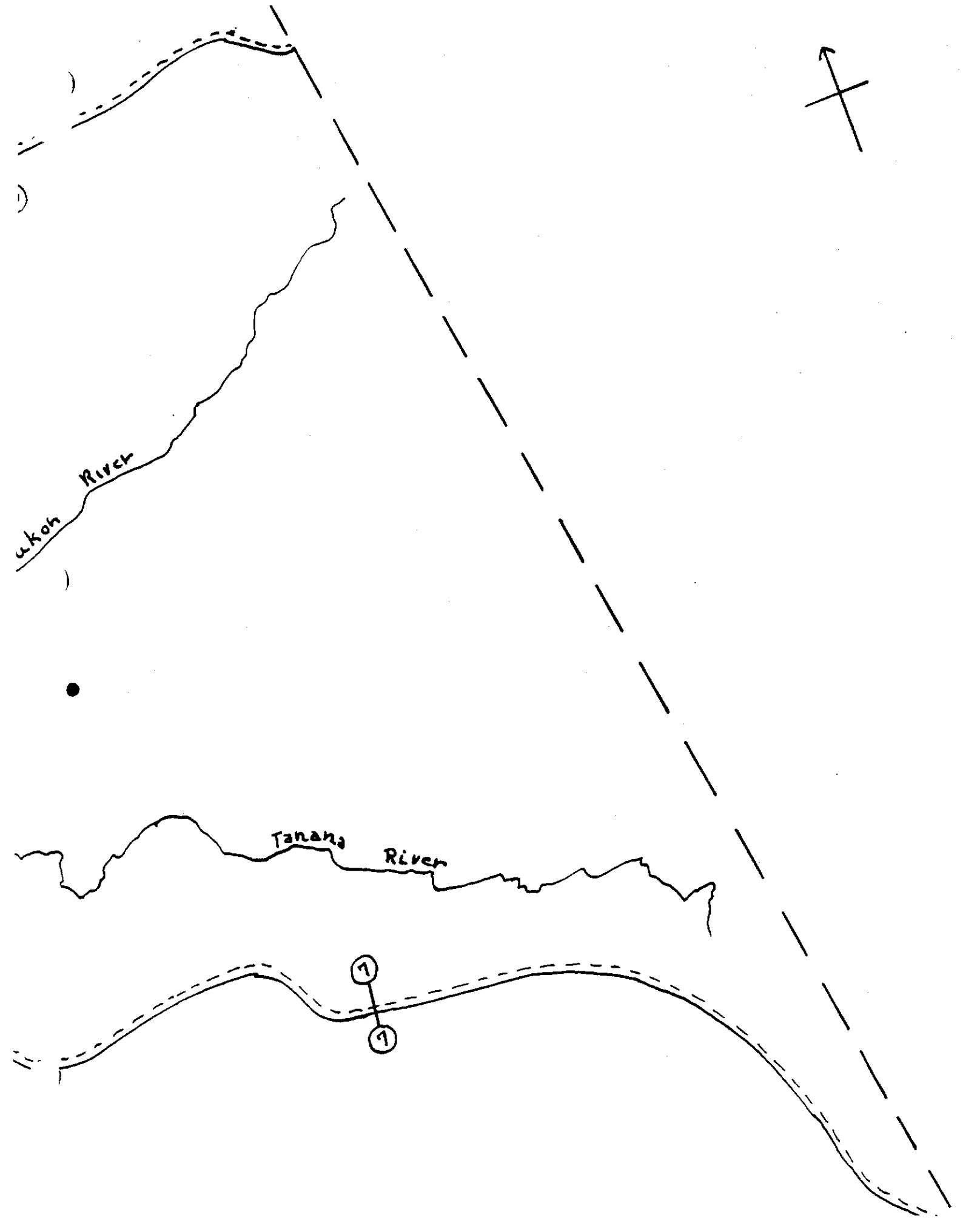
- Three major geographical features
- Five communities of varying population densities.
- And any other information you have learned.

Be sure to devise a legend of the symbols you choose to use.

*You will not be handing this in until Assessment 2.

Yukon
River


Yukon River
Koyokuk River
Yukon River
6
6


Yukon River
Tanana River

EXTENSION ACTIVITY 2 1.7

Thermal Springs

The U. S. Geological Survey identifies 79 thermal springs in Alaska. Almost half of these hot springs occur along the volcanic Alaska Peninsula and Aleutian Chain. The second greatest regional concentration of springs is in southeastern Alaska. Hot springs are scattered throughout the Interior and western Alaska, as far north as the Brooks Range and as far west as the Seward Peninsula.

Locate the following Interior/Yukon thermal springs on a map of Alaska.

1. Chena Hot Springs - near headwaters of the Chena River
2. Circle Hot Springs or Arctic Circle Hot Springs - 65°N, 144°W
3. Manley Hot Springs or Baker Hot Springs or Hot Springs - 65°N, 150°W
4. Melozi Hot Springs - 3.5 miles E. of the mouth of Hot Springs Creek, 65°N, 154°W
5. Horner Hot Springs - 23 miles NE of Ruby, 3/4 miles from Yukon River, 64°N, 150°W

Investigate the geologic forces that create thermal springs. Choose one of the above springs and investigate its history. Be sure to include where the name of the spring came from.

You may prepare your investigation in one of several ways.

1. Travel brochure
2. TV or radio commercial
3. TV documentary
4. Written essay
5. Photo essay

EXTENSION ACTIVITY 3 1.7

Waterways

TO DO:

The interior region of Alaska is transversed by many waterways. They are the focal point of life in the Interior. Several rivers of the Interior are primary tributaries for the mighty Yukon River. They are the Porcupine, Chandalar, Tanana, Nenana and the Koyukuk Rivers. Although the Yukon has its headwaters in Marsh Lake, Yukon Territory, it continues to flow like a giant, relentless and unencumbered, across the middle of our state, relinquishing itself in Norton Sound.

It is almost impossible to live in Alaska without a lake, a river, a bay or an ocean influencing one's life.

For this activity you are asked to create a diorama,collage, slide presentation, video presentation, story or poem, depicting your relationship with the water. How does the water serve you: transportation, recreation, your livelihood, your favorite place to live, weather and climate? How do you serve the water; environmental conservation, pollution?

EXTENSION ACTIVITY 4 — 1.7

Very Interesting

TO DO:

Choose a community from the Interior/Yukon Region about which you are curious. Gather information from The Milepost, a map of Alaska or any other resources available to you. Write a letter to the community's chamber of commerce or city office. Ask for specific information. You may be interested in a particular topic in the community. Ask about it. For example: How did bison herds develop near Delta Junction? What is the history behind "Fort" Yukon. What is it like to live in St. Mary's when the Yukon River breaks up? Some other topics of interest may be: population, climate, economy (industry, labor), transportation and communication (How do people get to their community? How do people travel around town? Is there a radio station, television service, phone service, mail service, a newspaper?), community facilities, community history?

Organize the information you have gathered as a community profile. You may present it orally through an audio tape or perhaps role playing would be fun. Pretend you have just returned from a visit to this community. Share what you have learned with your class and teacher or with your parents and siblings.

EXTENSION ACTIVITY 5 — 1.7

Ghost Towns of Alaska

TO DO:

In the late 1890's, tens of thousands of people came to Alaska. They desired to become rich by finding gold. Many of these gold hunters rushed to the Koyukuk Valley during the summer of 1898. As many as 50 steamboats jammed the Koyukuk River carrying these eager souls into the Brooks Range that summer.

They built towns: Arctic City, Bergman, Beaver City, Peavy, Union City, Soo City, Seaforth and Jimtown. Almost 90% of the gold hunters left the Koyukuk in 1899 very disappointed. (About 100 did remain in the area. Their fortitude was rewarded with a major gold strike at Myrtle Creek in the spring of 1899.)

Your assignment is to explore those abandoned towns! Title your report, "Ghost Towns of Alaska."

EXTENSION ACTIVITY 6 1.7

Tundra and Taiga

MATERIALS:

VCR and monitor
Videotape 1: "Tundra" and "Taiga" programs 3 and 4

TO DO:

BEFORE:

Review vocabulary of both videotape extension activities Lessons 3 and 5. Be looking for any terms that are not already familiar to you.

DURING:

Review both videos if you need to refresh your memory of tundra and taiga.

Be looking for the geographic areas in the Interior/Yukon Region that you would find tundra and taiga. Are there any topographical features that would separate tundra from taiga?

AFTER:

Answer the following and submit them to your teacher.

1. The video on taiga shows the predator-prey relationship between lynx and hares. The graphs indicate that the lynx population peaks about one year after the hare population peaks in its nine-year cycle.

a. What might be the reason for the hares' drastic drop in population?

_____

_____

b. Why is there a one-year gap between the time the hares' population is at its lowest and the time the lynx's population is at its lowest?

_____

_____

c. Do the lynx control the hares or do the hares control the lynx? Defend your answer.

_____

_____

d. What things can you think of that may upset the predator-prey relationship permanently?

2. Taiga development: the taiga is where the majority of Alaskans reside, where much development and industrialization is taking place. Write a paragraph about a current issue related to development in the taiga. Discuss ways to plan for the development while protecting the ecosystem.

3. Describe a tundra area that has been affected by traffic, either foot or mechanical. Predict how long it will take for the area to recover.

4. Write a paragraph that outlines a plan to develop a natural resource in the arctic tundra while protecting the Native culture there and the tundra ecosystem.

EXTENSION ACTIVITY 7 1.7

Geographic Database, continued

MATERIALS:

Computer
Appleworks
Data Disk #1
The Alaska Almanac, additional resource material as available
Printer
(If you do not have a printer you will need to send your data disk to your advisory teacher.)

TO DO:

BEFORE:

Load Appleworks and the data file, Activity 2.2 on Data Disk #1, into the computer.

DURING:

1. Type in information to describe the Interior/Yukon Region of Alaska.

   Press the RETURN key after typing each entry.

2. Press OPEN-APPLE S to save the information on the database.

AFTER:

Remove the disks. Store your data disk in a secure place.

COMMENTS:

You will continue this activity during the next lesson.

If you have access to the electronic mail system, you must convert your Appleworks file to an ASCII file. (See Appleworks Reference Manual) Upload your file to the advisory teacher.

EXTENSION ACTIVITY 8 1.7

Interior/Yukon Tape

MATERIALS:

Tape recorder
Alaska Rand McNally Map
Paper and pencil
Audiotape; Unit 1, Side 2

TO DO:

While you are listening to the tape on the Interior/Yukon Region, locate on your Alaska Rand McNally map the geographic features mentioned. Make a list of these geographic places.

Plan a two-week vacation to the Interior/Yukon Region, starting from your home. You will turn in an itinerary (a detailed plan of your journey), route traveled, means of transportation, overnight accommodations, points of interest to visit, estimated cost of the trip--meals, accommodations, travel, and extra expenses. Give dates and locations. You have $2,000 for this trip, so have a great time. A travel agency could help you with this project.

EXTENSION ACTIVITY 9 1.7

Up and Under

MATERIALS:

Tape recorder
Alaska Rand McNally Map
Paper and pencil
Audio tape #1

TO DO:

As you listen to the tape "Up and Under" locate on the Alaska Rand McNally Map the places mentioned. You might have to listen to the tape a second time to find all the places on your map.

Pick five geographic features of the interior/Yukon, mentioned on the tape and provide a brief description of it.

Then, try your hand on your own tape, where you describe flying over your village or town. Make sure you include sound effects. Try for a 3-5 minute tape.

ALASKA TRIVIA 1.7

Interior/Yukon Trivia

1. What river forms the eastern boundary of Denali National Park?

2. What valley produces 90 percent of Alaska's grain?

3. What community thought to be founded on the Arctic Circle wasn't?

Now make up your own trivia question about something that really interests you in the Yukon region.

4. Fact/Question:

_____

_____

Answer:

_____

Unit 1, Lesson 8 — Putting It Together

Here is Lesson 8. Here you will wrap up the information you learned so far about geography, topography, and climate.

It will take you 6-7 class periods to complete the minimum requirements.

COMING UP: Look through the extension activities in Lesson 12 now to see if you need to order any materials.

WARM-UP: Complete this first.	☐ None this lesson!
INFORMATION: Complete this next.	☐ Putting It Together, p 178
EXTENSION ACTIVITIES: Complete #1 and at least one more.	☐ 1. The Alaska Jigsaw, p. 179 ☐ 2. A New View, discussion/report, project, p. 180* ☐ 3. Alaska Geographic Names, map, p. 183 ☐ 4. Sourdough Puzzle, p. 186* ☐ 5. Great Alaska Place Find, puzzle, p. 188 ☐ 6. Three Choices, writing, p. 190* ☐ 7. Impact of Human Habitation, video, p. 191* ☐ 8. Computer Settlement, computer, p. 192 ☐ 9. Relief Map, p. 193 * May be sent via e-mail if student has access.
SOURDOUGH LINGO*: Complete this as you study the lesson.	☐ Define at least three words or terms from Unit 1 with which you are still unfamiliar.
ALASKA TRIVIA*: Optional	☐ Magic Mountain, p. 196
ASSESSMENT:	☐ Assessment 2 follows this lesson. See p. 199 for instructions

OBJECTIVES 1.8

Putting It Together

Here's what you will be studying in lesson 8. Upon completion, you should be able to:

- Choose a location for a new Alaskan community of 2,000 people by applying what you have learned in this unit.
- Name and list the general characteristics of the four climatic zones of Alaska.
- Name and locate the six geographic regions of Alaska.
- Name specific geographic features in each of the six geographic regions of Alaska.
- Locate specific towns within a specific geographical region of Alaska

INFORMATION 1.8

You've probably heard the story of Harry, Moe, Fred, and Al, four blind men that were asked to describe an elephant. Harry, grabbing the elephant's trunk declared that elephants are like giant snakes. Moe, who ran into the elephant's side, exclaimed that elephants were really like walls. Fred, upon feeling the elephant's leg, corrected them both, to state that elephants were actually closely related to spruce trees. Al, knowing himself to be the true expert among them, grabbed the elephant's ear, and wondered aloud how his friends could be so blind, for an elephant was really like a large-leafed skunk cabbage plant.

You probably realize after studying lessons 1 through 7 that Alaska is a lot like that fabled elephant. It is such a huge state that many residents never see much more than their own little corner, and loudly declare to anyone within hearing distance that this is the "real Alaska." After this unit, if anyone asks, you'll be prepared to tell them just how many "real Alaskas" there really are!

From your studies, you know that there are several ways to divide our state into more manageable "pieces." We separated Alaska into six major areas: the Southeast Panhandle, Southcentral, Southwest, Northwest, North Slope, and Interior/Yukon. This is what we did in lessons 2 through 6. What were the **criteria** for dividing Alaska the way we did?

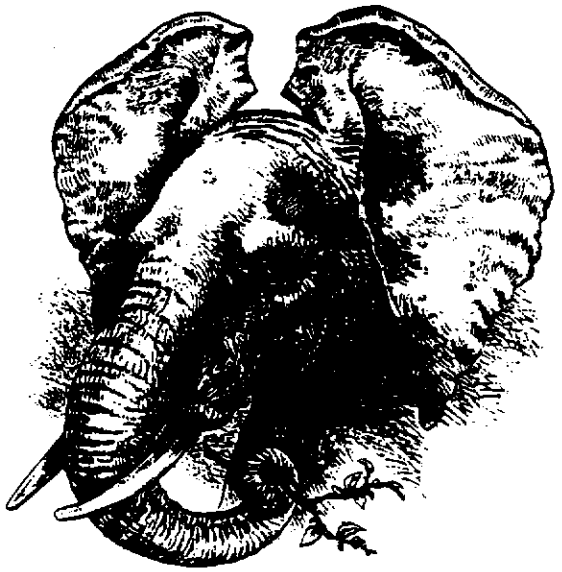
This lesson is a wrap-up of all seven preceding lessons, so you won't be learning new information. You'll just be putting together all the information you've learned about the geography of Alaska to complete at least two projects: a relief map of Alaska (Extension Activity 1) and an exercise synthesizing all this information to choose the location for a new Alaska city (Extension Activity 2). In addition, there are a number of other fun activities from which to choose. Put on your thinking cap and enjoy this wrap-up!

TO DO: LEARNING LOG

1. What do you know now that you did not know before?

2. What do you still want to know?*

*You could use this for an extension activity or research project.



EXTENSION ACTIVITY 1 — 1.8

The Alaskan Jigsaw

We have studied Alaska by dividing it up into six regions. You have completed 6 regional maps, six pieces to the puzzle.

It's time to take a proper, unified look at our state. It's time to put our puzzle pieces together! Using tape, assemble these pieces into one complete Alaska map now. To join one region to another, overlap corresponding circled numbers, i.e. (4)(4) and match boundaries.

You should have one map made from your:

Southeast Region Map
Southcentral Region Map
Southwest Region Map
Northwest Region Map
North Slope Region Map
Interior/Yukon Region Map

You also learned that Alaska has several different climate variations: maritime, continental, transitional, and arctic. Can you remember which climate or climates go with the six areas of Alaska? Can you remember the characteristics of each climate? Mark the climate variations on your enlarged map.

Throughout these lessons we have studied the geologic history of several geographic features, among which are glaciers, volcanoes, earthquakes, island chains, sand dunes, pingos and thermal springs. Were you surprised at the enormous variation in geographic features of our state? Have you located these areas on your enlarged map?

You now know, from your study of this unit that geography plays a large part in determining settlement and development of Alaska. You have also found many of the settlements of varying size throughout Alaska. Geography is one reason why some communities remain small and others grow. Make sure on your enlarged map that you have located at least five communities of varying population density for each of the six areas.

EXTENSION ACTIVITY 2 1.8

A New View

TO DO:

This is an activity requiring brain power! You will use the knowledge you have about geography, climate, and topography to choose the best location for a new Alaska settlement of at least 2,000 people. You won't be worrying about detailed information about resources or job opportunities, since we will be studying those in the next unit.

Your town can be anywhere in Alaska except where towns of at least 2,000 population now exist. You'll want to find a more detailed map of the terrain. In addition, you may also need more geographical or climatic details. After you pick the site, you can name the town, and tell a little bit about the characteristics it will have. You must provide details that support your choice of area. Use the form on the next page to enter your choice and details.

You may complete this activity in any of the manners described below.

ACTIVITY OPTIONS:

1. Class discussion: If you have Alaska Studies classmates in your school, you can complete this assignment with them. Each of you will discuss and defend your choice for the site of a new Alaska community. Use your completed "A New View" form as the basis for a presentation of no longer than three minutes. Be prepared to ask questions about other students' choices. Your class will attempt to arrive at a consensus opinion of the best site.

2. Individual project: If you do not have access to a telephone or an audioconference site, and if you do not have classmates, then you may complete this activity as an individual project. You will do the same thing as in the other two options: discuss and defend your choice for the site of a new Alaska community. You may report your project in writing, on audiotape, or on videotape. Use your completed "A New View" form as the basis of your report. Send this form with your report.

A NEW VIEW

Hello, my name is _____

The name of my new community is: _____

Why did you choose this name? _____

longitude and latitude: _____

It is located in the _____ region. The topography is:

The major geographic features I took into account when deciding this location are:

The climate features for this community are: (Give name of climatic zone description and reason why)

My reasons for choosing this location are: (Include possible economic factors)

EXTENSION ACTIVITY 3 1.8

Alaskan Geographic Names

Alaska's geographic names have come from many sources: many, of course, came from Alaska's Native people--Eskimo, Aleut, Athabascan, Tlingit and Haida. Many other names were given to Alaskan places by European explorers. Also, many names were given to places by the miners during the gold rushes. Below are listed a few examples:

Native Names	English Names	Russian Names
Denali	Cook Inlet	Shelikof Strait
Yakutat	Turnagain Arm	Baranof Islands
Sitka	King Island	Chichagof Islands
Metlakatla	Norton Sound	St. Elias Mountains
Iliamna	Vancouver Island	Shumagin Islands
Unalakleet	Mount Edgecumbe	Cape Romanzof
Tanana River	Mount Fairweather	Andreanof Islands
Adak	Bristol Bay	Nikoloski
Susitna River	Prince William Sound	Nikiski
Nenana	Hinchinbrook Island	Kasilof
Nunivak Island	Cape Lisborn	Ninilchik
Emmonak	Blying Sound	Becharof Lake
Nushagak River	Portlock	Wrangell Mountains
	Portland Canal	Wasilla
	Dixon Entrance	Pribilof Islands
	Cross Sound	
	Montague Island	
	English Bay	
	Port Graham	

Spanish Names
Revillagigedo Island
Valdez
Cordova
San Fernando Island
Port Nelbe Juan
Port Fidalgo
Cordova Bay
Port San Juan

Funny Alaskan Names
(Most given during Gold Rush Days)

Big Hurrah	Dog Fish
Oregon	Chicken
Eagle	Woodchopper
Haycock	Potato Mountain
Hog River	Ear Mountain
Devil Mountain	Pilgrim Springs
Purgatory	Dime Landing
Paradise	Candle
Cold Foot	Wiseman
Burnt Food	Devils Elbow

How many of these places can you label on the map on the next page?

From: Supplemental Materials for Alaska History and Geography
Anchorage School District, 1984

EXTENSION ACTIVITY 3 1.8

MAJOR ALASKAN GEOGRAPHIC FEATURES

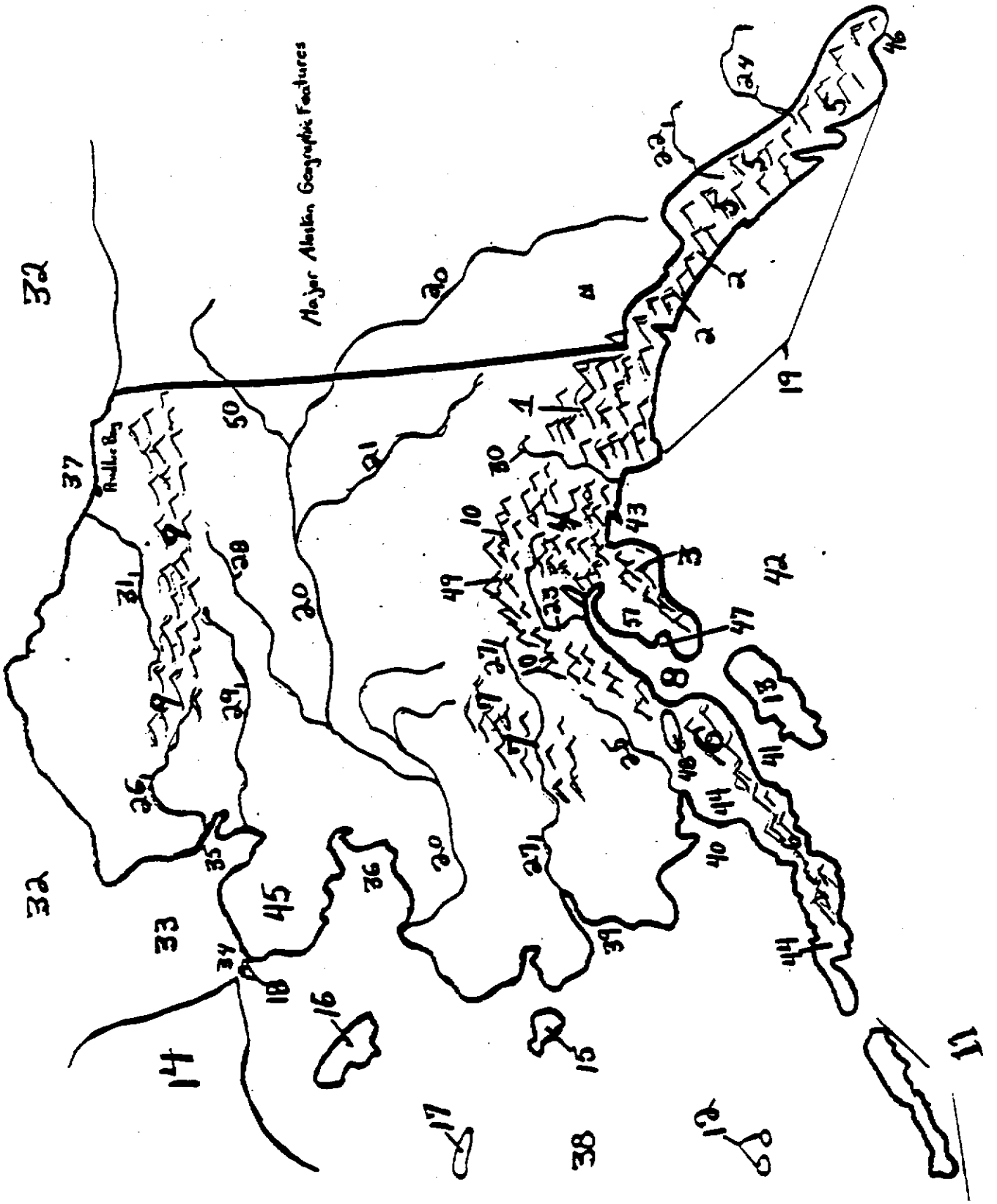
Match the numbered parts on the map (Major Alaska Geographical Features) on the next with the list of Alaskan geographic names shown below. Place your number choices in the correct blanks.

Wrangell Mountains _____
Arctic Ocean _____
St. Elias Mountains _____
Chukchi Sea _____
Aleutian Islands _____
Bering Strait _____
Norton Sound _____
Beaufort Sea _____
Kenai Mountains _____
Coast Mountains _____
Pribilof Islands _____
Yukon River _____
Stikine River _____
Kodiak Island _____
Chugach Mountains _____
Siberia _____
Koyukuk River _____
Nushagak River _____
Kotzebue Sound _____
Bering Sea _____
Aleutian Mountains _____
Nunivak Island _____
St. Lawrence Island _____
Tanana River _____
Taku River _____
Kuskokwim Bay _____

Bristol Bay _____
Alaska Range _____
St. Matthew Island _____
Diomede Islands _____
Noatak River _____
Susitna River _____
Alexander Archipelago _____
Kuskokwim Mountains _____
Shelikof Strait _____
Kuskokwim River _____
Kobuk River _____
Cook Inlet _____
Gulf of Alaska _____
Copper River _____
Prince William Sound _____
Colville River _____
Porcupine River _____
Dixon Entrance _____
Kachemak Bay _____
Seward Peninsula _____
Kenai Peninsula _____
Alaska Peninsula _____
Mt. McKinley _____
Lake Iliamna _____
Brooks Range _____

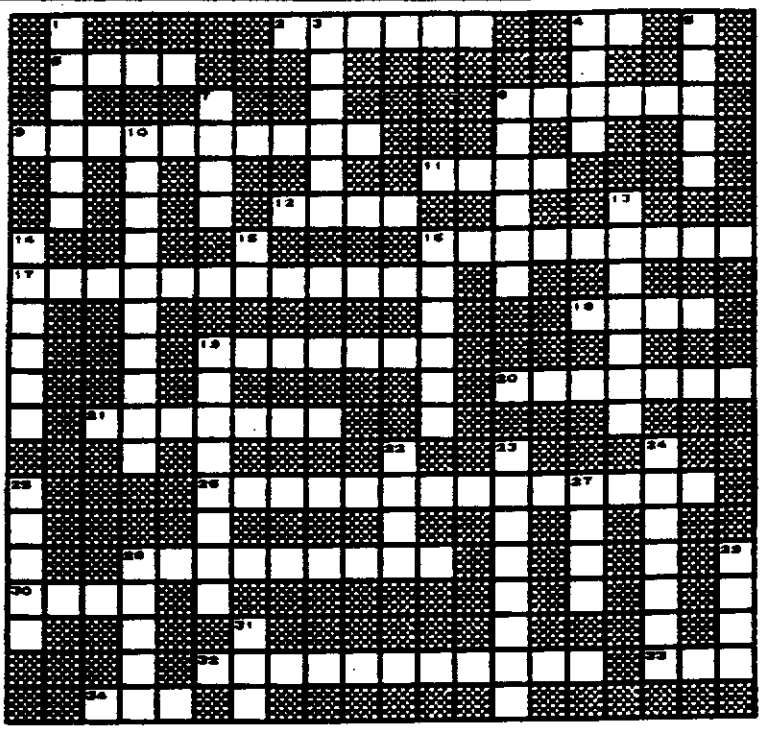
EXTENSION ACTIVITY 3 1.8

Alaskan Geographic Names



EXTENSION ACTIVITY 4 1.8

Sourdough Puzzle



Across Clues

2. Town in the Pribilof Islands
4. Abbreviation for the second largest state in the USA.
6. Town on Adak Island.
8. Alaska's largest island.
9. Where would you be if you were at 58°N and 160°W.
11. A large ox found in parts of Alaska
12. Sheep found in most Alaska mountain ranges.
16. An Alaskan oldtimer (slang)
17. 66 1/3° North
18. The top layer of earth used for farming.
19. Alaska's largest lake.
20. Mountain range east of Anchorage
21. Ocean south of Anchorage.
26. The Northern Lights.
28. Body of water west and north of the Kenai Peninsula.
30. Hot liquid rock.
32. Alaska's state song.
33. _____salmon
34. Bering and Beaufort are examples of a _____

Down Clues

1. Alaska's northernmost city
3. Town at the confluence of the Yukon and Tanana Rivers.
4. The rise and fall of water in in large bodies caused by the moon's gravitational pull.
5. Alaska's longest river.
7. Alaska has the largest reserve of this in the U.S.
8. Eskimo parka.
10. Alaska's second highest mountain.
13. A unit of local government.
14. Major river by Nenana.
15. Canadian province east of southeastern Alaska.(Abbreviation)
16. The large peninsula on which Nome is located.
19. Name of important Alaskan sled dog race.
22. Spencer, Icy Douglas, Halkett are all examples of a _____
23. Alaska's highest volcanic peak.
24. The scale used to measure earthquakes.
25. Large mammal found in Alaska.
27. Island that was invaded by the Japanese during World War II.
28. A storage place that you need a ladder to get to.
29. Object of many "rushes" to Alaska.
31. Traditional Eskimo knife.

EXTENSION ACTIVITY 5 1.8

The Great Alaskan Place Find

Master List

All of the following places are hidden within the Great Alaskan Place Find.

Adak	Alaska	Aleutian Islands	Anchorage
Angoon	Anvik	Atka	Attu
Baranof	Barrow	Beaver	Bell (Island)
Bethel	Chignik	Bering Strait	Brooks Range
Circle	Clear	Cook Inlet	Cordova
Council	Curry	Dall	Delta Junction
Denali	Dillingham	Dot (Lake)	Douglas
Eagle	Eek	Egavik	Elim
Eska	Eureka	Fairbanks	Ferry
Fort Yukon	Fox	Gambell	Haines
Homer	Hoonah	Hope	Horse
Huslia	Hydaburg	Iditarod	Igiak
Juneau	Kake	Ketchikan	Kiana
Klukwan	Kodiak	Kotzebue	Koyuk
Koyukuk	Kuskokwim	Levelock	Livengood
Llnik	Long	Matanuska	Minto
Moses Pt.	Nation	Nenana	New Stuyahok
Noatak	Nome	Nyac	Old Harbor
Palmer	Petersburg	Pile (Bay)	Pribilof Islands
Purgatory	Prudhoe Bay	Quek	Salmon
Sand (Lake)	Selawik	Seldovia	Seward
Shaktolik	Sitka	Skagway	Slana
Sleetmute	Soldotna	Sutton	Tanana
Tetlin	Tee (Harbor)	Tok	Unalakleet
Unalaska	Ungalik	Umiat	Ruby
Valdez	Wasilla	Willow	Wrangell
Yakutat	Yukon		

THE GREAT ALASKAN PLACE FIND

INSTRUCTIONS: This map has more than 100 Alaskan place names hidden on it. They may be across, diagonal, or vertical. They also may be spelled backwards. Your job is to find and circle as many Alaskan place names as you can. After finding them above you may want to locate these places on a map of Alaska.

EXTENSION ACTIVITY 6 1.8

Three Choices

Comments: This is a creative writing assignment with three choices.

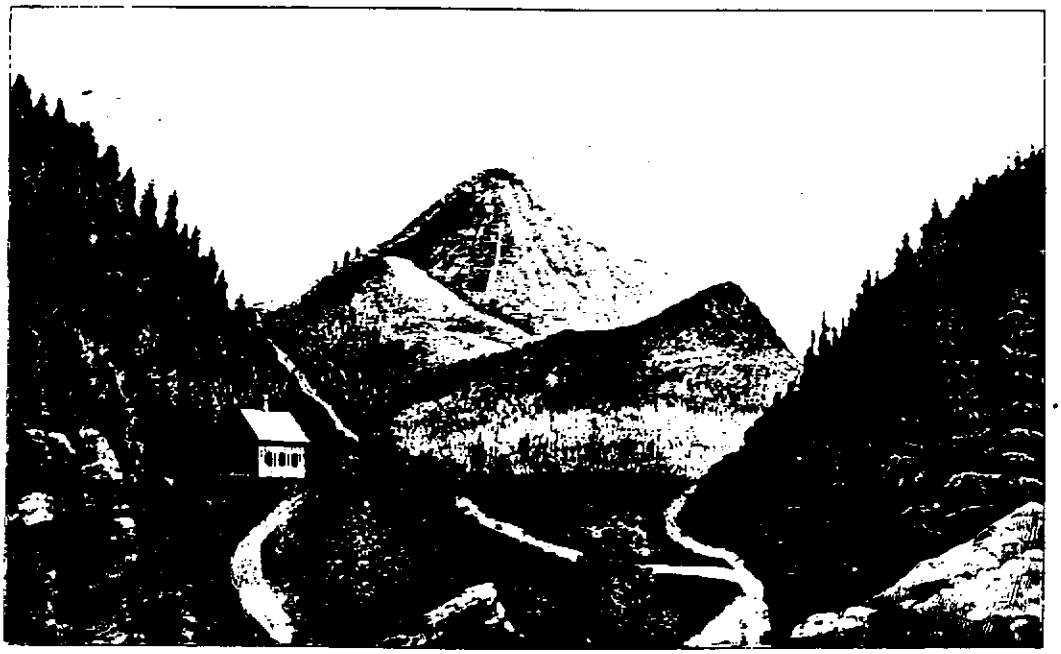
1. PHOTOGRAPH OF THE FUTURE:
   Locate two photographs showing the same location. These photos need to have each been taken at a different time. The further the distance of time the better (50 years for example). Compare the photos. Note the changes. Predict what a photograph taken 100 years from now would look like. In your report, identify the location being studied. Describe the first photo; describe the second photo. Provide statements of similarities and differences. Contemplate why the changes occurred. Make your prediction and tell why you anticipate those changes.

or

2. CAN WE TAME ALASKA'S LAND?:
   Alaska has been referred to as a land of extremes. These extremes have been made clear to you by studying the geography, climate, and topography of our state. In your final essay for this unit reflect upon the phrase, "taming our land." Answer this question, "Can we tame Alaska's land?"

or

3. YOUR LAND:
   Write another verse to the song, "This Land is Your Land." Feature a drawing of your land.



EXTENSION ACTIVITY 7 1.8

Impact of Human Habitation

MATERIALS:

Videotape 1, Program 4: "Impact of Human Habitation

TO DO:

BEFORE:

Review what you know about the ecosystems of Alaska.

Be thinking about how humans can affect these ecosystems.

Be aware of these terms.

clear cutting	haul road
placer mining	population
salt	toxic waste

DURING:

Watch Videotape 1, program 4, "Impact of Human Habitation

AFTER:

Answer the following questions and submit them to your teacher.

1. List at least one resource issue for each of the four ecosystems:

_____

_____

_____

_____

2. Using your knowledge of the ecosystems of Alaska, write an essay on what aspects of an ecosystem should be taken into account if a new Alaskan settlement were to be created.

_____

_____

_____

_____

EXTENSION ACTIVITY 8 1.8

Computer Settlement

MATERIALS:

Computer
Appleworks
Data Disk #1
Printer
(If you do not have a printer you will need to send your data disk to your advisory teacher.)

TO DO:

BEFORE:

Load Appleworks and the data file, Activity 2.2 on Data Disk #1, into the computer.

DURING:

1. Press OPEN-APPLE P to print out your database about Alaska's regions. Place the cursor on--1. Get a report format--and press the RETURN key. The following will appear on the screen:

   1. Regions

   Press RETURN to select this format. Press RETURN, OPEN-APPLE P to select the printer option and press the RETURN key again to print.
2. Sort the regions on rainfall, from greatest to least. Look up how to change the record selection rules (Display Certain Records) in your Appleworks manual. Get a printout of the rainfall sort.
3. Sort the regions on elevation, from greatest to lowest. Get a hard copy printout of this sort. (Check your Appleworks manual for specific instructions.)

AFTER:

Use this printout to help you choose a location for a new Alaska settlement. See page __ of your student manual for specific information about this assignment.

COMMENTS:

You may wish to reset Applework's default margins for a printed page.. By resetting the margins, you can get more information on a printed page. To reset margins, do the following:

1. Type OPEN-APPLE O. This will let you in to the Appleworks options menu.
2. Type: TM and press the RETURN key
   1.0 and press the RETURN key
   BM and press the RETURN key
   1.0 and press the RETURN key
   RM and press the RETURN key
   .05 and press the RETURN key
   LM and press the RETURN key
   .05 and press the RETURN key

If you have access to the electronic mail system, you must convert your Appleworks file to an ASCII file. (See your Appleworks Reference Manual) Upload your file to the advisory teacher.

EXTENSION ACTIVITY 9 1.8

Relief Map

You probably remember from previous social studies courses that a relief map shows topography in a three dimensional form. For this activity, you will construct a relief map of Alaska. It should be at least 18 inches square. Use heavy cardboard or plywood for the back of your map. You may choose almost any material to construct the topography of your map. You could use salt and flour mixed together or modeling clay. Here are some recipes.

Salt clay
1 cup table salt
1/2 cup cornstarch
1/2 to 3/4 cups cold water

Mix in double boiler, stirring constantly until it thickens into a solid mass about the consistency of bread dough. Place on aluminum foil or wax paper to cool and then knead like bread dough. If it appears sticky, it should be cooked longer, but it can be air dried before wrapping. If not used immediately, it can be stored several days if carefully wrapped in foil, saran wrap, wax paper, or placed in a wide mouth jar with a tight lid. The clay should be kneaded well before using if it has been stored. Color can be added to the ingredients before mixing.

Sawdust Recipe
1 part sawdust
1 part wheat paste
1/2 part plaster of paris

Mix dry ingredients together. Add enough water to make mixture of workable consistency.

Salt Flour Clay
3 cups flour
1 cup salt
Enough water for right consistency

Store in an air tight container. A tablespoon of powdered alum may be added to increase the volume. Add coloring with flour and salt before adding water if powdered paint is used. If food coloring is used, add this to the water before mixing with dry ingredients.

Cooked Dough
1 cup flour
4 cups boiling water, add 1 cup of salt
1/2 cup cornstarch -- blend with cold water to a paste

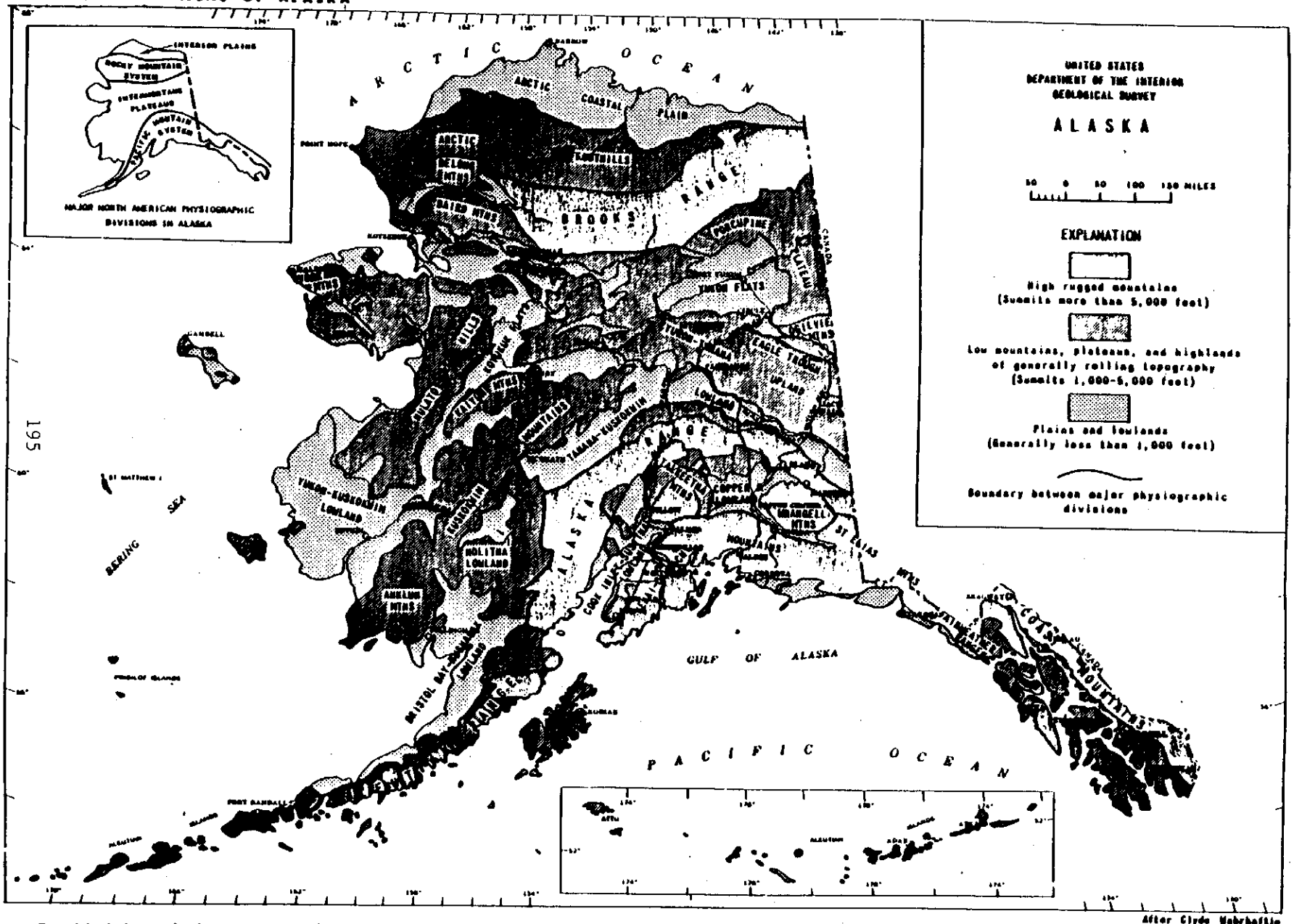
Pour hot mixture into cold, stirring constantly. Put the pan with the dough mixture over a pan with hot water and cook until clear. Cool overnight. Knead flour in until right consistency, adding color with flour. Keep in damp cloth or air tight jar. Products will harden and dry if allowed to remain in air. If dough becomes hard, add more water as needed.

Relief Map

You might also try using layered colored paper or even colored yarn. Try a combination of materials. Use the map on the next page, or any other map of your choosing as your guide. When your map is constructed, show elevations by using different colors. Be sure to color the rivers and bodies of water as well. Include at least the following on your map:

Communities	Bodies of Water	Land Forms
Bethel	Yukon River	Brooks Range
Barrow	Copper River	Alaska Range
Nome	Susitna River	St. Elias Mts.
Kotzebue	Prudhoe Bay	Kodiak Island
Sitka	Cook Inlet	Pribilof Islands
Juneau	Bering Sea	Aleutian Islands
Ketchikan	Bering Strait	Little Diomede Island
Anchorage	Bristol Bay	Mt. Katmai
Fairbanks	Gulf of Alaska	Mt. Iliamna
Kodiak	Pacific Ocean	Alaska Peninsula
Valdez	Beaufort Sea	Kenai Peninsula
Kenai	Chukchi Sea	Seward Peninsula
Skagway	Arctic Ocean	Matanuska Valley
Palmer	Tanana Valley	Malaspina Glacier
		Arctic Circle

You will be using this map several times in other units and adding things to it. Be sure to store it in a safe place and have it available for use later on in Unit 2. Take a picture of your map, or write/tape a description of its construction for your teacher.



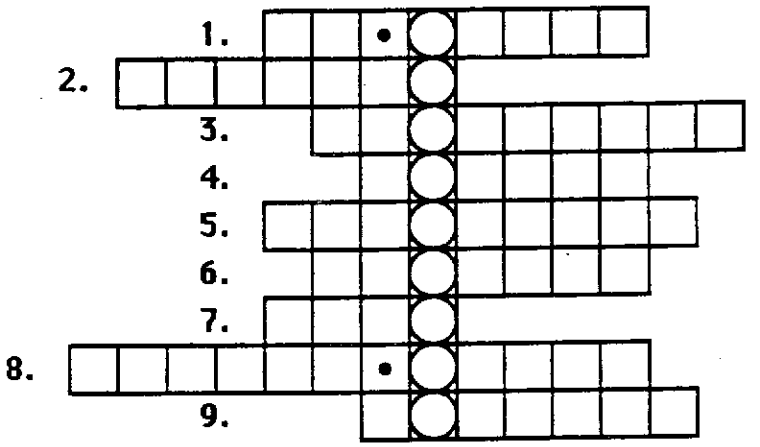
After Clyde Wahrhaftig

Provided through the courtesy of the Institute of Arctic Environmental Engineering and the Institute of Water Resources, University of Alaska.

ALASKA TRIVIA 1.8

Magic Mountain

Use the clues to fill in the blanks. The Alaska Almanac section on "Mountains" will be a good reference. When you are done you will have the name of our magic mountain.



CLUES:

1. Near a "corner" of Alaska, 18,008 feet.

2. In the Wrangell Mountains, 16,237 feet.

3. This island volcano near Anchorage blows its top regularly, and is 4,025 feet tall. It is pictured on PGA p. 52.

4. The highest mountain on the North American continent.

5. On the Alaska-Canadian Border in Southeast Alaska, 15,000 feet.

6. The _____ Mountains are near Anchorage, and rise to 13,176 feet. There's a picture of these on PGA, p. 42.

7. This mountain is 12,010 feet high.

8. On PGA p. 36, this 13,176 foot mountain produces Eliot Glacier.

9. Pictured on PGA p. 57, this 12,339-foot peak was named for an early Alaskan.

10. The Magic Mountain is _____.

Magic Mountain

11. Do some research on this mountain. What kind of mountain is it? Where is it?

ASSESSMENT 2 (Lessons 5 - 8) 1.8

You have completed Lessons 5-8. Now it is time to find out how much you have learned. Go back and review the objectives for each lesson. Your home teacher has Assessment 2 in his or her test packet. Your home teacher must monitor you while you are completing Assessment 2.