

Weslandia Unit Study

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Language Arts

Vocabulary:

Civilization: a society characterized by a high level of intellectual, social, and cultural development.

Staple: a basic food that is regularly and constantly produced, used, or sold.

Bedlam: a place or scene of noisy confusion

Tubers: a thick portion of an underground root, such as a potato.

Myriad: a vast number of persons or things

Scornful: mocking, treating as inferior or unworthy

Mortar: a strong, bowl shaped vessel in which substances are crushed with a pestle

Innovation: something newly introduced; a new method or device

Scope: capacity for achievement or effectiveness

Morale: state of mind usually including confidence, courage, hope, zeal, etc.

Finale: the last part

Constellation Myths:

A myth is a story that explains why some things in the universe happened.

Students can read several different myths about constellations from various cultures. Look for a book about constellation myth stories at your library. Students can write their own myth based on the constellation story they created (see science).

Alphabet Characters:

In Weslandia, Wesley develops an 80-character alphabet. Throughout history, different civilizations created their own alphabets. They were systems of communicating without speaking, and had to be commonly understood to be of use. The earliest alphabets, such as the cuneiforms of the ancient Sumerians or hieroglyphics of the ancient Egyptians, were picture based. This eventually evolved into symbols for letter sounds. Students can make their own alphabet of 30 to 40 characters. Discuss with students how this is possible, considering our own alphabet consists of only 26 letters. Possibilities include different character for long

and short vowel sounds, different characters for digraphs, diphthongs, and blends, as well as characters for sounds that don't exist in English. Foreign sounds may include the rolling rr (as in arroz) or ll (as in pollo) from Spanish or the "click" of the x in Xhosa. Students should write a message using their new alphabet and possibly exchange it (along with a key) with another student to be translated.

Math

Sundial:

Students can make a sundial using a long stick. They can mark the hours on the first day, using smaller sticks or markers. Students can check the accuracy of their sundial for the next week or month. They will notice that it becomes less and less accurate due to the changing seasonal position of the sun. Discuss why sundials are not used widely today.

Division:

Wesley divided the day into eight segments. Ask your student how many hours there are in a day, then ask him to divide these hours into eight segments. How many hours in each segment?

Base Numbers:

Wesley created a base 8 number system. Present this story that describes a base 4 numbering system to students: Long, long ago in the realms of the imagination, lived the Quaterns. The four rulers of the tribe were each the guardian of four sacred groves of four sacred trees. Each tree bore 4 fruits which were forbidden to be picked. When the fruits ripened and fell to the earth, each one split to reveal 4 seeds. Among the Quaterns, only the leaders knew the secret of counting. They used seeds as 1 and then followed this arrangement. 4 seed = 1 fruit, 4 fruit = 1 tree, 4 tree = 1 grove, 4 groves = 1 leader. Discuss how many seeds it would take to equal one tree (16). How many seeds in one grove? Can your student solve these math problems? (If you add these two groups together, what do you get- 1 tree, 0 fruit, and 3 seeds PLUS 2 fruit and 1 seed?)

L	G	T	F	S
		1	0	3
+			2	1
		1	3	0

L	G	T	F	S
2	0	2	1	1
+	3	1	3	2
3	0	0	0	3

Number Comparison and Place Value:

Examine different numbering systems used throughout history such as Egyptian, Babylonian, Greek, Roman, Chinese, Mayan, and our Arabic system.

Make a chart comparing how different systems represent key numbers (1, 5, 10, 100, etc.). Students can create their own numbering system and include it on the chart. Have students attempt a basic 2-digit addition problem (52+38) using various number symbols. Discuss that the reason it is so difficult, even if the students knew the symbols well is because most don't have a 0 or a placeholder to show the units, tens, or hundreds place. This also minimizes the number of symbols needed to perform and understand math problems.

Using a Homemade Abacus:

Learn how to use a homemade abacus with 3 small bowls or containers and ten beads, each of 3 different colors. One bowl of beads represents the ones, one represents tens, and one represents hundreds. To represent 274, students would place 4 beads in the ones bowl, 7 in the tens bowl, and 2 in the hundreds bowl. To add 25 to 274, students would place 5 more beads in the ones and 2 more in the tens. Since none of the bowls contain more than 10 beads, simply count the beads in each bowl and put them in the correct order to find the answer. To add 27 to 274 the students first add 7 to the ones bowl, but since there can't be more than 9 beads in a bowl, trade 10 of the ones beads for one tens bead. Then continue by adding the remaining 3 beads to the tens bowl, following the same procedure and trading ten tens beads for a hundreds bead. This is a good way to visualize the concept of carrying in addition and borrowing in subtraction.

Parts of a Plant:

Wesley's seeds took root, first as small seedlings, then shooting up past his knees, and then producing fruits. Discuss with your child the different parts of a seed and of a plant. A seed coat protects the inside embryo, which is the baby plant. There is storage of food inside the seed around the embryo. Some seeds have a very hard coat, and it helps to soak the seed before planting. Explain to your child how not all seeds will grow though. They need air, plenty of water, and the right temperature and amount of light to begin to grow, or germinate.

After a seed germinates, the plant begins to grow. Most flowering plants have four main parts: roots, stems, leaves and flowers. The roots grow underground and hold a plant in place and take in water and nutrients from the soil for the plant to grow. The shoot or stem grows up from the top of the seed, and holds up the leaves and flowers of a plant. It also carries the water and nutrients from the roots to the rest of the plant. The leaves grow from the shoot and make food for the plant using a process called photosynthesis. It takes chlorophyll (which is the green in the leaves), sunlight, water and a gas called carbon dioxide to make glucose (a kind of sugar). This glucose is stored in the stems or roots of the plants. The leaves also give off oxygen, which is in the air we breathe. Buds then develop, and flowers form from the buds. From some flowers, fruit is produced. The flowers contain the parts to make seeds, and then the process starts all over again.

Flowers have four parts: The petals, which are the lovely blossom, we see easiest and it attracts bees, insects and birds to help with pollination. The pistils are the female reproductive part, which stores the egg cells. The stamens are the male reproductive part and they produce the pollen. Plants need to be pollinated to produce seeds and fruit. The fourth part is the sepals, which are small green leaf-like petals that surround the flower to protect a young flower.

Plant Uses:

Wesley was very resourceful, finding uses for all the parts of his plants. Make a list of various plant parts (as studied above). Try to find or name 3 household items that come from each part of the plant. The list could include tea bags or parsley for leaves, a table or corkboard for trunk/heartwood, perfume or potpourri for flowers, shampoo or juice for fruit, carrots and herbal remedies for roots, poppy seed muffins or birdseed for seeds.

Reflection of Light:

Wesley opted for a light colored robe that reflects the sun over dark colored jeans that would absorb the sun. Conduct an experiment answering the question: Does color affect heat absorption and reflection? After making a hypothesis measure the temperature of two scraps of fabric (one light, one dark) left in a sunny location (and weighted down with a few rocks, if necessary). Check the temperature periodically (every 15-30 minutes or so) and record the data. After 3-4 temperature checks, student can analyze the data and draw a conclusion.

Seed Movement:

In this story, the winds blew in, bringing seeds for Wesley's garden with it. Discuss the various ways seeds move (usually by wind, water, or animals). Examine a variety of seeds that could be moved in various ways. For example, a dandelion or maple seed would most likely be carried on the wind, a blackberry seed would be eaten and transported by the animal through its scat (waste), a barbed seed would likely get caught in an animal's fur, and a podded seed could float on the water. An older child may like to study the travel of seeds further. (following lessons by Celia)

Wind Dispersal (Anemochory)

Some seeds fly. Have you ever blown on a dandelion or opened up the pod of a milkweed? They have silky threads that act as a parachute to allow the seed to drift on the wind. These seeds often end up miles from their parent plant. Other seeds have wings to help them fly. Have you ever seen a maple seed? It has a wing that allows it to twist and turn as it is carried along on the wind. Fringepods and elm seeds also have wings.

Try this: Make a paper whirligig ([here](#)'s a pattern from PBS). Have your student hold it up high and gently let go. Notice how the "wings" help it float down more slowly...if a breeze comes along it would carry the whirligig away.

Water Dispersal (Hydrochory)

Some seeds swim. Plants that live near streams and rivers often have seed that can float. Their seeds will fall into the water and float downstream. God designed them to have pockets of air in them that act as a life jacket, keeping the seed from sinking in the water. Have you ever seen a coconut? Did you know that's not a fruit or a nut, but a seed? It's tough fiber coat and hard shell protects it until it

sprouts--often times months after it has fallen. The inside is hollow, which makes it float. Coconut trees are often found near oceans. The coconut falls into the ocean and is swept away to a distant shore, where it will sprout and grow into a coconut tree. Mangroves also use this method.

Try this: Get a coconut from the store. Place it in a sink or bathtub of water. Does it float? (If you don't have a coconut, but have some birdseed, look for the larger puffy black and white striped sunflower seeds. Have your student see if it floats. With the air inside, it should.)

Discharge Dispersal (Autochory)

Some seed pods explode, sending seeds as far as possible. Some fruits and plants burst open, spewing their seeds as far as possible. Impatiens and jewelweed are two that you might be able to find around your place. (I highly recommend finding jewelweed and letting your children touch the pod to set off the explosion! Be careful though, poison ivy is often found near jewelweed. Jewelweed is a natural remedy for poison ivy- -rub the plant's juices wherever you came in contact with poison ivy.) Wisteria, witch hazel, wild geraniums, and the squirting cucumber are others that God designed with this method of seed dispersal.

Try this: Tear or cut up pieces of scrap paper to make confetti (seeds). Place the tiny pieces in a lunch bag or baggy or balloon. Now hold the end of the bag almost closed and blow air into the bottom. Hold the end closed so that the air doesn't escape. Now pop the bag. What happened to the seeds?

Animal Dispersal (Zoochory)

Some seeds rely on animals or man to help them travel. Seeds in this category can be divided into three subcategories.

Endozoochory--seeds that are eaten by an animal and pass through the digestive system. Once the waste (including the seed) is passed from the animal, the seed often miles from its parent plant and it now has a new home and fertilizer too to start growing! Examples of seed that travel this way are strawberries, raspberries, cherries, and mistletoe.

Synzoochory--seeds that are collected by an animal with the intention of eating it later. I bet you can think of one animal who stows away acorns for the winter! Yep, God designed the squirrels to help make new oak trees. Squirrels and chipmunks

hide so many nuts and seeds for the coming winter that they sometimes forget where some are located. These forgotten nuts and seeds--having escaped becoming a meal--can then sprout and grow in their new home.

Epizoochory--seeds that attach to an animal or human and then detach later. These seeds have barbs, spines, or spikes that make them sticky or prickly which allows them to hitch a ride on an animal or human. They eventually loosen or get scraped or picked off and fall to the ground miles from their parent plant. Burdock, sticktight, cocklebur, mustard, and thistle are all examples of such hitchhiking plants.

Try this: take an old pair of daddy's tube socks and pull them over your shoes and up your pant leg as far possible. Now take a walk through a patch of weeds like in a field or an area that's not been mowed. Did any seeds cling to the socks?

Constellations:

Wesley liked to gaze up at the nighttime sky and rename the constellations. Constellations are groups of stars in the shape of pictures. There are over 80 constellations recognized around the world. Has your child ever wondered how constellations got their names? We are told in Psalms 147:4 that God named and knows the numbers of all the stars. Throughout the Bible, we read of how God designed the stars to be signs, and to teach and reveal. Adam, Seth, and Enoch were the very first astronomers, using the stars as a source of God's inspired Word to pass down to generations before His Word was written. The stars were all in place, and they drew pictures around them as a way to remember them. As the Scriptures came into play, the old ways of reading stars gradually faded away. Ancient Egyptians, Greeks and Romans evolved the bits and pieces they had heard about the stars into their mythology, and renamed most of the constellations. Most of these names have stuck up until present day. There are a total of 12 signs of the Zodiac, plus 76 additional constellations. The Zodiac marks the stages of the sun's path through the heavens, corresponding with the twelve months.

If possible take a field trip to a planetarium or observatory.

For further reading about the stories behind the constellations:

Coyote Places the Stars by Harriet Peck Taylor (picture book)

D'Aulaires Book of Greek Myths (Chapter book with beautiful pictures)

Adam and His Kin by Ruth Beechick (chapter book with a Biblical perspective on Creation)

Mosquitoes

Wesley made mosquito repellent from the plant oils. Mosquitoes are bothersome insects. What makes them an insect? All insects have three body parts, a head, thorax, and abdomen. All insects have six legs, and some have two antennae on their heads. And all insects reproduce by laying eggs. A female mosquito lays her eggs in water. A wriggler hatches from each of the eggs and it eats the tiny plants in the water. After a week, the wriggler changes into a pupa, which floats just underneath the surface of the water. A few days later the pupa's skin splits down the back, and a winged mosquito comes out and flies away. The mouthparts of the female mosquito are designed for piercing and blood sucking. The male mosquito feeds on plant fluids and does not bite or suck blood. Mosquitoes can pass diseases onto their victims when they inject them with their infected salivary fluid. Mosquitoes only live in areas with water, such as a moist rain forest, or near pools, swamps, or marshes. It is important to not leave containers outside that can collect water, as this is where mosquitoes will breed and multiply.

Social Studies

Dealing with Tormentors:

Read Daniel 6. Daniel was also a man who had his share of tormentors. He, like Wesley, refused to behave a certain way because it was popular. What was Daniel's motivation for standing up against the crowd compared to Wesley's? What are some options for standing up against those who are unkind to us? Read Matthew 5:43-47 to see what Jesus says about it.

Ancient Civilization Study:

Weslandia discusses many of the characteristics of ancient civilizations without being specific about any. Dig a little deeper into an ancient civilization such as Mayan, Egyptian, Babylonian, Native American, or Chinese. Find information on the civilization's staple crop, writing, alphabet, and number system, clothing, housing, and games/recreation activities.

Village diorama:

Create a diorama of the civilization that was researched. Include housing, clothing, crops, recreation, and writing and number systems used in the culture.

Field trip:

Take a field trip a museum with displays of ancient artifacts or to an archaeological dig site.

Fine Arts

Making Ink and Dye:

Make ink and dye from natural sources such as turmeric, berries, leaves, and onion skin. Dyes can be made by either pressing the dye out of the plant (berries and some leaves) or by boiling it in water (turmeric, onion skin, leaves). Once the dyes are made, soak paper, yarn or fabric in the dye until it is colored as desired

Weaving:

Try different weaving techniques. Make a simple loom from a piece of cardboard or a clean Styrofoam meat tray with notches cut in the side to hold the yarn in place. Tape another piece of yarn to a craft stick and the student can weave the yarn in and out of the loom.

Flute:

Wesley fashioned a flute from a stalk. A flute is a woodwind instrument. *Woodwinds* are musical instruments in which the players' breath causes an air column to vibrate as it passes through a reed. These instruments are sometimes also called *Reed* instruments. This group of instruments includes the flute, clarinet, harmonica, oboe, bassoon, and saxophone. Your child can duplicate the sound made by a woodwind by putting a large flat blade of grass between his two thumbs, and blowing through them making a vibrating sound. Your child may enjoy learning to play an instrument such as a recorder.

Physical Education

Game Categories:

Students can create a list of sports they are familiar with and categorize them by their characteristics. Categories could include single-player, two-player, multi-player, uses a ball, uses a stick, high score wins, low score wins, played in water, played on grass, scoring is one point, scoring is two points, etc.

Create-a-Sport:

Take the categories used by students in the previous activity and write each one on an index card. Randomly choose 5 of the cards and create a sport using those characteristics. Then go play it!

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