Winter Pony Unit Study

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Geography

Geography -- Iceland, North Atlantic Ocean, Arctic, Arctic Circle: Iceland is part of the Arctic region of the world. The Arctic includes eight nations: Iceland, Denmark (who also owns Greenland), Finland, Norway, Sweden, Russia, Canada, and the United States (because of Alaska). Iceland is an amazing place, a land of extremes...of deserts, hot springs, volcanoes, and glaciers. Iceland is nicknamed "The Land of Fire and Ice" and "The Land of the Midnight Sun." Iceland is such a mix of harsh environments that NASA used the land to help train the first men who would walk on the moon (*Apollo 11*).

Iceland is an island (review definition of an island) just below the Arctic Circle. It is in the North Atlantic Ocean. Help your student locate the North Atlantic Ocean, Iceland, and the Arctic Circle on a globe or map. Help your student to see that Iceland is located about halfway between North America and Europe. It is about the size of Virginia or Indiana or Ohio.

Iceland is a fascinating place and as such there are many possible bunny trails that can be explored. At the bottom of the page are some ideas to help you get started on an extended study of Iceland.

Social Studies

Social Studies -- Animals for best friends: Have you ever thought about an animal as being your best friend? In what ways do you think an animal could be your best friend? How would it be different than having another boy or girl as being your best friend?

Social Studies -- Growing Up: In this story, both Anna and her pony, Prince do some "growing up." Anna's learns to let her young horse go and Prince earns a place in

the herd. Discuss with your student the process of "growing up" and of the changes it brings.

Social Studies -- Norse Mythology: If your student has studied ancient civilizations, remind him about Greek, Roman, and Egyptian mythology. Discuss how people who lived in other countries also had stories of gods and goddesses and other fictitious creatures. The early Icelandic settlers worshiped many gods and goddesses.

The Norse people (also called Scandinavians) are people who live in Norway, Sweden, Denmark, or Iceland. (You may want to help your student locate these countries; point out how close to the Arctic they are.) The stories these people made up are called Norse Mythology. These were the gods of the Vikings.

Below are several books which contain stories of Norse mythology. Choose a story to read to your child. Compare how they are similar to the mythology of other ancient civilizations.

About 1000 AD, the government of Iceland adopted Christianity as their religion.

[Note: If you are Lord of the Rings fans, you may wish to note that J.R.R. Tolkein used elements from Norse mythology in his writing of LOTR. So did homeschooled author Christopher Paolini in his *Eragon* and *Eldest* books.]

Possible Supplemental Titles

Stolen Thunder: A Norse Myth by Shirley Climo (32 pages)
The Theft of Thor's Hammer retold by Henrietta Branford (24 pages)
D'Aulaires *Norse Gods and Giant*s by Ingri and Edgar Darin D'Aulaire (150 pages, several stories)
Thor's Visit to the Land of Giants by Nancy Wilson Ross (51 pages)
Norse Mythology A to Z: A Young Reader's Companion by Kathleen N. Daly (Revised by Marian Rengel)
Gods and goddesses of the Vikings and Northlands by Leon Ashworth (32 pages)
Odin's Family: Myths of the Vikings by Neil Philip (124 pages, several stories)
Favorite Norse Myths by Mary Pope Osborne (87 pages, lesser known stories)
Usborne Illustrated Guide to Norse Myths and Legends by Cheryl Evans

Note from Celia: It's hard to find a book about Norse mythology that does not have scary pictures and/or wording. If you're looking for just a story, try one of the stories about Thor's hammer being stolen. Personally, I liked the story by above-mentioned Shirley Climo, but the pictures of the one by Henrietta Branford.

The one by Neil Philip has several stories and few pictures, but some text may not be appropriate. Each chapter begins and ends with a rune, but show several that I could not find on the link I provided below. The D'Aulaires' book is many scary pictures. You could go through either books, choosing a story appropriate for your family.

The Ashworth book is more informative than story-like. Has many pictures of actual artifacts.

Language Arts

Language Arts -- Vocabulary:

cocked to tilt or turn up or to one side, usually in a jaunty or alert manner
tramped to walk on foot, to hike
huddled to crowd together, as from cold or fear
dazed to feel stunned, bewildered, or shocked
startled to alarm or frighten suddenly
respect to feel admiration, esteem, appreciation, or high regard

Language Arts -- Alliteration: The story has several examples of alliteration. Review alliteration and ask your student to find some examples.

marshy meadows
mountain looked magical in the morning mist
spring storms swept
mountains were green and glowing
slept soundly

Language Arts -- Works originally published in other countries / Translated Works: If you turn to the copyright page in front (just before the title page), you will see that it says the book was first published in Switzerland under the title *Anna's Islandpony*. Explain to your child that many (most) of the books we read here in the United States were first published here. This story however was first published in a country called Switzerland (you may wish to point out on a map/globe) and that it was not originally published in the English language. Because it was not in English, a person had to translate it. The opposite page (the title page) tells us that J. Alison James translated it for us so we could read it. (If you also have *Runaway Pony*, you may wish to point out that it too was first published in Switzerland and also needed to be translated--though I did not see where it gave the translator's name. I found on the Internet that the translator for *Runaway Pony* was Marianne Martens.)

Language Arts -- Plot: Using page 44 of your Volume I *Five in a Row* manual, review plot elements: setting, conflict, rising action, climax, and denouement (resolution). Discuss each part in today's story. Have your student map out the plot elements.

If you have a younger student, you may wish to use just the words Beginning, Middle, and End.

Art

Art -- Medium: The artist, Ulrike Heyne, used watercolors for this story. Have your child make a scene with watercolors. You may also wish to point how the artist used a "splatter" technique to make the snow. (See splatter art lesson for Homeschool Share's Baby in a Basket.) See if your child can replicate the illustrators way of painting the horse's mane and/or the icy rain.

Art -- Similar Pictures: Ask your child to look at the cover of the book closely. Now turn have your student look at the picture opposite of the first page of text. Note the similarities of the two pictures; they seem identical except for the season.

Math

Math -- Units of Measure, Hands: The height of a horse or pony is measured in a

unit called *hands*, which is abbreviated *hh*. One hand is equal to 4 inches. A horse's height is measured from the ground to the withers. Let's look at a horse is that is 15.2 hh. The first part of the number, 15, is in hands. However, the second part of the number, 2, is already in inches. So a horse that is 15.2 hh would be 62 inches tall. (15x4=60+2=62). Help your students to covert hh to inches. With a younger student you might just want to discuss that the hands unit is 4 inches and then practice skip counting by 4's.

Math -- Calendar: If you've already discuss Norse mythology, you may wish to take this time to review the calendar (names of the days of the week, the # of days in a week/month/year, etc.) Many of the names of our days are taken from Norse mythology. If your child is interested, you may wish to discuss this fact.

Names of the Days of the Week and Months: You may wish to discuss the origin of our word Thursday, Thor's Day. Thor was the Norse god of thunder and lightning, and is often depicted with a hammer in his hand. Origins of other days and months:

Sunday the sun's day
Monday the moon's day
Tuesday Tyr or Tiw's day (Tyr/Tiw was a Norse god)
Wednesday Wodan's day (Wodan is another name for the Norse god Odin)
Thursday Thor's day (Thor was a Norse god)
Friday Frigga's Day (Frigg was a Norse goddess)
Saturday Saturn's Day (Saturn was a Roman god)

Science

Be sure to check out the Bunny Trails listed below for lots more Science ideas! Studying Iceland affords an opportunity to learn about many different types of land formations and ecosystems.

Science -- Horses: Icelandic Horses The horses on the island of Iceland are descendants of the horses that the Vikings brought to the island when they settled there over one thousand years ago. The harsh environment of Iceland has made the horses become smaller over time, with dense coats and long shaggy manes

and tails to protect them from the cold. These hardy little horses are actually pony-sized!

One difference between a pony and a horse is the size. If it is under 14.2 hands (see above Math lesson), then it is generally considered a pony. If it is over 14.2hh, then it is generally considered a horse. Despite the small sizing of Icelandic horses (generally under 14.2hh), the breed is always called a horse and is not a pony (because they descend from larger horses).

The harsh environment of Iceland has also forced these horses to be able to survive on very little food and to become less spooked by their surroundings. They are sure-footed and are very strong.

The most remarkable thing about the Icelandic horse is the number of ways in which he can move his feet! Not only can an Icelandic do the normal gaits of walk, trot, canter, many Icelandics can also pace AND it can also tolt. That's five different gaits!

Not all Icelandics can pace, but those that can are highly prized. Pacing is ability to move the two legs on one side forward at the same time, like a Standardbred pacer...remind student of *The Giraffe That Walked to Paris*, FIAR Volume II. Pacing is very fast...sometimes almost 30 mph!

When an Icelandic horse is tolting, the horse moves his feet in the same order as a walk, but much faster. When an Icelandic is moving at a tolt, he can keep up with most horses at a gallop. The tolt is very comfortable to the rider. It can be so smooth that the rider can carry a cup of water without spilling a drop!

Source: *Crazy for Horses* by Karen Briggs and Shawn Hamilton and *The Icelandic Horse*

Possible books:
Icelandic Ponies (Magnificent Horses of the World) by Tomas Micek (44 pages , suitable for the younger student. Nicely describes the different Icelandic horses, using lots of large photos. Nicely touches on hierarchy and the fighting of the stalLions. Discusses the tolt, though it is written as tilt on the book. The biggest thing I don't like about it is that the author calls them ponies...they are horses,

despite their small size because they are descendants of horses.)

Science -- Animal Social (Dominance) Hierarchy:

It's time for him to take his place among the herd. If he doesn't go now, he will never fit it," explained her father.

The chestnut stamped his forelegs and lunged toward Prince. Both horses reared and bit each other in the neck and legs. With a loud snort, the chestnut gave Prince a strong kick, and Prince fell over the cliff.

The fight was over. Prince has earned the respect of the older horse.

Much of our story is about Prince being accepted into the herd of wild ponies. Many animals, including horses and ponies, have what is called a social or dominance hierarchy. Wild horses and ponies live in herds. A herd is just a group of horses that live together. Many animals live in groups, just as you do...you live in a group with your family. Animals that live in groups have what is called a "pecking order," an order of dominance. The most dominant is the leader and the order continues down to the least dominant. It is much like what the Bible says about families: Daddy is the leader of our family, Mommy listens to Daddy, and you children listen to us. (And of course, God is the head of our entire family and we all need to listen to Him first and foremost.)

In horses, the *alpha* animal is the one to whom all the others give respect and are submissive to. (Think of Jesus when He is described as the Alpha and the Omega...one day every knee will bow before Him.) The alpha horse is the leader. The alpha horse is usually not the stallion (male horse) who "owns" the herd. The job of the stallion is to protect the herd from danger and to help keep the band together. He will allow young horses/ponies to join the herd, but when they are older he will chase them off so that they can find their own female horses to protect. The alpha horse is often an older mare (female horse) whose wisdom is respected by the others.

Science -- Underground Hot Springs / Geothermal Energy: The heat from volcanic activity meeting the cold waters of the island has caused many underground hot springs to form . The water in the springs get so hot from the lava that sometimes

a geyser is formed. A geyser is when the very hot water or steam is shot up high into the air from the cracks in the earth. (Has your child ever been to Yellowstone and seen Old Faithful?) As the melted glacial waters seep into the ground, it collects in an underground cavity (hole) called a reservoir. When a reservoir is located near a pocket of hot magma, the water heats up and gradually turns to steam. The pressure then builds and the steam is forced back up to the surface of the ground where it shoots out. The geyser stops spouting when the reservoir no longer has water or steam in it. Over time the reservoir will again fill up and the process repeats. Geysers could also be called a "water volcano." Did you know that we get the word "geyser" from Iceland? All the world's geysers are named for the Great Geysir in southwestern Iceland...it shoots water 200 feet in the air!!

Since hot water and steam occur naturally in Iceland, the people living there have learned to use it to heat their homes. A furnace is not needed! Wells are drilled into the ground and the water and steam from the wells is then piped into their homes and other buildings. This called geothermal energy. You may wish to have your older child research the many benefits of geothermal heating.

Make a model of a geyser: See Donald M. Silver's book, *The Amazing Earth Model Book: Easy-to-make, Hands-on Models that Teach.*

Science -- Land of the Midnight Sun: Iceland also has a nickname of the "Land of the Midnight Sun." During the month of June, the North Pole is tilted closest toward the sun, bringing almost 24 hours of sunlight for the entire month. Explain to your child that if he were in Iceland in June, he could go outside and play in daylight even if it were past his bedtime!

In December, the North Pole tilts farthest away from the sun, bringing almost 24 hours of darkness for the whole month. Help your child to understand that if he were to go outside on Christmas Day in Iceland, he would watch the sun rise and less than an hour later he would watch it set!

(You may wish to use a globe for the tilting earth and a yellow ball to demonstrate.)

Just for Fun

Family Names / Naming Traditions: Help your child to understand that in America, it is tradition for the bride to "take" the last name of her husband on their wedding day and that any children they have will also be given that same last name. Icelanders do not have family last names. When they name their children, the child's "last name" becomes a combination of their father's first name and either the word -son (meaning son) or -dottir (meaning daughter). For example, if Jonas has a son named Karl, then son's name becomes Karl Jonasson. If he has a daughter named Inga, then the daughter's name becomes Inga Jonasdottir. Help your child determine what his/her name would be if you followed the Icelandic tradition. (Adapted from *Iceland* (A True Book) by Kathleen W. Deady).

Possible Bunny Trails

Vikings: Erik Thorvaldson (Erik the Red) and his son Leif Erikkson. Oodles you can explore here! There is a 17-minute audio version of Landmark's *The Vikings*. While it is mostly about finding new land (Greenland and North America), it does start out in Iceland from where Erik the Red left and talks about how he was outlawed from Iceland. Link to the audio

Landforms -- Islands: Did you know that islands are still being made? About 40 years ago (1963-1967), the world watched as a new island was "born" off the coast of Iceland. This new volcanic island, only about 1 square mile in size, rose up out of the sea about 25 miles from southwest Iceland. It was named Surtsey, after the Norse fire-possessing giant Surtur. Read the story and see beautiful photographs with the book *Surtsey: The Newest Place on Earth* by Kathryn Lasky. (Note: This book mentions "hundreds of thousands of years.") If you can't get the book, you might wish to see some pictures from the Internet:

Landforms -- Tectonic Plates and Volcanoes: Iceland sits in area where two tectonic plates (the North American Plate and the Eurasian Plate) are spreading apart. This area is one of the most volcanically active regions in the world. From 1783 to 1786, Iceland experienced the worse volcanic eruptions in history. The Laki volcano in south central Iceland lasted for eight months, during 1783 and 1784, and caused the most damage. Lava covered the lands and destroyed livestock, crops, and farmland. After this, Icelanders did not have enough food and many starved to

death. South Iceland is home to the island's most famous volcano, Mount Hekla. Mount Hekla erupted in the year 1104 and nearly half of Iceland was buried in ash and debris as much as three feet deep in some places. Research tectonic plates, the Krafla fissure, the Thingvellir fissure, and/or volcanoes further. Perhaps discuss the two types of eruptions: Explosive volcanoes and effusive volcanoes.

To learn more about volcanoes, check out Homeschool Share's free Volcano Lapbook.

Landforms -- Underwater Mountains (Mid-Atlantic Ridge): When we say the word mountains, almost instantly the snow-covered Rocky Mountains or Alps comes to mind. More maybe the beautiful tree-covered mountains of the Appalachians. But does your student realize there are mountains in the oceans? Mountains that are completely covered by water? Iceland sits on top the Mid-Atlantic Ridge, a rupture zone on the floor of the Atlantic Ocean. This ridge is part of a continuous 37,000 mile-long "backbone" (a chain of underwater mountains) of Earth that extends from the Arctic Ocean to beyond the southern tip of Africa. In the Mid-Atlantic Ridge, the plates pull apart which cause volcanic eruptions. The North American Plate pulls to the west, and the Eurasian Plate pulls to the east. The only part of this Mid-Atlantic ridge of mountains that is above water is Iceland and it sits atop the North American and the Eurasian Plates. Which means the movement of these two plates is causing Iceland widen about an inch each year.

Landforms -- Glaciers: Glaciers are enormous, slow-moving masses of ice. Think of it as a "river of ice." As snow becomes compacted by its own weight, it turns to ice. This heavy mass of ice begins to slide down the mountains often carving the ground (this is a form of erosion). If a glacier reaches the ocean, the waves and tides break off chunks of the glacier that begin to drift into the water. These chunks are called icebergs.

More than 10% of Iceland is covered with glaciers. Central Iceland has large areas covered with glaciers. The largest glacier in this area is more than 3,000 feet deep in some places!

Make a model of a glacier (adapted from this source)

> First, freeze several 1/2 gallon containers of water. You can use a milk jug or juice container and cut it off the ice. These will be your "glaciers."

Next, find a long, plastic storage container (approx. 3 ft. long and about 6 inches deep). Spread moist gravel over the entire bottom about 2 inches deep and then cover it with topsoil. Find a location out of direct sun where it can be undisturbed but viewable for several days. Prop it up so that it is at about a 30-degree angle. Place a "glacier" at the top of the slope. When it melts, add another.

Over a period of several days, have your student observe what happens. (It too much water gathers as the lake at the bottom, remove some.) Student should be able to see the erosion of topsoil, the exposure of rocks ("glacier erratics"), the formation of a lake at the bottom, a river delta, sediment on the lake bottom, etc.

Ecosystems -- Marshy Meadows: Marshes are areas of low, wet, soft land (a swamp or bog). The creatures that live in this are especially suited for their wet environment. Have your older student research Icelandic salt marshes and write a paragraph on his findings.

Biome/Climactic Zone -- Tundra: Tundra is defined as area in which the growth of trees is hindered by the cold temperatures and the short growing season. There are three kinds of tundra: Arctic, Alpine, and Antarctic. Iceland has two.

North Iceland is Arctic tundra. Arctic Tundra is defined as a treeless area between the icecap and the tree line of Arctic regions, having a permanently frozen subsoil (permafrost) and supporting low-growing vegetation such as lichens, mosses, and stunted shrubs.

Most of Iceland is Alpine Tundra. Alpine Tundra does not have permafrost and the soil is usually better drained than arctic tundra.

Frozen Tundra: A Web of Life (*A Web of Life* series) by Philip Johansson
Arctic Tundra and Polar Deserts (*Biomes Atlases* series) by Chris Woodford
Arctic Tundra (*One Small Square* series) by Donald M. Silver
Tundra Discoveries by Ginger Wadsworth
Tundra (*Biomes of the World* series) by Elizabeth Kaplan
Tundra (*Our Living World: Earth Biomes* series) by Barbara A. Somervil

Biome/Climactic Zone -- Desert: Central Iceland is a desert plateau. A desert is often defined as a dry, often sandy region of little rainfall, extreme temperatures, and sparse vegetation. It can also be defined as a region of permanent cold that is largely devoid of life. A plateau is defined as a relatively flat highland. In the desert regions of Iceland, there are very few trees and the soil is not fertile enough for crops or grazing animals.

Arctic Tundra and Polar Deserts by Chris Woodford
Tundra and Cold Deserts by Rose Pipes

Evolution / Adaptation: Because Icelandic horses have adapted to the harsh environment of Iceland, you may wish to discuss evolution (with a small "e"--sometimes known as microevolution). Over the thousand years that the horses have been on the island, they have adapted to their surroundings by becoming more compact and very strong. They have become tough and hardy. Icelandics are usually gentle and rarely kick or bite. They are generally easy to catch. Just think how noisy it must be when there are volcanoes and geysers all around! Being use to such sounds, humans coming around are probably less scary!)

Glima: Have a child interested in wrestling? Find more information on Glima, the traditional form of Icelandic wrestling. The Vikings brought the game to the island!

Greenhouses: Icelanders use greenhouses to extend the growing season. If your student is interested, research this further.
Deforestation / Reforestation: Twelve hundred years ago Iceland was almost completely covered with trees. Since that time, Iceland has become almost treeless. In an effort to keep the islanders from worshiping the trees, Christian leaders cut down many trees. Over the years, many trees were chopped down for timber or for firewood. Herds of sheep stripped areas as they grazed. Harsh winters and volcanic ash also took their toll. Research further the efforts that have been recently taken to restore trees to this island.

Ancient Alphabets -- Runes: Has your child studied Cuneiform writing when he studied ancient civilizations? Perhaps he'd be interested in seeing the old alphabet of Iceland, Runes.

Home Economics -- Cooking:

Pancakes
3 cups Flour
3 Eggs
3 cups Milk
1/2 teaspoon Baking Soda
Essence of Cardamom

Beat eggs and milk together, add dry ingredients. Stir until smooth. Leave to settle for 30 minutes. Melt and add margarine. Heat a small frying pan and grease the pan lightly. Pour enough batter to coat the pan thinly. When one side is done, turn the pancake over with a palette knife and fry the other side. Grease frying pan often.

Pancakes are usually stacked as they are fried and white sugar sprinkled liberally on each one. They can be rolled up individually, with a little added white sugar on each one. Alternatively, strawberry jam is spread on the pancakes, with a dollop of whipped cream in the middle. Fold over twice, and enjoy.
