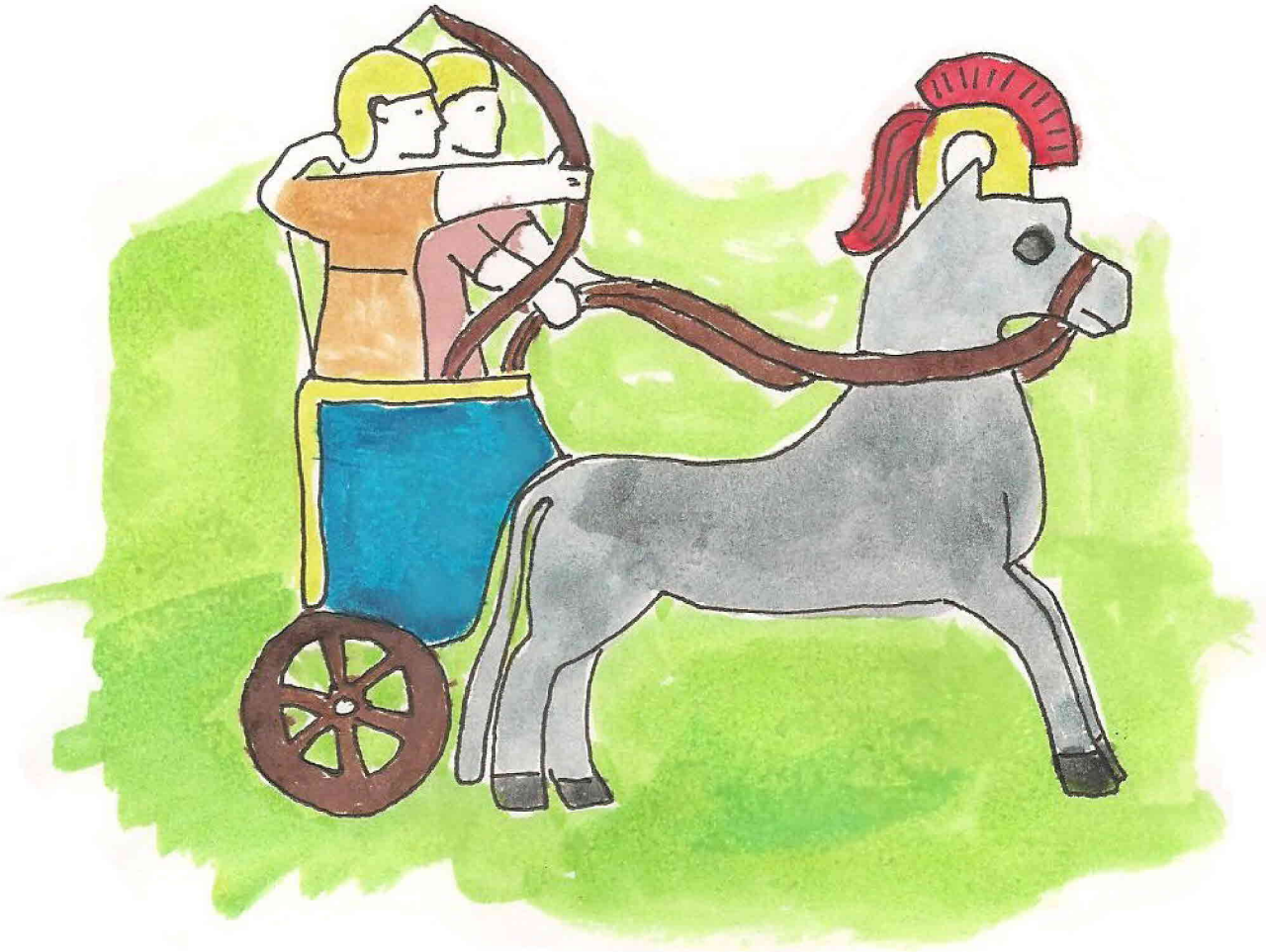
Layers of Learning

Year One - Unit Six

Includes fun, hands-on projects in
History - Geography - Science - The Arts



The Levant - Physical Earth - Laws of Motion - List Poems

Michelle Copher & Karen Loutzenhiser

Layers of Learning

Year One • Unit Six

The Levant
Physical Earth
Laws of Motion
List Poems

HooDoo Publishing
United States of America

Layers of Learning Introduction

This is part of a series of units in the Layers of Learning homeschool curriculum, including the subjects of history, geography, science, and the arts. Children from 1st through 12th can participate in the same curriculum at the same time - family school style.

The units are intended to be used in order as the basis of a complete curriculum (once you add in a systematic math, reading, and writing program). You begin with Year 1 Unit 1 no matter what ages your children are. Spend about 2 weeks on each unit. You pick and choose the activities within the unit that appeal to you and read the books from the book list that are available to you or find others on the same topic from your library. We highly recommend that you use the timeline in every history section as the backbone. Then flesh out your learning with reading and activities that highlight the topics you think are the most important.

Alternatively, you can use the units as activity ideas to supplement another curriculum in any order you wish. You can still use them with all ages of children at the same time.

When you've finished with Year One, move on to Year Two, Year Three, and Year Four. Then begin again with Year One and work your way through the years again. Now your children will be older, reading more involved books, and writing more in depth. When you have completed the sequence for the second time, you start again on it for the third and final time. If your student began with Layers of Learning in 1st grade and stayed with it all the way through she would go through the four year rotation three times, firmly cementing the information in her mind in ever increasing depth. At each level you should expect increasing amounts of outside reading and writing. High schoolers in particular should be reading extensively, and if possible, participating in discussion groups.

☺ ☺ ☺ These icons will guide you in spotting activities and books that are appropriate for the age of child you are working with. But if you think an activity is too juvenile or too difficult for your kids, adjust accordingly. The icons are not there as rules, just guides.

☺ Grades 1-4
☺ Grades 5-8
☺ Grades 9-12

Within each unit we share:

- EXPLORATIONS, activities relating to the topic;
- EXPERIMENTS, usually associated with science topics;
- EXPEDITIONS, field trips;
- EXPLANATIONS, teacher helps or educational philosophies.

In the sidebars we also include Additional Layers, Famous Folks, Fabulous Facts, On the Web, and other extra related topics that can take you off on tangents, exploring the world and your interests with a bit more freedom. The curriculum will always be there to pull you back on track when you're ready.

You can learn more about how to use this curriculum at www.layers-of-learning.com/layers-of-learning-program/

UNIT SIX

THE LEVANT – PHYSICAL EARTH – LAWS OF MOTION – LIST POEMS

Labor to keep alive in your breast that little spark of celestial fire called conscience. *-George Washington*

	LIBRARY LIST:
HISTORY	Search for: Hebrews, Ancient Israel, Hittites, Philistines, Canaanites, and Sea Peoples. This is a tough to find subject for kids. A history encyclopedia would come in handy. ☺ ☻ ☻ Bible Lands by Jonathan Tubb. An "Eyewitness" book from DK, this is full of amazing photos and drawings of artifacts and scenes from Bible times. Covers more than just the Hebrews though; includes many of their neighbors. A secular, rather than religious viewpoint. ☺ ☻ ☻ The Old Testament. An original source from ancient times. Below we suggest specific passages to read. Choose any version you are comfortable with. Modern translations use modern language, but kids who read the King James Version benefit from the poetic language and have no problem with Shakespeare later. ☺ ☻ ☻ Jerusalem of Gold: Jewish Stories of the Enchanted City by Howard Schwartz. Stories from the Talmud, Jewish folklore and other sources mingled with factual history of the Holy City of three religions. ☺ ☻ Ancient Israelites and their Neighbors by Marian Broida. An activity book. ☺ ☻ Old Testament Days: An Activity Guide by Nancy I. Sanders. Not religious so much as historical in scope. Covers the times of the ancient Israelites. ☻ Victory on the Walls: The Story of Nehemiah by Frieda Clark Hyman. Fictionally tells the Old Testament Story of the return of the Jews from banishment to rebuild their holy city. Definitely religious in tone, tells the story of a pivotal and important moment in the history of the west. ☻ ☻ For the Temple: A Tale of the Fall of Jerusalem by G.A. Henty. ☻ ☻ God King by Joanne Williamson. Fictional story set in the historical period of King Hezekiah of Judah, but revolving around the unwilling young king of the Egyptians. Kids feel drawn into this ancient world. Religious in focus. ☻ ☻ Hittite Warrior by Joanne S. Williamson. Historical fiction. A Hittite boy finds himself descending from conqueror to conquered and in the middle of a power struggle among Middle Eastern tribes including the Canaanites, Hebrews and Egyptians. ☻ ☻ Dances With The Gods by Wafa Stephan Tarnowski. A book of Cannanite myths retold. ☻ The Ancient Near Eastern World by Amanda H. Podnay and Marni McGee. Covers the earliest known history of humans in the fertile crescent until Alexander the Great. ☻ The Hittites: And Their Contemporaries in Asia Minor by J.G. Macqueen. Scholarly and complete, but readable for the mature student. ☻ Hittite Warrior by Trevor Bryce. Covers mostly warfare of the Hittites, but also deals with the culture and day to day life in the empire.

The Levant – Physical Earth– Laws of Motion – List Poems

Geography	Search For: climate, plate tectonics, seasons, geology of Earth, Earth, landforms ☺ Planet Earth/Inside Out by Gail Gibbons. Covers Pangaea, plate tectonics, the reason for earthquakes and volcanoes and so on. ☺ The Reasons for Seasons by Gail Gibbons. ☺ ☻ Earth: Our Planet in Space by Seymour Simon. Covers the whys and wherefores of Earth's location relative to the sun and moon, seasons, day and night and so on. Steers clear of origin theories. ☻ How the Earth Works by John Farndon. Everything from the make up of the core of the earth to why rivers bend. Includes activities and experiments on the topics. ☻ Planet Earth by Fiona Watt. Another information and experiment book in one. ☻ Plate Tectonics: An Insider's History of the Modern Theory of the Earth by Naomi Oreskes. First hand accounts from scientists in the field of earth science who brought the theory of plate tectonics from "crazy" to conventional. ☻ Earth by James F. Luhr, ed. From DK, this book gets into detail of the planet Earth and the major themes of physical geography. Detailed enough for the basis of an AP high school geography course, but accessible to the lay reader. Evolutionary content.
Science	Search for: forces, motion, force and energy, Newton ☺ The Magic School Bus Plays Ball from Scholastic. Not as good as the original Magic School Bus series, but still worthwhile for a good discussion of forces for younger kids. ☺ Forces Make Things Move by Kimberly Bradley. Excellent, easy to understand coverage of an abstract concept. An awesome introduction to a lesson about forces. ☺ Can You Feel the Force? by Richard Hammond. ☻ Fatal Forces by Nick Arnold. A humorous, but factual look at how forces work. ☻ ☻ Energy, Forces, and Motion by Alastair Smith, et al. From Usborne, this book is included in the larger Usborne Science Encyclopedia. ☻ ☻ Force and Motion by Peter Lafferty. ☻ ☻ Isaac Newton by Kathlene Krull. Biography of this great scientist. ☻ Physics: A Self-Teaching Guide by Karl F. Kuhn. Buy this now and use it through all four years with your high schooler. We'll direct you to the right chapters for each unit. ☻ Principia by Isaac Newton: Original explanation of the laws of motion.
The Arts	Search for: Acrostic poems, poetry anthologies for kids ☺ ☻ ☻ Winter: An Alphabet Acrostic by Steven Schnur. Also look for *Spring*, *Summer*, and *Autumn* by the same author. Picture alphabet book for all ages. ☻ Classic Poems to Read Aloud by James Barry and James Mayhew, editors. A wide selection of many familiar and some obscure poems that all appeal to children. Illustrated throughout. ☺ ☻ Rolling in the Aisles: A Collection of Laugh-Out-Loud Poems edited by Bruce Lansky. ☺ ☻ If Kids Ruled The School by Bruce Lansky and other books by Bruce Lansky. ☻ ☻ Classic Poetry by Michael Rosen, ed. A chronologically arranged selection of poems including short biographies of the poets and original illustrations.

HISTORY: THE LEVANT

Some Definitions

"Middle East" is a modern term for the land area between the eastern edge of the Mediterranean and Iran, and including Egypt. The exact area defined depends on who you're talking to. Some people also include all of northern Africa and east to Pakistan as well.

Usually when speaking of historical periods before the twentieth century we refer to the "Near East" which is the same area of land.

Another term used is "Levant," which refers to the area immediately adjacent to the eastern edge of the Mediterranean. This term became popular during the late Middle Ages and in scholarly circles only refers to the area from the Middle Ages onward. We, however, do not care about scholarly niceties and use the term to refer to this specific geographical area.

The Levant, like every other place on Earth, has a tribal past. Some of the tribes eventually settled in cities and became nations, but there are still nomadic tribes in the region. The peoples listed here are some of those who settled down, built cities, and left written records (or at least records were written about them):

Hittites
Canaanites
Sea Peoples
Philistines
Hebrews

The Hittites were a tribe who moved from the land north of the Caspian Sea, bringing horses and chariots with them. They moved in and conquered the older inhabitants of Anatolia (modern day Turkey). Then over time they conquered more and more neighbors until they had built up an empire. One peculiarity of the Hittites is that they always adopted the gods of all the people they conquered or made treaties with. They eventually worshiped thousands of gods.

The Canaanites were the people who lived along the Mediterranean in what is now Israel, Lebanon, and Syria. They were a Semitic people, cousins of the Hebrews and Arabs. Through most of their known history the people of Canaan were ruled and taxed by outside empires. They just carried on with commerce, their main interest being making money. In general, they were any people who lived along the sea coast and engaged in trade, no matter who their ancestors had been. They also worshiped the old Babylonian gods, Baal, Marduk, and Ishtar, among others.

Sea Peoples were called such by the Egyptians. Scholars are not at all sure of where they came from or by what other names they were known. We do know they were good sailors who came swooping in from the Mediterranean to attack kingdoms in the eastern end of the Mediterranean. They were fierce fighters and were feared everywhere they went. They are thought to have been

a major factor in the downfall of the Hittite Empire. Some scholars think they settled down in places along the Levant and became known as the Philistines.

The people most westerners know most about were the Hebrews since the Bible comes from them. Their history is not unlike other peoples in some respects. They began as wandering tribes, moving from place to place searching for food and water continually. Eventually, in order to find a permanent home they had to take over people who already occupied fertile land. They settled down and prospered for a time, but eventually they were overrun by other nations. The Canaanites, Hittites, Philistines, and Sea Peoples all had similar stories.

EXPLORATION: Levant Timeline

Make a timeline. The dates on this timeline cover vast amounts of time and many different people of the Middle East. Assyrians, Babylonians, Persians, Greeks, Egyptians, and Romans are on this timeline, though they are covered in more detail in other sections. There is a printable at the end of this unit.

- 1650 BC Hittite Kingdom founded
- 1500 BC Abraham (father of Hebrew nation) and his immediate descendants lead their nomadic tribe from Sumer to Canaan then to Egypt
- 1250 BC Moses leads Hebrews from Egypt to Palestine where they defeat Jericho and establish a nation
- 1200 BC Philistines settle along the shore of Palestine
- 1185 BC Hittite Empire invaded and defeated by the Sea Peoples
- 1020 BC King David of the Hebrews defeats the Philistines and unifies Israel
- 950 BC First temple built in Jerusalem
- 922 BC King Solomon of the Hebrews dies and his kingdom is split into north and south.
- 836-823 BC Assyrians defeat the Persians, Media (northeastern Iran), Palestine, Turkey, southern Mesopotamia, and Babylon.
- 743-727 BC Assyrians defeat Hittites, Arameans (Syria), and Israel
- 721 BC King Sargon of Assyria forces the diaspora of the Hebrews. Ten of the tribes are lost to history.
- 612 BC Jews return to Israel upon the defeat of the Assyrians
- 600 BC Aramaic has by now become the language of scholarship and business throughout the Middle East
- 587 BC Jews are defeated by Babylon and deported from their

Additional Layer

The Levant was heavily influenced by surrounding civilizations such as Egypt, Greece, Babylonia, and later, the Romans.

What foreign cultures influence your country? How does your country influence others? Are these influences good or bad or neither?

Fabulous Fact

The term “levant” comes from the French and means “rising” referring to the land where the sun rises.

Additional Layer

The Jordan River isn't much to look at, a small muddy stream meandering slowly from the Sea of Galilee to the Dead Sea. But in a land of arid dry heat and little water it represents life, both anciently and today.

Photograph by David Bjorgen

Additional Layer

Joshua, Moses' successor, set up a system of judges, who were leaders of the various tribes. They settled disputes, but primarily they were leaders in times of war. They were also subject to the Laws of Moses and ruled accordingly. The Israelites at this time were not one nation, but rather a confederation of individual tribes who were united by religion, heritage, and common goals of defense.

As time passed, they clamored for a king and reluctantly they were given one. People tend to want the strength and security that a king brings.

What are the advantages and disadvantages to having one central strong leader vs. having a confederation based on law? Make a chart showing the advantages of each system.

Additional Layer

A large rift valley runs north to south through the Levant. Find out more about rift valleys and what causes them.

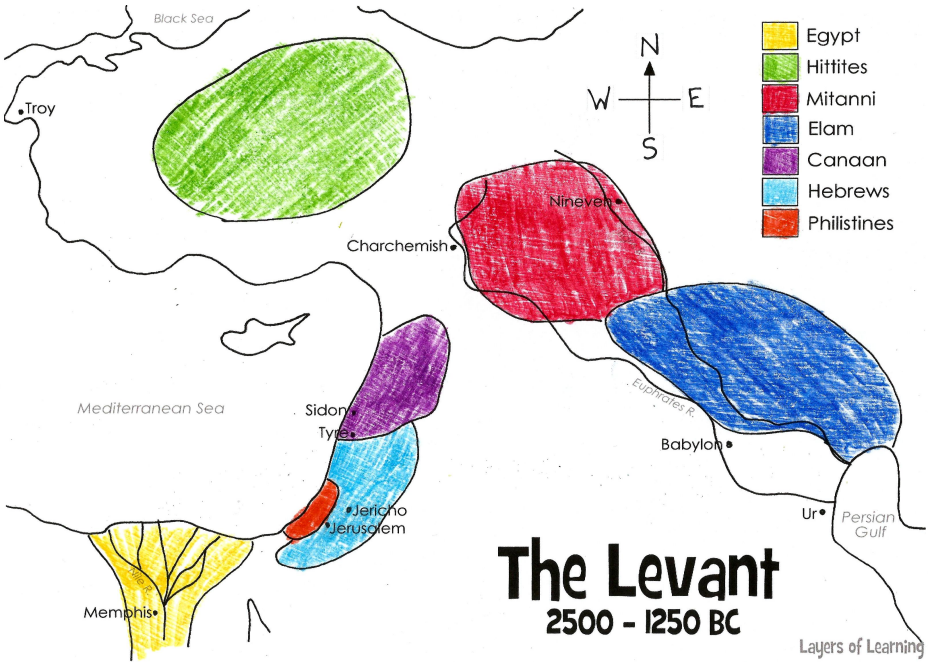
Jordan rift valley, photo by Tango7174, CC license, Wikimedia

homeland

- 539 BC Jews return to Israel and rebuild their temple after being freed by Cyrus the Great
- 334-391 BC Alexander the Great defeats all of the Middle Eastern Peoples, but makes special accommodation with the Jews, whose high priest he had seen in visions.
- 323 BC Alexander's empire is divided into three parts by his leading generals. The Levant is disputed between Seleucid and Ptolemy, causing war.
- 198 BC Seleucids conquer Palestine and Phoenicia from Ptolemy (Egypt)
- 156 BC Maccabees revolt in Palestine and gain their independence from the Seleucids
- 64-63 BC Rome conquers Phoenicia, Syria, Israel, Palestine.
- Roman General Pompey sacks Jerusalem and enters the temple.

EXPLORATION: Map of the Levant

Make a map of the locations of various tribes and the years of their height. Use the Levant map from the end of this unit and add these early civilizations: Hittites, Canaanites, Hebrews, Elamites, Mitanni, Egyptians, and Philistines, shading the areas where they controlled the land. Include a key and a compass rose. For older students you may want them to add dates including the heights of each civilization, any migration or conquest patterns and any other significant cities the student comes across in her reading.



View of the Holy Land from the top of Mount Nebo. Photograph by Berthold Werner.

EXPLORATION: Abraham's Family Feud

Abraham is the father of the house of Israel, or the Hebrews. He is also the father of the Arabs who later became Muslim. And of course the Christians, who originally came of the Jews view him as their father also. He is the ultimate ancestor of three of the major religions on Earth. And besides all that, the family tree of Abraham explains some of the problems between modern Jews and Arabs in the Middle East. You should know who he is. Read about Abraham in Genesis chapters 11 through 23.

Some things you should know:

1. Anciently men usually married more than one wife and had many concubines, if they were rich enough to support them.
2. The eldest son inherited all the wealth of his father. The other sons got a gift and a nod and were sent on their way. The daughters received a dowry at marriage. If they did not marry, the son who inherited generally was responsible for their upkeep. (So you see how rich you had to be to support many wives.)
3. People sometimes married their first cousins or even half-siblings or step-siblings.
4. The Bible tells of a people set apart by God, people who had the authority and power of God with them. These people were surrounded by "heathen" nations on all sides. But the catch is that the people of God adopted their neighbors' habits and customs, including all of the above.

Abraham had one wife and two concubines that we know of. His first son was not the one who inherited the birthright. And Abraham's son and grandson also had unusual inheritances, with the younger usurping the elder. The Jews are descendants of these younger sons who inherited. The Arabs are descendants of these elder sons who, by the customs of the time, ought to have inherited. Both the modern Jews and modern Arabs feel that the land of Canaan, where Israel is now, ought to belong to them. It's a long standing family feud.

Additional Layer

To many people their ancestry is vital to their sense of who they are. In the west what with equality and freedom, social climbing, and individualism, we've lost a lot of that sense of family identity. But many people nowadays are looking once more to their roots. Genealogy has become big business.

Do you know your roots? Write down your family tree as far back as you can. What countries did your ancestors come from?

It's Cultural

Lots of civilizations of the past and the present get a pass on behaviors that in our culture we view as repulsive. We just say, "It's cultural."

Is that a good excuse, a bad one, or does it depend? Think of some examples.

Fabulous Fact
Mount Nebo, where Moses was brought by God to view the Holy Land.

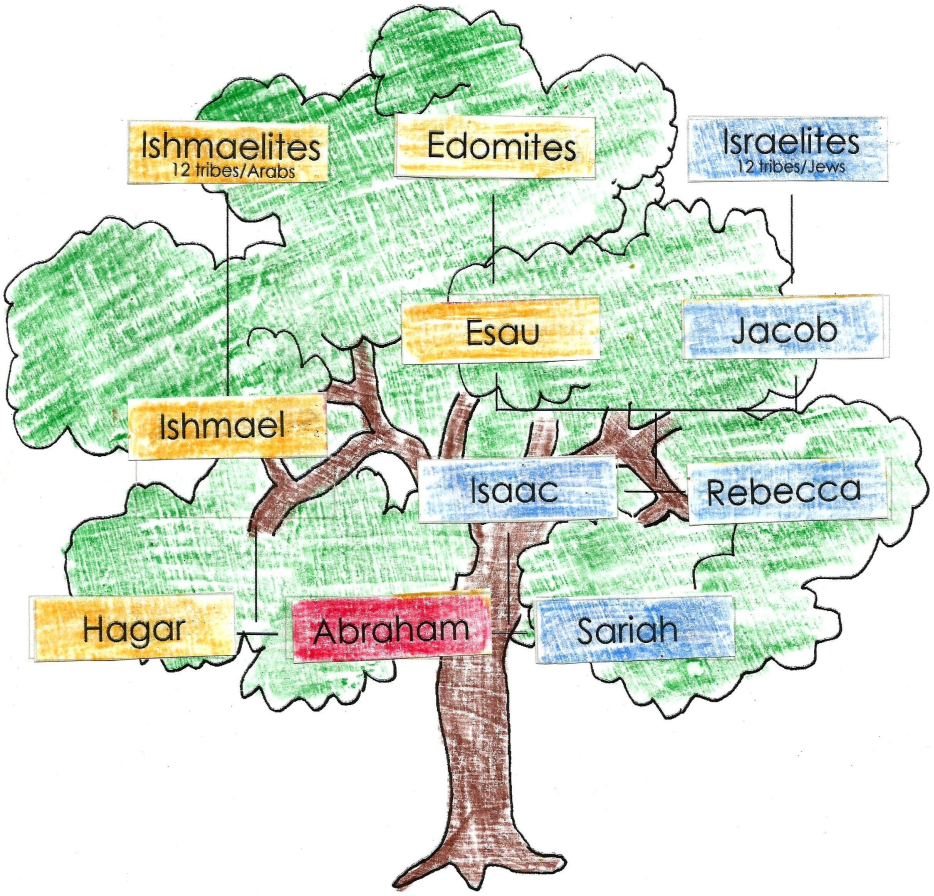
Photo by Berthold Werner

Famous Folks
Deborah was a powerful woman, a judge, and a prophetess of the Hebrews. She led her people to victorious battle against the Canaanites. Read more about her in Judges chapter 4.

Deborah the Prophetess by Gustav Dore

Additional Layer
Many say the Jews invented monotheism and were the spiritual and philosophical ancestors of the west and the freedom that comes with it. What say you?

Make a family tree of Abraham. Copy the worksheet from the end of the unit. Cut out the names. Color the tree if you like. Paste the names on in the correct places, using the image below as a guide.



EXPLORATION: Moses
The story of the Israelites leaving Egypt after being in slavery there for hundreds of years is told in the Old Testament. Read about their adventures in the Book of Exodus. Moses was their leader and a key figure within the story. (Exodus 1-14; the story of baby Moses in the bulrushes is in Exodus 2.)

After learning the stories, the kids can play "Find Baby Moses." Get a baby doll to be baby Moses. Have everyone leave the room except the hider. The hider will hide baby Moses somewhere in the room (like he was hidden in the bulrushes), and then the finders will come in and find him. The first person to find the baby doll gets to hide it next.

Kids can also make their own 10 commandments tablets. (The 10 commandments are found in Exodus 20.) Use a brown paper grocery sack. Draw two tablets with rounded edges on the tops. Now write the 10 commandments on the tablets. To make it look aged, crinkle the paper into a ball. Spray it with a bit of water, then flatten it out and let it dry.

EXPLORATION: King David

David was an Israelite king who has many stories told about his life in the Old Testament. Read some of the stories about him:

- Early on, he is a young shepherd boy who courageously defeats the Philistine giant Goliath. Read the tale in 1 Samuel, chapters 16 and 17.
- The story of his celebrated friendship with Jonathan is told in 1 Samuel, chapters 18-23.
- The story of Uriah the Hittite and the Israelite King David is told in 2nd Samuel , chapters 11 and 12.
- Many of the psalms are also about his life.

Make a slingshot using a rectangle of fabric tied on each end to yarn strands. Use ping pong balls or masking tape balls as stones and do a little target practice. To shoot a sling of this type you grasp both sets of strings in one hand, with the different strands separated by your fingers. You swing it in a fast circle around your head one or two times and then let go of one set of the strings at the critical moment to set your missile sailing at your target. David practiced a lot before he was ready to defeat Goliath.

EXPLORATION: Judas Maccabeus

One of the great heroes of the Jewish nation was Judas Maccabeus. He led a successful revolt against the Seleucid Empire (descendant of Alexander the Great's empire in Persia). The Jewish holiday of Hanukkah is celebrated to commemorate the cleansing of the temple after Maccabeus removed the polluting invaders.

Tell the story of Hanukkah and then make a menorah craft.

In 168 B.C. The Jewish temple in Jerusalem was seized by the Seleucids and re-dedicated to the worship of Zeus. A year later the new conquerors made any Jewish worship a crime, punishable by death. At this the Jews finally gained the courage to fight back.

Matthias and his sons, including Judas, started the revolt when Matthias refused to bow down before the false idols of the

Writer's Workshop

Hero tales, like the story of David vs. Goliath are common in ancient literature. Make up a story of your own about a hero who wins against terrible odds.

Write it down in your writer's notebook. Draw a picture to go with it.

David and Goliath by Caravaggio

Famous Folks

Judas Maccabeus praying for his fallen soldiers, painting by Peter Paul Reubens.

Additional Layer

This site called, Iraq el Amir, was built in about the 3rd century BC by the wealthy Tobiah family, who ruled the land east of the Jordan River. The architecture of the fortress is Greek.

Photo by Jean Housen, CC license, Wikimedia

Additional Layer

Do you have any Jewish friends? Find out what they do to celebrate Hanukkah and what the holiday means to them.

If you don't know anyone Jewish find out if you can meet someone through a local synagogue.

Greeks. Matthias and his sons killed the Seleucid soldiers and then went into hiding in the hills. Jewish men flocked to them until they had an army.

Matthias was killed and his third son, Judas, took over command of the army. The revolters became known as Maccabees. They eventually took back the temple and pushed the Seleucids from their land.

They immediately went to the temple to purify it from the violation of the worship of false gods and false sacrifices. The purification ritual required that the sacred consecrated oil be burned in the temple for eight days, but to their dismay they found that only enough oil remained for one day. They lit the lamps anyway. Miraculously the oil lasted the whole eight days and the temple was purified.

The eight candles of the menorah represent the eight days that the oil burned. One more candle is lit on each of the eight days of Hanukkah.

Make a hand print menorah. You need washable kids paint, construction paper and a large brush or sponge.

1. Brush paint onto your hands until they are completely covered.
2. Then press your hands onto the construction paper, with thumbs pressed together.
3. Wash your hands and use your finger tips to make a yellow flame above each candle.

The center candle of the Menorah is the longest and is lit the whole time. The other candles are lit from this center candle.

EXPLORATION: Tunneling Out

The Hittites, as well as many peoples of the time, built walls around their cities as protection from enemies and invaders. The Hittites were a warlike people who lived off the labors of the people they conquered. They had strong bronze weapons, horses and chariots, and one more war trick up their sleeves. They had a special secret passage that went under their city wall. They used it to sneak people in and out of the city without having to open the main city gates. If a neighboring army was camped outside, they could secretly send their own army out to surprise attack the enemy. If you go to Hattusa, Turkey today you can still see (and even walk through) this long, stone-lined passageway.

Here is a picture of the postern gate of the tunnel which opens outside the city wall. The tunnel runs straight back from this point to the lion gate, which you can see poking up in the background.

This is the Lion Gate, which was once arched.

Additional Layer

Anitta, an invading king, burned the city of Hattusa to the ground in about 1700 BC. He left a carved inscription:

At night I took the city by force; I have sown weeds in its place. Should any king after me attempt to resettle Hattush, may the Weathergod of Heaven strike him down.

Find out if the area was ever resettled. Sewing fields with chemicals, salt or weeds was a common practice in ancient times to prevent a people from recovering.

Fabulous Fact

Today the city walls of Hattusa are rubble and earth mounds, but once they looked like this:

On the Web

View these videos about the Hittites from the Smithsonian:

http://www.smithsonianchannel.com/sc/web/show/135943/the-hittites

Additional Layer

In the past kings and even queens personally went into battle fighting alongside their troops. If our political leaders did that today, how would we choose differently who would lead us?

Fabulous Fact

Hittite soldiers took an oath upon joining the army that if they deserted or showed cowardice they would have their weapons taken away and broken, be made to wear women's dress and do women's chores, be blinded and have their tongues cut out, and be afflicted with serious diseases.

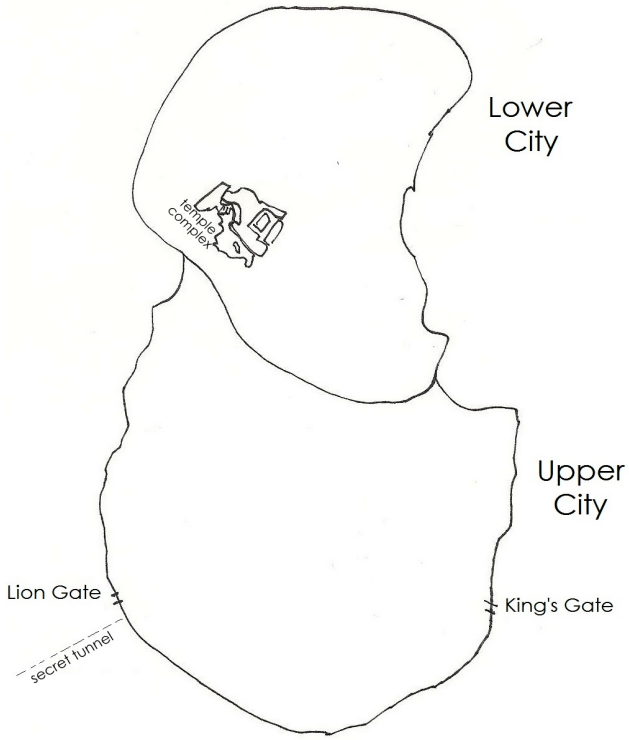
Additional Layer

What was the furnace made of if the metal inside got hot enough to melt?

. . . Clay, fired hard until it became a ceramic.

The NASA program uses ceramic plates on the outside of ships used for re-entry to protect the ship from the heat friction.

Draw a diagram of the city wall and the tunnel. The tunnel is fairly straight and about 112 feet long, all dug underground. On your map of the city include groves of trees and farmland outside the city walls.



EXPLORATION: Iron smelting

The Hittites became the most powerful empire in the Middle East because they had horses and chariots and they learned to smelt iron. The use of horses and chariots soon spread, but the technology of iron smelting was kept a closely guarded secret for centuries before the science leaked out. Iron was harder and stronger than the bronze that everybody else had. So the Hittites had tougher armor, tougher underpinnings for their chariots, harder swords and stronger arrow tips.

To make iron, you need iron ore, charcoal, and limestone. You lay these ingredients in layers in a chimney furnace, like a lasagne, and light the charcoal on fire. Charcoal burns hotter than wood and raises the temperature of the ingredients enough to extract the ore. The burning coal gives off carbon monoxide gas, which then combines with oxygen from the ore to make carbon dioxide gas. The reduction of the oxygen frees up the iron, which runs down the furnace in liquid form, where it is collected. The limestone is added in because it causes the impurities in the ore to melt at a lower temperature. Then the impurities mix with the limestone and form slag, a waste product.

Look for You Tube videos showing how iron is smelted in a furnace in prehistoric days. We found this one: http://youtu.be/vWxs7ZV5Ly8

There's a coloring sheet in the printables section showing a chariot that the Hittites would have made with iron parts.

☻☻ EXPLORATION: Battle of Kadesh

Re-enact the battle of Kadesh, also called Qadesh, which took place between the Egyptians and the Hittites, whose empires bordered on one another. The Egyptians had just pushed the Hyksos rulers out and were anxious to regain the overlordship of lands that had been lost to them. The Hittites meanwhile had moved in and were trying to hang on to their conquered lands. The two empires met at the fortified city of Kadesh in 1274 BC. The Egyptians were led by Ramses II and the Hittites were led by Muwatalli II. Both kings personally came to battle and led their troops.

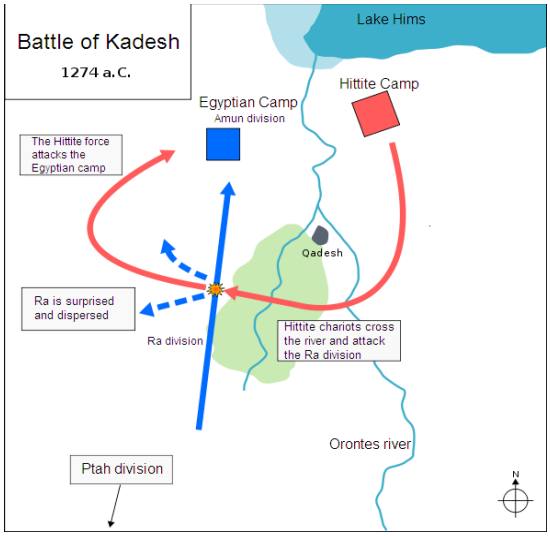


Illustration by Gianandre, CC license, Wikimedia

On the first day, the Egyptians found out from two captured Hittite spies that the Hittites were just across the Orontes River, preparing to attack. Ramses had imprudently divided his troops into several far flung units. The Hittites brought their chariots across the river and attacked, decimating the Egyptian line, causing confusion, and making it all the way to the main Egyptian camp. There, believing their foe was so easily vanquished, they began to loot the camp. The Egyptians rallied under the courageous leadership of Ramses, who led the charge himself, and drove the Hittites helter skelter back to the river, where they were pinned against the water. The Hittites abandoned their chariots and swam back to their infantry divisions. Muwatalli sent a fresh charge of chariots across the river at the Egyptians, but by now one of the Egyptian divisions had reached the main body and the Egyptians were able to force the Hittites to scramble across the river again. The next day they re-grouped and the battle resumed. The Hittites sent an attack across the river, fought a battle with the now completely re-united Egyptian troops, and both sides suffered heavy casualties. Both sides withdrew, with the Egyptians hurrying out of range and back to

Additional Layer

In the aftermath of the Battle of Kadesh, the Egyptians and Hittites signed a peace treaty, the first ever recorded in the history of the world.

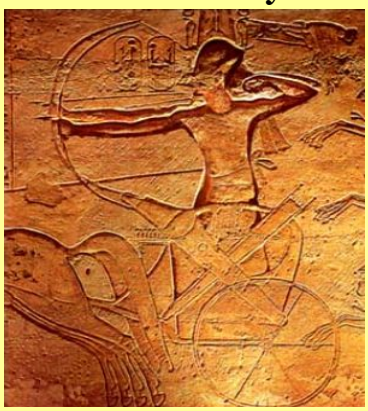
What international peace treaties is your country a part of?

On The Web

Visit the University of Pennsylvania Museum of Archeology and Anthropology website. You'll find lots of great images, information and fabulous activities for kids to get them really thinking about ancient Canaan and the Hebrews.

http://www.penn.museum/sites/Canaan/index.html

Additional Layer



Egyptian image of Ramses at Kadesh, showing his prowess in battle and the decisive win of the Egyptians . . . ancient propaganda.

Fabulous Fact

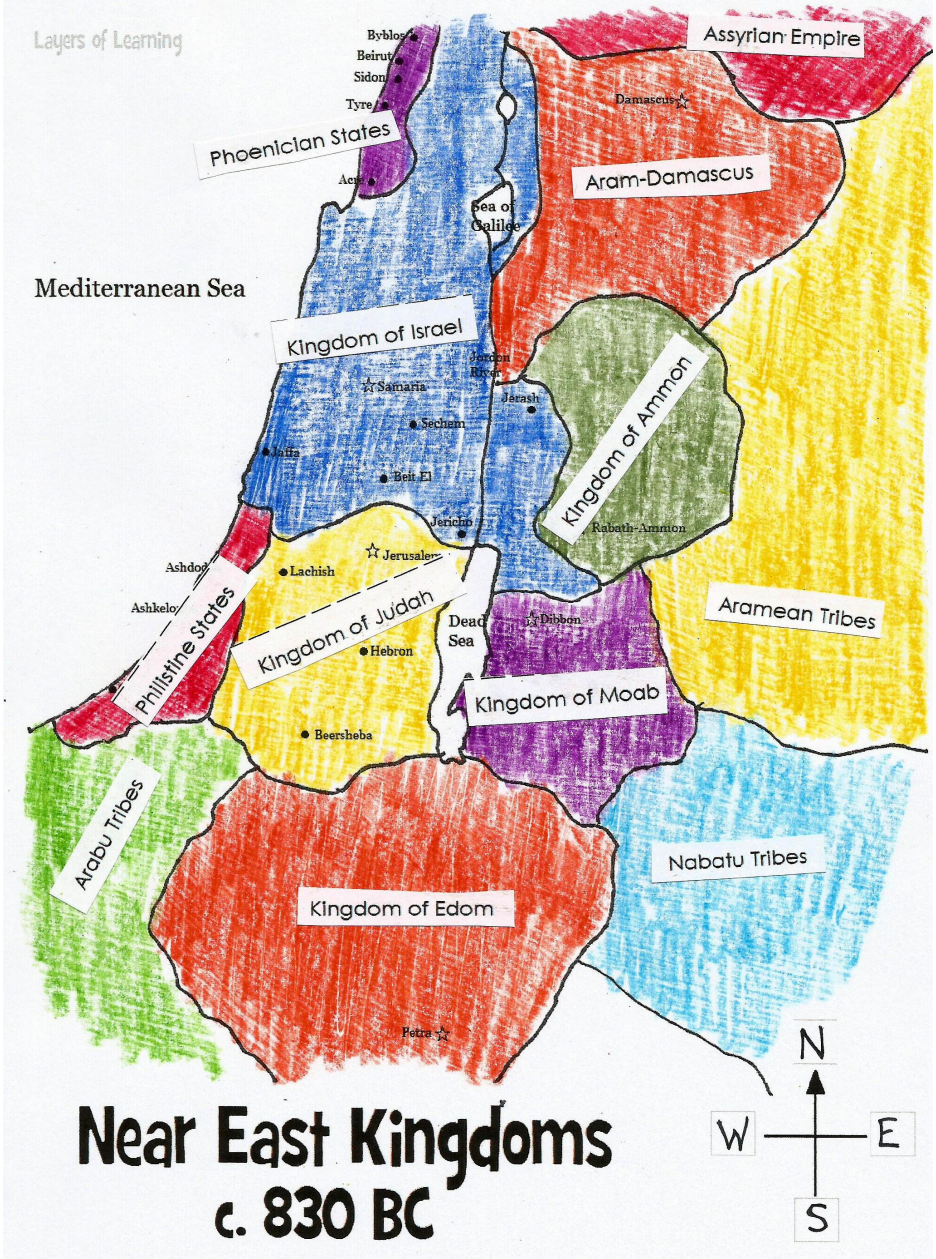
Ba'al is a generic name meaning "lord" and was applied to many different gods worshiped by people of the ancient Middle East. The actual names of the gods were considered too sacred to be uttered by any but the priests and priestesses who served them. Ba'al was also a simple honorific given to anyone who was master of a household, wealthy enough to own slaves or have servants. Over time the exact meaning of the word was lost and people thought the name belonged to one particular god of the Pantheon of Canaanite and Babylonian gods.

Then more recently cuneiform records on clay tablets have been found which gave light to this confusing bit of trivia.

Egypt. Though the Egyptians never achieved their objective of capturing Kadesh, the Hittites certainly didn't decisively win. Most historians determine this battle was a draw.

EXPLORATION: Levant Kingdoms

The kingdoms immediately surrounding Israel never became empires like the Babylonians or Hittites, but they left their mark nonetheless, particularly the Hebrew kingdoms. Make a map showing where they lay in ancient times. Use the printable map from the end of this unit and the image below.



The Biblical land of Canaan was called Phoenicia by the Greeks. These people probably called themselves after their respective cities instead of thinking of themselves as all one people.

EXPLORATION: Philistines

Almost all we know about the Philistines comes from the Hebrew account in the Bible. Since the Philistines and Hebrews were bitter enemies, that account is rather one-sided. We don't know what the Philistines called themselves or even what language they spoke. We don't know who their ancestors were, though many scholars suspect the Sea Peoples made up at least a part of the Philistine blood line. And the Sea Peoples were probably Greeks or relatives of the Greeks. On the other hand, some scholars believe the Philistines may be from Anatolia, perhaps even refugees from the city of Troy.

The Sea Peoples, including the Philistines and other tribes, were looking for a new homeland and so went about fighting everybody along the eastern edge of the Mediterranean from the Hittites on down to the Egyptians.

The Philistines lost their battles with Egypt, but beat the Kingdom of Israel. The story of that victory can be found in the story of Samson from the Bible (Judges 13-16)

Re-write the story of Samson and Delilah from the point of view of the Philistines.

Samson and Delilah by Anthony van Dyke

Fabulous Fact

The word "Palestine" comes from the Philistines, who were decidedly not Arabs and never controlled Jerusalem or most of the rest of what is now Israel.

Fabulous Fact

This is a Hittite statue of a lion.

The lion is now in the museum at Ankara, Turkey.

Photograph by Koppas

On the Web

This *Mysteries of the Bible Series*, first aired on A&E, did a piece on the Philistines.

http://youtu.be/JCYwdQ7w4MA

GEOGRAPHY: PHYSICAL EARTH

Fabulous Fact

Pan means *all* and gaea means *earth*. So now you know where the name Pangaea comes from. What would you name a continent that you discovered?

Writer's Workshop

It's pretty cool to imagine what it would be like on Earth with only one big super continent, but think about the one big super ocean. Imagine what it would be like to try and cross it. Write or tell about the horrific voyage that would be.

Geography includes scientific as well as social and political elements. This unit will cover the geology of the earth and how the place of the earth in space makes it unique and gives us seasons, days and nights, and affects our climate. We'll also learn about physical maps, elevation, topography, landforms and so on.

☺ ☻ Exploration: Orange Peel Plate Tectonics

An orange is a perfect tool for teaching about the earth. The earth is spherical just like an orange. This can be tough for little ones to understand because from their vantage point (and because of the relative size difference) the earth appears to be flat. If you show the students a globe alongside the orange and point out the tiny size of places that are familiar to them it will help them recognize this concept.

Next, have them use a plastic knife to peel the orange in as few pieces as possible. The peel represents the earth's crust. The crust is in pieces just like the orange peel. Now use toothpicks to re-attach the pieces to the orange. The cracks between the pieces represent faults or subduction zones. This is where the plates shift and collide, causing earthquakes and volcanoes, and mountain building.

☺ ☻ EXPLORATION: Pangaea Flip Book

In the 1960's scientists perfected a theory about the continents on Earth. They decided the great plates that make up the continents were not fixed, but rather were drifting. They were drifting so much that at one time there had been only one super continent. They named this super continent Pangaea. In the interim, the geography of the world has drastically changed over long periods of time until now we have seven distinct continents. There are actually six; Europe and Asia are considered separate continents, but are really one land mass.

Of course, this is all theory. There's no real way, at present at least, to absolutely prove any such thing really happened. But scientists have observed that the Atlantic Ocean gets a little bigger each year and the Pacific a little smaller, by a few millimeters. What put scientists onto the theory though was the coastlines of Africa and South America. They look like they ought to fit together.

There have been other clues supporting continental drift as well, including India pushing into Asia hard enough to form the Himalayan Mountains, the great rift valley in Africa, threatening to become the next continental split, and the great deep valleys and high mountain ranges of the oceans.

You can print out the Pangaea Flip Book from the end of this unit and also online at www.layers-of-learning.com to color and assemble to see the continents drifting. A flip book makes pictures move, by flipping rapidly through the pages with your thumb on the edge of the sheets. It works best on stiff paper like card stock, but you can also use regular printer paper. Cut apart the sheets on the lines and line them up in order behind the title page. Staple the left side of the book and flip from front to back.

EXPLORATION: Where's the Water?

Water is one of the things that makes planet earth so special. Life needs water in all three forms – solid, liquid, and gas, in order to function properly. Voila! All three forms are found on Earth at normal Earth temperatures. But how much water is that and where is it?

Make a chart showing the relative amounts of water on Earth. You need a strip of paper 100 cm long. Begin with dividing it into salt water and fresh water. 97% of the water on Earth is salt water in the oceans. 3% of the water is fresh. So 97 of the cm should be labeled "Salt Water" and colored dark blue (or use dark blue paper) and 3 cm of the paper should be labeled "Fresh Water" and colored light blue. Now further divide the fresh water section. About 2.24% of the fresh water is frozen in glaciers and the ice caps. So 2 cm and 2 mm should be labeled "Frozen". . . 6% of the fresh water is underground, so label 6 mm of your paper strip "groundwater." And finally about .16% of the water on Earth is in lakes and rivers. About 2 mm of your paper strip should be labeled "lakes and rivers."

The shocking thing is that even .16% is a whole lot of water! Earth is very wet.

Famous Folks

Read about Alfred Wegener. He came up with the idea of continental drift in 1912, but nobody paid it any attention until the 1960's.

Additional Layer

The continents only move apart about 50 to 100 mm annually; that's tiny.

Geologists assume that the processes that are happening now are the same processes that happened at the same rate through all the history of the earth.

First, do you think that's a good assumption or a bad one? Why?

Second, if this is true, how long ago was it that Africa and South America were actually touching. (Assume the largest movement is 100 mm, and that the continents are 2848 km apart, an approximation.)

Explanation

Geography is the study of where humans live on Earth, how our environments shape us, and how we interact with the earth. A knowledge of the world's geography is essential to understanding current events. No, you don't have to have it all memorized, but one should at least be able to recall the general location of the countries and major landforms on Earth.

Michelle

Fabulous Fact

Because we're spinning like a top and the earth bulges at the equator, it's not quite a sphere—we call that bulging shape a geoid.

Additional Layer

The areas of the world with the most volcanic and earthquake activity are assumed to be the edges of the plates. They look like they fall on plate edges if you see an aerial map of them. Find out more about the earthquake and volcano zones. Do you live in or near one?

EXPLORATION: Physical Map of Earth

For this you need a large size blank outline map of the earth. We recommend purchasing a pack of blank 17" x 11" maps, probably the maps with the country outlines would be most useful and versatile. We like the "World Political Boundary Maps" from Rainbow Resource. When doing a physical map like the one below you can ignore the country borders.

Label the major physical features of Earth. The amount of labeling will depend on the age of the kids. Below we have three lists. The first is for grades 1-4. The second list is for grades 5-8, who should also label using the younger kids list. The last list is for grades 9-12, who should also label using the first two lists. Kids should use a student atlas to find these features. The youngest age group will need hands on assistance to label their maps.

Besides labeling have the kids color the mountains, deserts, plains and other features according to a consistent color scheme. Ask them to do their best work, using good handwriting and neat coloring. This major map project could take a couple of weeks. There is a set of printables at the end of this unit so you can print out a checklist for your kids when they are labeling.

<u>Grades 1-4</u>

Atlantic Ocean
Pacific Ocean
Indian Ocean
Arctic Ocean
Antarctic Ocean
Europe
Africa
Asia
Australia
North America
South America

Rocky Mountains
Andes Mountains
Himalayan Mountains
Alps
Gobi Desert
Sahara Desert
Kalahari Desert
Great Victorian Desert
Congo Basin
Amazon Basin
Antarctica

<u>Grades 5-8</u>

Arabian Peninsula
Iberian Peninsula
Scandinavia
Kamchatka
Greenland
Madagascar
East Indies
West Indies
Greater Antilles

Manchurian Peninsula
Great Plain of China
Siberia
North European Plain
Sahel
Ethiopian Highlands
American Great Plains
Canadian Shield
Guiana Highlands

Gulf of Mexico
Caribbean Sea
Black Sea
Red Sea
Arabian Sea
East China Sea
Hudson Bay
Mediterranean Sea
Caspian Sea
Persian Gulf
South China Sea
Bering Strait

Grades 9-12

Appalachian Mountains
Laurentian Mountains
Carpathian Mountains
Zagros Mountains
Balkan Mountains
Western Ghats
Anatolia
Plateau of Tibet
Pampas
Great Lakes
Lake Chad
Lake Baikal
Amazon River
Zambezi River
Nile River
Niger River
Volga River
Ganges River
Yangtze River
Amur River
Ob River
Timor Sea
Bay of Bengal
Labrador Sea
North Sea
Gulf of Aden
Hawaiian Islands
Melanesia
Cape Verde Islands
Maldive Islands
North American Basin
Indian Ridge
Guiana Basin
East Pacific Rise
Mid-Pacific Mountains
Peru-Chili Trench
Sierra Madre Mountains
Atlas Mountains
Caucasus Mountains
Hindu Kush
Ural Mountains
Eastern Ghats
Iranian Plateau
Patagonia
Yucatan Peninsula
Lake Victoria
Aral Sea
Mississippi River
St. Lawrence River
Orange River
Congo River
Danube River
Indus River
Mekong River
Yellow River
Lena River
Darling River
Sea of Japan
Tasman Sea
Beaufort Sea
Baltic Sea
Gulf of Guinea
Polynesia
New Zealand
Canary Islands
Aleutian Islands
Mid-Atlantic Ridge
Brazil Basin
South Indian Basin
Mariana Trench
Emperor Seamounts
Middle America Trench

Explanation
DOGS TAILS

When kids first start drawing maps they are generally kept pretty simple, but as kids grow, so should their map skills.

Finished maps have certain elements that should be included. The acronym Dogs Tails can help you remember them:

Date
Orientation
Grid
Scale
Title
Author
Index
Legend
Sources

You may want to have the kids look at various maps from an atlas and search for these essential map elements.

Time Zone Map of the World

Teaching Tip

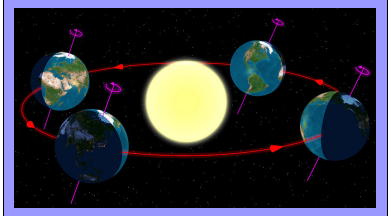
Kids may balk at big projects like the major map labeling. But they *can* do it. They may need encouragement, bribes, extra time, or help. It's the hard projects that build confidence, not the easy ones.

Additional Layer

Look at the globe and notice where the deserts are on earth. What do those desert areas have in common?

Explanation

Even many grown-ups really can't explain exactly why we have the seasons clearly. Having a general understanding of something is a world away from really being able to explain it.



Don't just explain things to your kids; have them explain them back to you.

One of the things we do at our house is have a "what I learned today" dinner conversation. We give the kids time to be the teacher and tell us all they know about whatever it is we're currently studying.

Karen

EXPLORATION: Classic Flashlight Demo

Get a flashlight and a globe to demonstrate day and night and the seasons. In a darkened room shine the flashlight at one side of the globe. Ask questions:

1. What do you think the flashlight represents? (Sun)
2. If the sun is shining at our hemisphere what do we call that? (day)
3. If the Sun is shining on the other side of Earth what do we call that? (night)
4. What if we can see just the edge of the sunlight? (dawn or dusk)
5. Does the Sun move or does the Earth move? (Earth)
6. Which direction does the Earth spin? How do you know?

Get a partner to help you demonstrate how the Sun stays still while the Earth both rotates and orbits. The partner will stay still in the center of the room, turning so the "Sun" continuously shines at the "Earth" as you walk around the outside of the room in an orbit. Try to keep the Earth at a constant degree of tilt in regard to the Sun. Ask the kids to observe very carefully everything they can about the situation.

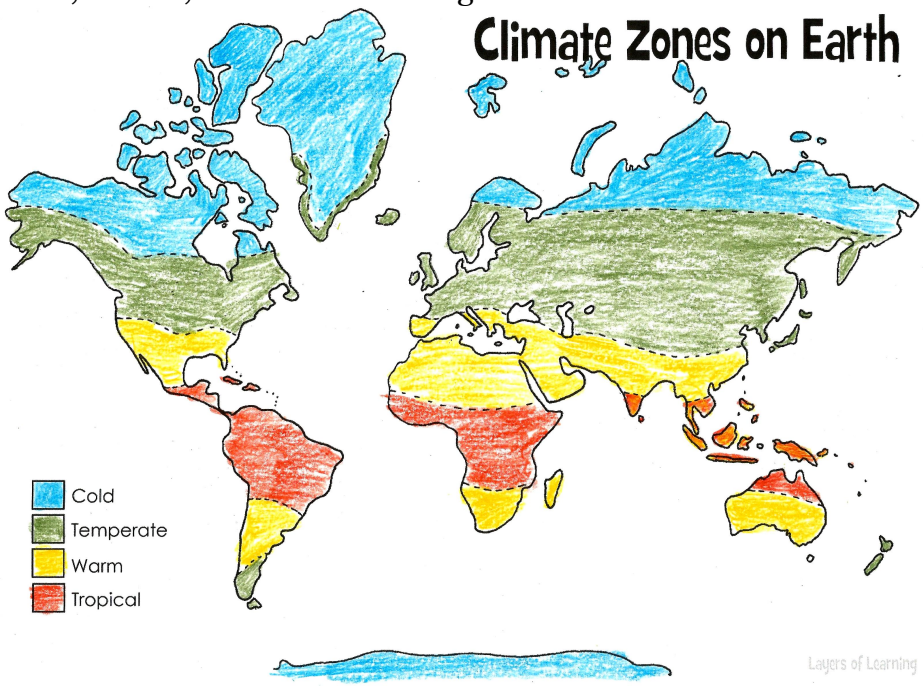
1. Does the same part of the Earth always point directly toward the Sun? (No, sometimes the north pole is tilted toward the Sun and sometimes the south pole.)
2. When our hemisphere is pointed toward the Sun what do we call it? (summer)
3. When our hemisphere is pointed away from the Sun what do we call it? (winter)
4. What about when we're part-way between the two? (spring and autumn)
5. How much effect do you think the Sun has on the climate of Earth? (huge, dwarfing any other aspect of climate)

For older kids you may note the figure 8 shaped diagram on the side of your globe (usually in the Pacific Ocean somewhere) called an analemma. It shows where the Sun appears to be in the sky on a particular date. The path described looks like a figure 8.

1. What is the date when the Sun is most northerly? (June 20 or 21)
2. What is the date when the Sun is most southerly? (Dec 21 or 22)
3. What are the dates when the Sun is exactly mid-way? (March 20 or 21 and Sept 22 or 23)
4. How do you think this relates to the seasons?

EXPLORATION: Global Climates

Climate refers to all the factors that make up the weather of a particular place on Earth. It includes, rain fall, temperature, wind, storms, and seasonal changes.



There are four major climates on earth: cold, temperate, warm and tropical. There are also many many different sub-sets of these major climate types.

1. On a blank map of the earth, at the end of this unit, color in the major bands of climate and the key.
2. Discuss what the climate is like where you live.
3. How much rainfall do you get on average? and how much did you get in the past year? Was it above, below, or right on the average?
4. What are the high temperatures in winter and summer where you live? The low temperatures in winter and summer?
5. Do you have a four season climate or not? What do people call the seasons where you are?

When I (Michelle) lived in Hawaii, a wet, tropical climate, we experienced two seasons: the wet winter season and the dry, hot summer season. Now we live in Idaho, in the Rocky Mountains and our seasons are very different. We have hot, dry summers (hotter than Hawaii) and cold wet winters. Spring and fall are pretty wet too.

Additional Layer

Think of the different types or constructions of homes people live in because of the climate? Make a booklet showing different homes in various climates.

This wooden house on stilts is in Thailand.

Photo by Khaosaming, CC license, Wikimedia.

Additional Layer

Look up information on your hometown and make a graph showing temperatures or rain falls for a past period of time, like highest temperatures over the last ten years or the amount of rainfall during each month of the last year.

Additional Layer

Over time the climate of the whole earth goes through warm and cooler cycles. We had a warmer wetter earth in the time of the dinosaurs. We had a colder earth in the Ice Age. Research and see if you can find out what scientists believe causes these natural cycles in the earth's climate.

Micro Climates

The extensive hedge systems in Cornwall create micro climates. The hedges are built of stone or earth embankments topped and completely overgrown with plant life. The weather and temperature conditions in or near the hedges are slightly different than that of the surrounding area, creating a great space for wildlife.

Photograph by Kate Jewell, CC license, Wikimedia

You probably have some micro climates right in your yard. A south facing wall or fence can create a warm spot, better for plant growth. A pond or stream can create a cooler, wetter space that supports wildlife.

Teaching Tip

Climate can become a very complicated topic. Have your older students read more about it and make more detailed climate maps. There's something very valuable in saying "go find out."

Discuss micro climates as well. Within the large temperate band of North America there are places that are very different from each other. Glacier National Park in Montana has much colder and earlier winters than land a few hundred miles to the west, in central Washington. Glacier National Park is very high in the Rockies and has an alpine climate.

Places near the ocean are affected greatly by the gulf streams that pass near the shore. Western Washington has a much warmer and wetter climate than the eastern part of Washington State because of the warmth and wetness of the ocean. England, with a much higher latitude has a milder climate than the Central Plains of North America.

> What else affects the climate?
> What factors determine the temperature and weather patterns of earth?

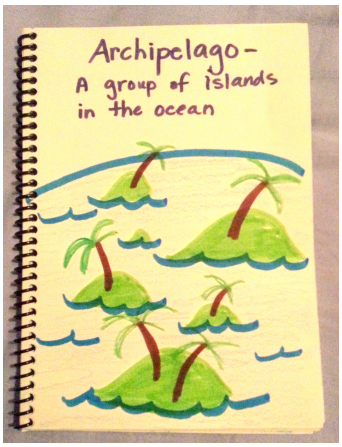
The sun has far more effect on climate than any other factor. Also the spin of the earth and the degree of tilt in space, plus oceans and mountain ranges all affect temperature, precipitation, and weather patterns. Humans can have a big effect on micro climates too. The weather, especially the temperature, around big cities is affected by humans. But humans have no proven effect on the climate of the earth as a whole.

☺ EXPLORATION: Living Room Landscape

Build a landscape in your living room using blankets, pillows and furniture. Make canyons, plateaus, tablelands, and valleys. Take a tour through your landscape.

☺ ☻ EXPLORATION: Landforms Book

Make a book with four sections and enough pages inside for each page to list one landform. Divide up the pages among the kids until all the pages have been given out. The kids will draw a picture of their assigned landform on each page. They may want to write a description to go along with their picture too. When everyone is done, gather the pages together and bind them into one book. Here are the sections, along with the landforms:



Mountains	**Land**
Peak	Tableland
Pass	Plateau
Glacier	Plain
Mountain range	Canyon
Hill	Isthmus
Foothill	Cape
Divide	Mesa
	Island
	Valley (dell and hollow)
Freshwater	**Oceans**
Stream	Sea
River	Gulf
Creek	Bay
Tributary	Inlet
Source or spring	Harbor
Mouth	Fjord
Drainage basin	Strait
Delta	Sound
Waterfall (Cataract & Cascade)	Coast (Palisade and Isthmus)
Lake	Archipelago
Pool	
Pond	
Swamp	

☺ ☻ EXPERIMENT: Erosion

Outside, make a mound of earth about a foot high or so. Make sure there are rocks buried in it if available. Use your garden hose to "rain" down on your mound and watch as the earth is

Additional Layer

Use landforms when teaching your history units. For example, the landscape an army or new settlers have to travel through makes a huge difference to their success and their experience. If the Alps weren't cutting Italy off from Northern Europe, the history of Italy would be vastly different. So don't forget to include the landscape.

Writer's Workshop

Make up some landform riddles and write them in your writer's notebook.

I have roots but no branches. I have heights but no depths. I am stronger than fire, but weaker than water. What am I?

A Mountain

Mount Kenya, by Håkon Dahlmo, CC license, Wikimedia

Expedition

Research the landforms of a particular place, like your home state, and place them on a blank map. Find images of the places if you can. Visit a few that are near you.

Additional Layer

Use fine art to review landforms.

This painting by Anna Boberg (1910) shows mountains and a glacial lake.

Here is a landscape by Anton Ginberg (1933) of a birch forest, a plain, a river, and hills in the distance.

This painting by Albert Bierstadt shows a forested coastal plain, a bay, a rocky coast and the sea.

Find other land features by searching online for landscape art.

washed away. Observe the shapes the earth is formed into and how harder areas where there are rocks do not wear away as fast as softer areas.
Erosion makes the shapes of mountains, hills, valleys, rivers, the sea coast and other landscape forms. Water is the biggest source of erosion on earth, but wind also plays a big roll.

EXPLORATION: Landforms Memory Game
Play a landforms memory game using the game sheet at the end of this unit. Each typed landscape name has a picture that matches it. Cut apart the game cards, glue them to squares of colored construction or card stock paper and turn them all face down. Turn over one pair of cards at a time until you find all the matches. You can make more landscape cards with images you find on the internet. You can also find the game on Layers of Learning at http://www.layers-of-learning.com/landforms-memory-game/.

EXPLORATION: Crispy Treat Landscapes
Make landforms out of crispy rice treats. Choose the landscape type you want to focus on, show some pictures of what the landscape looks like. Talk about how this type of landscape forms and the official definition. Then mold it out of crispy rice treats.

Crispy Rice Treats
1 10-oz bag marshmallow
½ cup butter or margarine
6 cups crispy rice cereal

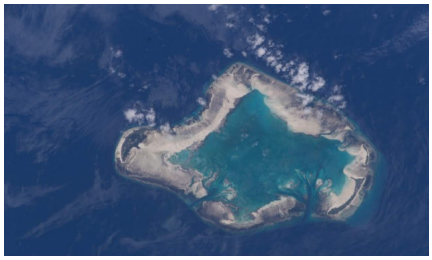
Melt the butter and marshmallows in a sauce pan over the stove. Stir constantly. Once it's completely melted, remove from heat and pour over the cereal in a large bowl. Mix well. You have to work the crispy treat mix while it's still a bit warm. It hardens up when completely cool. Be careful it's not burning hot when you give it to the kids though.

EXPLORATION: Islands of Jello
Begin by showing pictures of different types of islands:

volcanic
atoll
rift island
sea mount

continental
islets
cays or keys
barrier islands

archipelago



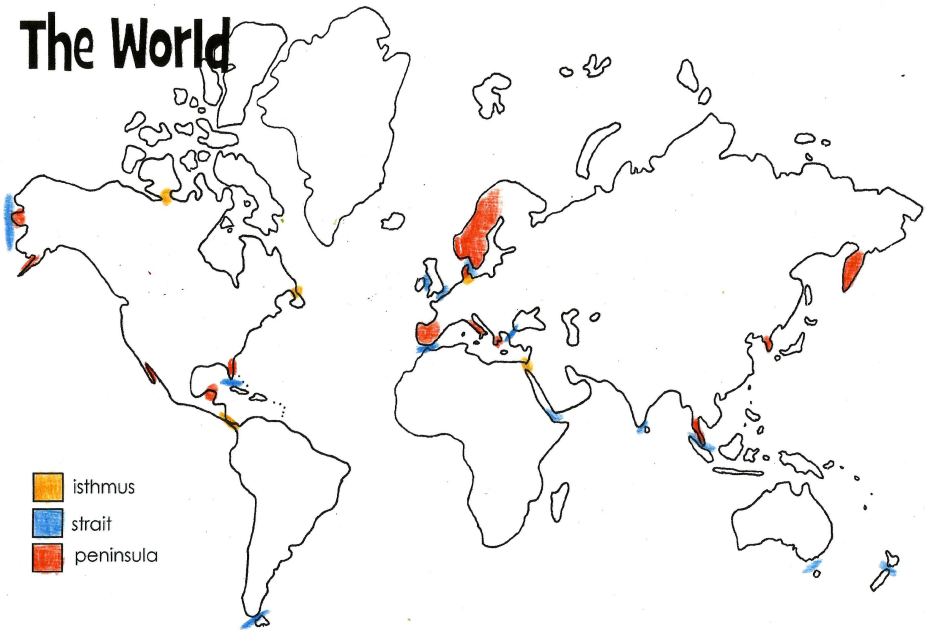
An atoll in the Seychelles Islands, Africa. Image by NASA.

You don't need to show all of these, just pick three or four types. Explain the features of the specific islands you chose. Now give each child a bowl of blue jello, already prepared and chilled. Place bowls of various sweets like graham cracker crumbs, chocolate cookie crumbs, strawberries, grapes, whipped cream, mini marshmallows, round cookies, etc. The kids will now make specific island formations from their jello and treats. Have them explain their island formations before they eat their treat.

☺ ☻ ☻ EXPLORATION: Sea Meets Land

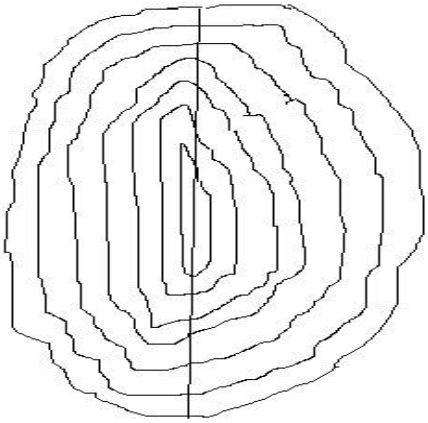
On a map of the world (copy the map at the end of this unit) mark the places where you can see these features:

isthmus
strait
peninsula



☺ ☻ ☻ EXPLORATION: Mountain Relief Map

Start with a 12" x 12" board and a huge lump of salt dough, and the mountain relief printable from the end of this unit. Follow the instructions on the worksheet, then create a 3-D model of the mountain that is shown on the map. Use a ruler and make your model as exact as possible, using an additional 5 cm. of salt dough for each contour line shown on the map.



On The Web

National Geographic has customizable maps to print for free. You can add in country names, lines of latitude, major cities, bodies of water . . . or not, depending on your goals.

On the Web

This 7 minute video on landforms was made for a 1st grade class. http://youtu.be/hh3vZc03f1s

Famous Folks

The first person to write about landforms and speculate about their origins was a Chinese guy named Shen Kuo who was born in 1031 AD.

Image by Wikimachine at en.wikipedia

Shen wondered why marine shells were found high in cliffs and how petrified bamboo came to be found in a cool northern climate. These observations were the basis of his scientific speculations.

Additional Layer

Turn this geography lesson into a science lesson by learning how the landforms are developed by the processes on Earth.

Memorization Station

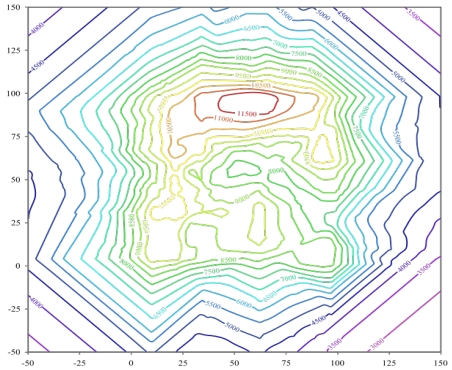
Sceptred Isle

By William Shakespeare, from *King Richard II*:

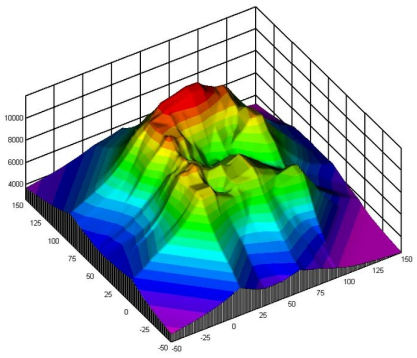
This royal throne of kings, this sceptred isle,
This earth of majesty, this seat of Mars,
This other Eden, demi-paradise,
This fortress built by Nature for herself
Against infection and the hand of war,
This happy breed of men, this little world,
This precious stone set in the silver sea,
Which serves it in the office of a wall
Or as a moat defensive to a house,
Against the envy of less happier lands,--
This blessed plot, this earth, this realm, this England.

Photo by Nigel Freeman, CC license, Wikimedia

EXPLANATION: Topographical Maps



Topographic Map shared by MhZ'as



3-D model of Topographic map shared by Shannon Bowling

Topographic maps use contour lines to show rise and fall in elevation. Study the maps above. See how each new line represents a change in elevation? Along the lines it shows the actual elevation that each line of the map represents. The closer the spacing of the lines, the more rapid the change in elevation. Typically all the lines would be the same color; this is color-coded so you can clearly see what each line stands for on the accompanying 3-D version.

☺ ☻ EXPLORATION: 3-D Relief Map

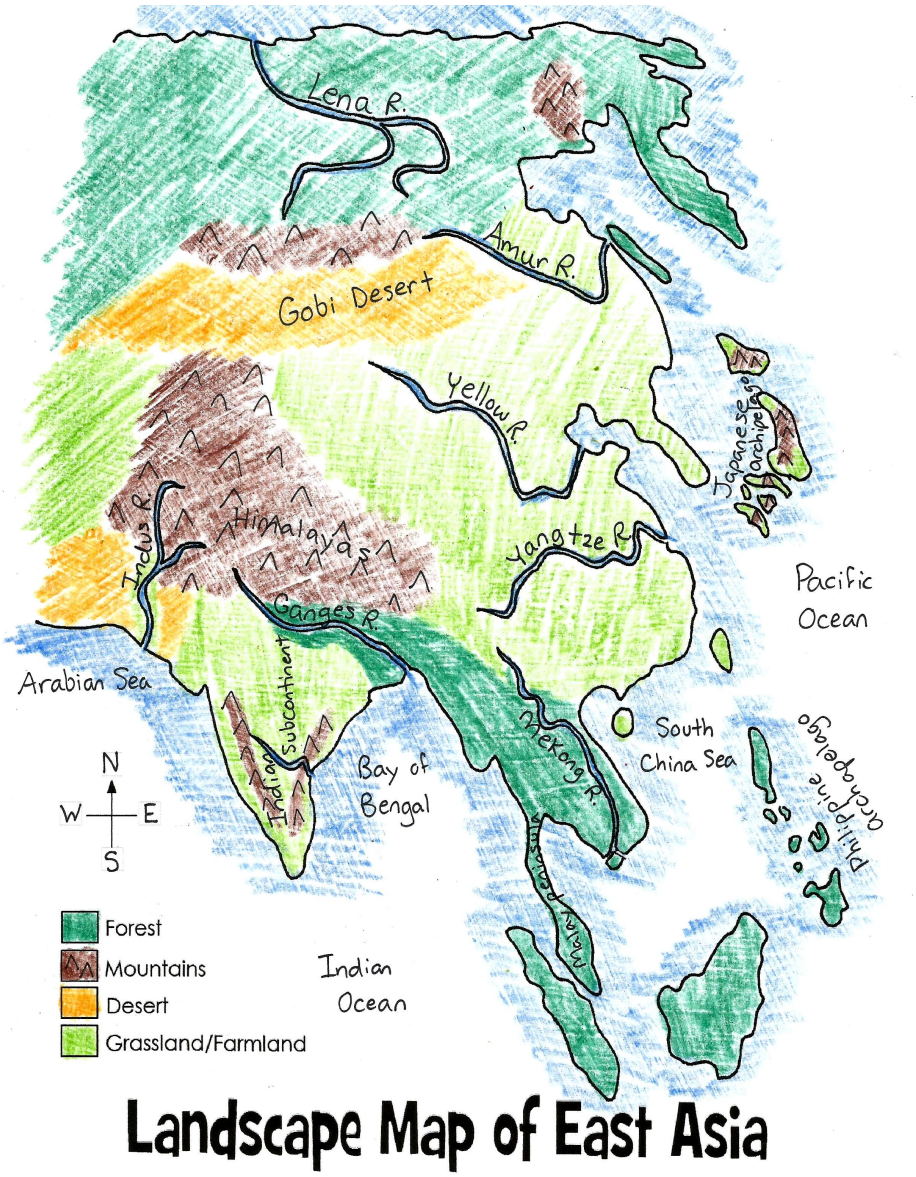
A relief map can be colored to show the elevation while still remaining two-dimensional or it can actually be a three dimensional representation of the land. Make a physical relief map of a continent out of sugar cookie dough. Shape the cookie dough into the basic shape of the continent and then bake. Now frost in browns, greens, and yellows for the various types of landscape. Add chocolate chips for mountains, green dyed coconut flakes for jungle, blue frosting for piped on for rivers and lakes, green dyed sugar for grasslands, yellow dyed sugar for deserts, and so on.

To dye coconut or sugar: Place the desired amount of sugar or coconut into a plastic zipper bag and add a couple drops of liquid food coloring. Seal the

bag and mix the dye in by kneading and turning the bag. If you would like a darker color, add a few more drops of food coloring until it's just right.

☺ ☻ EXPLORATION: 2-D Physical Map

Make a two dimensional physical map of East Asia using the outline map from the end of this unit. Use a student atlas and make it as detailed or simple as you like. As a minimum, include major landscape types, a key, and a compass rose



Landscape Map of East Asia

☻ ☻ EXPLORATION: Map Hunt

Using a real topographic map, give clues for locations on the map. The student has to find the location and then report what elevation range the spot is within.

Fabulous Fact

People who study the shapes found on earth are called geomorphologists. Some of them are geographers, others are geophysicists, geologists, or even archaeologists.

Additional Layer

Archipelago Sea off the coast of Finland is one of dozens of archipelago systems around the world. See if you can find these in an atlas.

Stockholm Archipelago

Sulu Archipelago

Buccaneer Archipelago

Wilhelm Archipelago

Socotra Archipelago

Grenadines Archipelago

Additional Layer

Books set on islands:

The Island of Dr. Moreau by H.G. Wells

Robinson Crusoe by Daniel Defoe

The Swiss Family Robinson by Johann Wyss

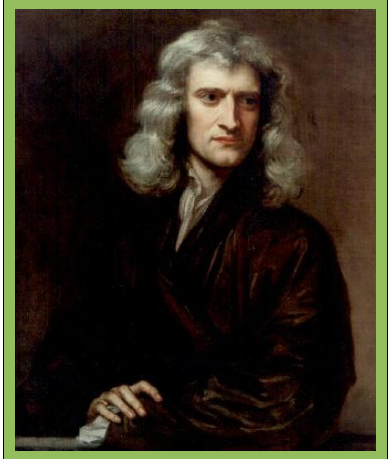
Lord of the Flies by William Golding

Treasure Island by R.L. Stevenson

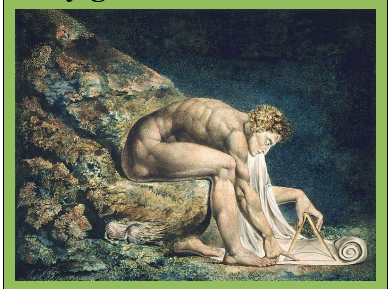
Nim's Island by Wendy Orr

PHYSICS: LAWS OF MOTION

Famous Folks



Sir Isaac Newton is considered to be one of the most influential scientists ever. He was a combination physicist, mathematician, astronomer, and philosopher – in short, a truly great thinker.



The famous poet, Alexander Pope, honored Isaac Newton with this epitaph:

Nature and nature's laws lay hid in night;

God said, "Let Newton be" and all was light.

He truly did enlighten our minds to new ways of scientific thought.

Every time you throw a ball up it comes back down. If you throw the ball harder it will go higher or further than if you throw it softly. The behavior of the ball can be explained by the laws of motion, defined and discovered and mathematically calculated by a guy named Isaac Newton. Newton defined three basic laws of motion.

Newton's First Law: *An object at rest tends to stay at rest; an object in motion tends to stay in motion*. This means that as long I don't start the ball rolling across the floor it won't roll on its own. Something has to push it. Likewise, if the ball is already rolling it will keep rolling unless something stops it.

Newton's Second Law: *Force equals mass times acceleration*. This means that the heavier something is and the faster it is going, the harder it will hit. For example, imagine a freight train heading toward a brick wall at 60 miles per hour. When it hits it will bust through the brick wall. But what if you run at the same brick wall with all your might? You'll just bounce off, perhaps with some injuries. Which one has more mass? Which has more speed? Even if the train was only going 15 MPH to match your top running speed the train could go through the brick wall. The train has greater force because it has greater mass and greater acceleration.

Newton's Third Law: *To every action there is an equal and opposite reaction*. Imagine being on a pair of roller blades and standing facing a wall. If you push against the wall you will roll backward. The harder you push, the further you will roll. The action of pushing against the wall caused the reaction of you rolling backward. The amount of force you used when pushing determined how far back you would roll.

$$\mathbf{p} = m\mathbf{v} \qquad (1)$$

$$\mathbf{F} = \dot{\mathbf{p}} \qquad (2)$$

$$\mathbf{F}_{12} = -\mathbf{F}_{21} \qquad (3)$$

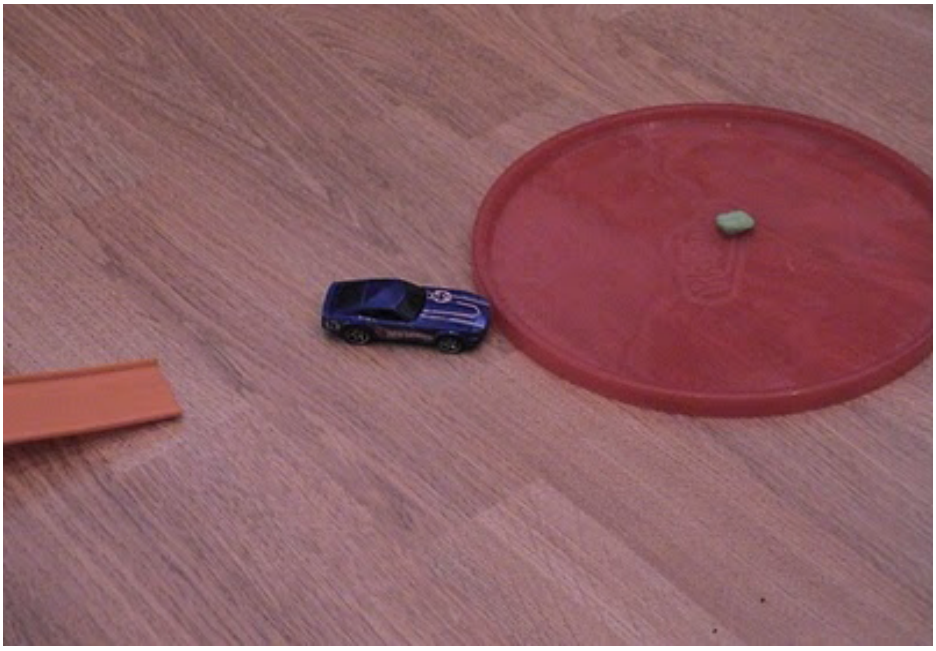
Equations for Newton's Three Laws of Motion. To Newton the universe was a place to be figured and defined mathematically.

EXPERIMENT: Car Crash

Get a wheeled toy, like a car or a truck and place an object on top of it, like a penny or lump of clay. Send the car down a short ramp and have it crash into an object at the bottom. The car will stop, but the penny or lump of clay will shoot forward.

Ask your kids questions about it:

1. Why does the clay keep moving when the car stops?
2. Why does the car stop?
3. Does this work no matter the size and speed of the car? (experiment with different conditions)
4. Is this true of real cars out on the road? Why do you think we wear seat belts?



EXPERIMENT: Inertia

In this inertia experiment the object is at rest and wants to stay at rest.

Put a stiff piece of paper, like an index card, on top of an empty glass. Next, place a small bottle (like an empty pill bottle) on the index card. Finally, place a clay ball on top of the bottle. Holding on to the glass, yank the paper out. The clay ball will drop into the glass.

Why doesn't the clay move with the paper?

Additional Layer

You know that trick where magicians pull a tablecloth from under a fully set table? It's not magic, just physics! Try some magic tricks yourself.

Memorization Station

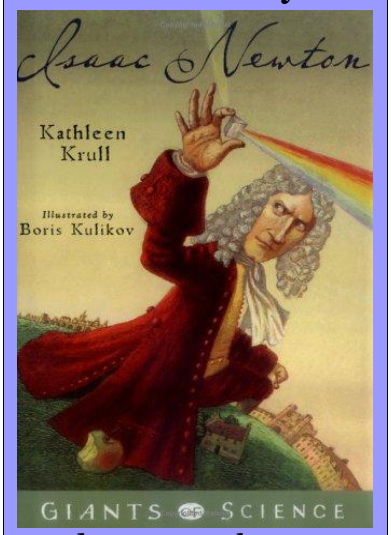
Kids in the middle grades and up should memorize Newton's three laws and their definitions.

1. An object at rest tends to stay at rest; an object in motion tends to stay in motion.

2. Force equals mass times acceleration.

3. To every action there is an equal and opposite reaction.

Additional Layer



Read up more about Isaac Newton and his life. One book to try is *Isaac Newton* by Kathlene Krull.

Explanation

Newtonian physics falls under the heading of "Classical Mechanics." It is used when predicting or describing the motion of large objects (atoms and larger) and objects traveling at normal speeds.

For subatomic objects or objects approaching the speed of light, a whole new set of rules must be used. These rules are called "Quantum Mechanics."

To physicists, having two different sets of rules and differently observed motions under different conditions feels disorderly and complicated.

Most physicists believe there is a third explanation, as of yet undiscovered. They call this the "Unified Theory of Quantum Mechanics."

Michelle

Additional Layer

Watch *October Sky* to see the true story of kids who used math and science to create rockets. One of them eventually went on to work for NASA.

How does this simple experiment demonstrate that objects tend to stay at rest?

EXPLORATION: Mass and Force

Get a pan of flour with cocoa powder sprinkled on top and two different sized roundish objects. We used two marbles, but you could also use rocks or lumps of clay. Set the pan on the floor and let the smaller object fall from your upraised hand into the pan. Observe the effect on the powder and the size of the hole. Now try it with the smaller object. What difference is there? The object with the larger mass has more force when it hits, demonstrating Newton's second law. The two objects have the same velocity though. To see if this is true, drop them both simultaneously from the same height and watch them land together.

EXPLORATION: 3, 2, 1…Blast-off!

We made this model rocket from a kit. You can buy one in the toy section of most discount stores or at a hobby shop. It takes some skill to put together so kids younger than teens will need help. They fly amazingly high, 300 ft or so. It's so cool to watch.

Rockets work on a basic principle of physics known as Newton's Third Law, which states, to every action there is an equal and opposite reaction.

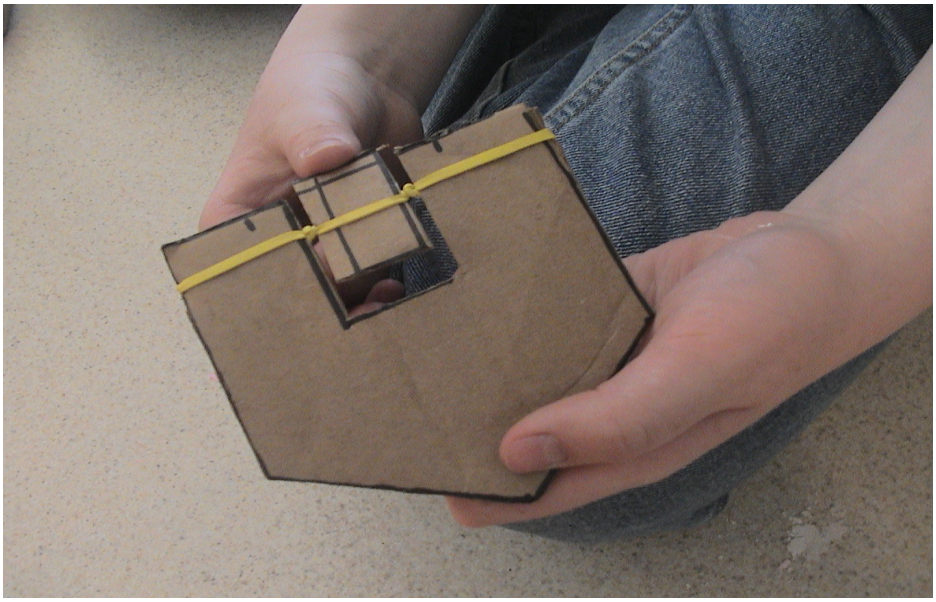
That means that if the rocket engine, when ignited, pushes backward toward the ground, then the the rocket will move up into the sky. Whenever

something moves, whether it's you walking, or your car rolling, or a leaf blowing in the wind, it is following Newton's third law. You should point out to your kids that the law is an eternal one, Isaac Newton was just the first person to write it down and test it out and mathematically calculate for it.

There are other forces besides the rocket engine working on the rocket though. There's gravity and there's also friction from the air. Without gravity or the friction from the air, your rocket would never stop moving. It would head off into space, never to be seen again. This is Newton's first law: an object at rest tends to stay at rest and an object in motion tends to stay in motion. Without Newton's first law, the earth would very quickly come crashing down into the sun. It is only because the earth, in the frictionless environment of space, keeps moving that it can fall in a circle around the sun rather than falling straight down into the sun.

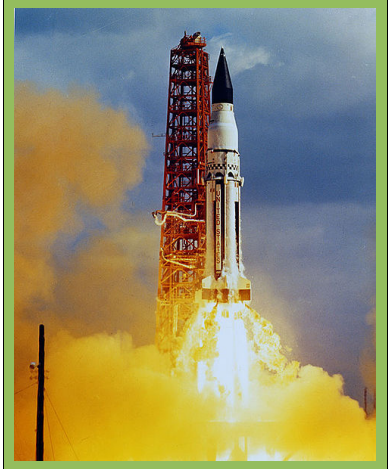
EXPERIMENT: Paddle Boat

To make a paper paddle boat you need cardboard and a rubber band. Cut a four inch square out of the cardboard. Then trim one end to a point like the prow of a boat. Cut out a 1.5 x 2 inch square out of the back of the boat. Cut a 1x2 inch square out for the paddle. Stretch the rubber band over the boat from side to side over the notch. Set the paddle in between the two strands of the rubber band and twist. Set the boat in a tub of water about 4 inches deep or more. Let it go. Did your boat move forward or backward? Try twisting the rubber band the opposite direction. Now which way did it go? How does the paper paddle boat demonstrate Newton's third law? (For every action there is an equal and opposite reaction.)



Additional Layer

A rocket moves forward when pressurized gas is released backward. An air-filled balloon and the Saturn V rocket work on exactly the same principles. Only the Saturn V's pressurized gas was produced by burning fuel. The Saturn V rocket was the largest, most powerful rocket ever launched.



Saturn V launch 1964. Image by NASA

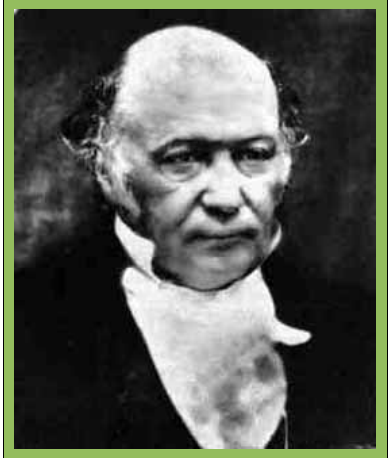
Some Rocket Vocab to Look Up

Inertia
Propulsion
Thrust
Drag
Aerodynamics
Velocity
Mass
Acceleration
Gravitational Force

And some digital rocket vocab flashcards:

http://www.studystack.com/flashcard-233540

Famous Folks



William Rowan Hamilton improved upon Newton's calculations and theories. His improvements are known as Hamiltonian Mechanics.

Additional Layer

Corn is used to make corn starch and about 2500 other items found in a grocery store.

But far less than half of the corn grown in the world is used for human consumption. Over half of all corn produced in the U.S. is used in animal feed, another 17 percent is used in the production of ethanol, and even more goes into thousands of other products.

Corn is also one of the most heavily subsidized agricultural products in the United States.

EXPERIMENT: Rocking Candle

You need a candle, two toothpicks, matches, and two glasses of the same height. Push the two toothpicks into opposite sides of the candle and balance it on the glasses. Light both ends of the candle. As the candle melts, drops of wax fall off, and the candle begins to rock back and forth. How does this relate to Newton's third law?

EXPLORATION: The Physics of Driving

The second Law of Newton says that Force = Mass x Acceleration. For kids who drive, or will drive cars someday, this law is *very important*! It means that if something weighs more (weight is related to mass, but not exactly the same thing), then it will hit harder. Also, if something is moving faster, then it will hit harder. A train weighing several tons and traveling at 55 MPH cannot stop for you, you must stop for it. Its mass times its acceleration means a huge amount of force.

At the end of this unit you will find a worksheet of equations using Newton's second law. Solve them. Answers are given on a second sheet.

EXPERIMENT: Oobleck

Make some Non-Newtonian Oobleck. Here's the recipe:

3/4 cup cornstarch
1/3 cup water

Just combine them in a bowl and let it sit for a few minutes. Now

pick it up and squeeze it until it forms a hard ball. Open your hand and the oobleck will turn from a solid ball back to a liquid.

"Non-Newtonian" simply means that it acts like a liquid when being poured, but a solid when a force is acting on it (like your hand squeezing it). Oobleck is often referred to as a non-Newtonian substance because it doesn't really follow Newton's Third Law of Motion: for every action there is an equal and opposite reaction. Applying this principle, you would expect oobleck to splash when you smack it with your hand (action=smack, reaction=splash). But oobleck doesn't splash! Instead, it actually becomes a solid for a few moments.

Why does this happen? Because cornstarch particles are structured in crystalline and noncrystalline arrangements. When slowly mixed with water, most of the water is absorbed by the noncrystalline structures. When you apply pressure, you increase the temperature and pressure, and force more water to be absorbed by the noncrystalline structures. In turn, the mixture becomes thicker.

There are many non-Newtonian fluids. Ketchup and quicksand are two examples. Fluids of this type are being researched for bullet resistant body armor--useful to absorb the energy of an oncoming high-speed bullet, but still flexible and soft to wear.

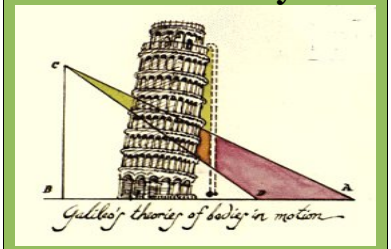
EXPEDITION: You Tube Cymatics

This virtual expedition will let you see some non-newtonian fluid in action. Do a little research on "cymatics" to find out why oobleck on a stereo speaker dances. You could set this experiment up on your own, but it has been done many times before and is very well-documented on You Tube. The footage is pretty amazing.

EXPLANATION: It's the Law!

Isaac Newton proposed a series of rules or theories about physical properties; these became so accepted that they became known as laws. We call them Newton's laws even today. But Einstein proved that Newton's laws weren't, in fact, correct. They're good enough for physical properties on a normal scale here on Earth, but in micro scales of atoms or macro scales of outer space, they are inadequate. Discuss the difference between a scientific theory and a scientific law. Talk about how science is always refining and perfecting human knowledge of the universe, but that we actually still know very little.

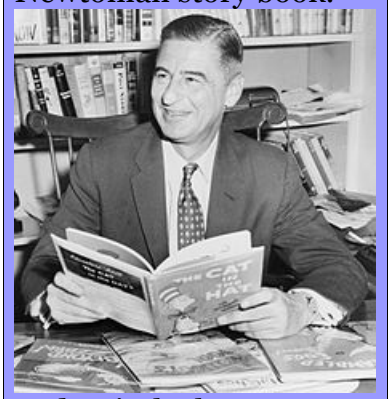
Additional Layer



The first person to observe that all objects fall at the same speed regardless of their mass was Galileo. Learn about his experiments dropping things off the Tower of Pisa.

Additional Layer

Read "Bartholomew and the Oobleck" by Dr. Seuss for a non-Newtonian story book.



Ted Geisel, aka Dr. Seuss

Additional Layer

Quicksand is non-Newtonian as well. Find out what to do if you encounter quicksand!

THE ARTS: LIST POEMS

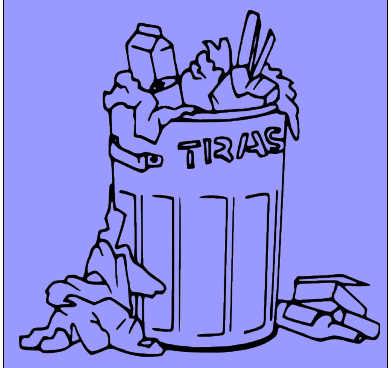
Explanation

Poetry is playing with words. The best poets are those who express what they want to say without big worries over whether it's perfect or fits into the formula. Poetry is writing without all the rules of punctuation and perfect grammar. It gets to take whatever form you want.

A Stinky, Gross Poem That I Just So Happen To Like

Grounds (coffee)
Apple (core)
Rinds (melon)
Banana (peel)
Anchovies (picked off my pizza!)
Grapes (overripe)
Emptying the stinky bag (my job)

Do you see what the vertical initial letters spell out? Try writing your own garbage acrostic.

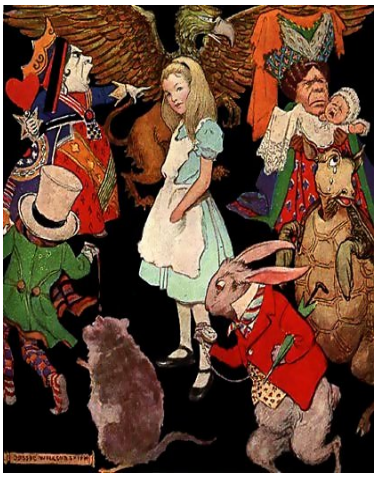


List poems have been written for centuries. One of the most common and popular kinds is the acrostic poem. An acrostic poem takes the letters of the theme of the poem and writes them vertically down the page. The initial letter of each line is then used to form the word or phrase on that line. Acrostic poems were common among the Greeks and Romans. Psalm 119 in the Bible is even a special kind of acrostic in which each line starts with a letter of the alphabet, and then subsequent lines progress through consecutive letters of the Hebrew alphabet. Acrostic poetry was also popular among medieval monks. Current authors still use this technique. Lewis Carroll wrote an acrostic in the last chapter of *Through the Looking Glass*. The inspiration for his character, Alice (of Alice in Wonderland), was a girl named Alice Pleasance Liddell. Look closely at the closing lines of *Through the Looking Glass*:

A boat, beneath a sunny sky,
Lingering onward dreamily
In an evening of July –

Children three that nestle near,
Eager eye and willing ear,
Pleased a simple tale to hear –
Long has paled that sunny sky:
Echos fade and memories die
Autumn frosts have slain July.

Still she haunts me, phantomwise,
Alice moving under skies
Never seen by waking eyes.



Children yet, the tale to hear,
Eager eye and willing ear,
Lovingly shall nestle near.

In a wonderland they lie,
Dreaming as the days go by,
Dreaming as the summers die.

Ever drifting down the stream –
Lingering in the golden gleam
Life. . . what is it but a dream?

Can you see the acrostic poem within it? This one is so cleverly

done that on a normal reading, you may not even notice it. List poems can take many forms, and they're pretty easy and fun to write. Let's try a few. . .

☺ ☻ EXPLORATION: Single Word Acrostics

Single word acrostics are a good place to start. Each writer starts by writing the letters of their word down the side of the page. They could use their name, their pet's name, their favorite food, anything they like really.

B
E
T
T
Y

Next, think of a word about the topic for each beginning letter. (Playing the game, Scattergories, is great practice for writing acrostic poetry!)

Blonde
Elegant
Thin
Tall
Youthful

☺ ☻ ☻ EXPLORATION: Phrase Acrostics

Phrase acrostics are just like Word Acrostics, except you can use more than one word per line.

Bouncing in his crib
Adorable little smile
Babbling and cooing
Yawning in the morning

☺ ☻ ☻ EXPLORATION: Sentence Acrostics

Lewis Carroll's acrostic was a perfect example of a sentence acrostic. He writes in full thoughts and sentences, but forms it so the letters of his topic are the beginning of each line.

Here's another example. This one that I wrote has a bit of natural rhyme scheme, which is fun, but not necessary.

Harry Potter, the wizard boy, hardly knows
A spell, when he first
Resides at Hogwart's School, where soon he learns and dwells.
Reading about quidditch, practicing his spells,
Youthful courage takes him far, but only time will tell...

Try one or two.

Fabulous Fact

Hundreds of years ago acrostics were serious poetry, even mystical. But in the last couple hundred years they have been seen only as playful and fun – for children.

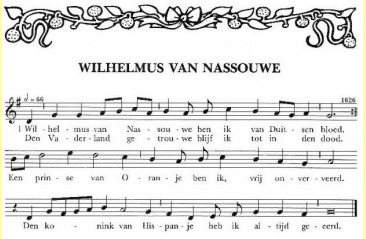
Still, they require great cleverness and an astute ability to manipulate language . . . they may very well come back into fashion.

Additional Layer

Acrostic poems have been used to embed secret messages into an otherwise innocuous poem. For example, one may wish only the one you love to realize it is for them. Or one may wish to insult the government or ruler in a hostile political climate.

Additional Layer

The Dutch National Anthem is an acrostic, spelling the name WILLEM VAN NASSOV, also known as William of Orange.



Additional Layer

Psalm 119 from the Old Testament is an elaborate acrostic, where each verse begins with the next letter of the Hebrew Alphabet (of course the English translation doesn't work out quite that way).

א א

Want More Of a Challenge?

Try a double acrostic. The LAST letter of each line must also spell a word. You can also make prose acrostics. Write a letter where the first letter of each line spells a word or phrase.

Memorization Station

Memorize one of the poems highlighted in this section, another poem you like, or one you've written yourself. Present it to an audience.

Teaching Tip

Teach kids to use a thesaurus, in book form and online, to aid in writing poetry. The perfect word often won't come to you, until you look it up.

EXPLANATION: Clever Word Play
An acrostic doesn't have to include the first letter of every line. It might only use part of the poem, as in this one by William Blake, where only the third stanza is an acrostic with a message to the reader:

London
by William Blake
(from Songs of Experience)

I wander thro' each charter'd street,
Near where the chartr'd Thames does flow.
And mark in every face I meet,
Marks of weakness, marks of woe.

In every cry of every Man,
In every Infants cry of fear,
In every voice, in every ban,
The mind forg'd manacles I hear.

***H**ow the Chimney-sweepers cry*
***E**very Blackning Church appalls,*
***A**nd the hapless Soldiers sigh,*
***R**uns in blood down palace walls.*

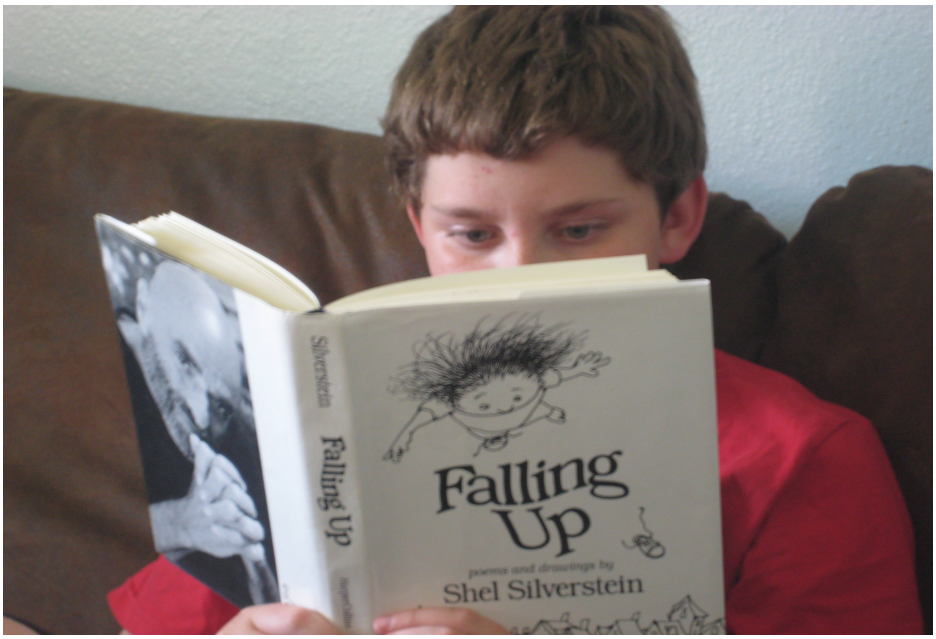
But most thro' midnight streets I hear
How the youthful Harlots curse
Blasts the new-born Infants tear
And blights with plagues the Marriage hearse.

☺ ☻ ☻ EXPLORATION: List Poems

A list poem is simply that – a list! Think of a topic and then list things about it.

My Mother:
She always makes me clean my room.
She expects me to practice the piano every day.
She thinks homework should come before playing.
She serves vegetables at dinner every single night.
She sends me away from the dinner table when I burp.

Shel Silverstein's famous *Sick* poem is a list poem too. It's a great one, so make sure to read it.



Read a few list poems, and then try writing your own. I often have kids tell all the reasons they can't come to school today. Or all the reasons they can't do homework. Or all the reasons you should buy ice cream. You get the idea; make it relate to them.

EXPLANATION: 5 Levels of Writing

There are 5 levels of teaching writing to kids. It's important to allow for all of these levels to happen so kids can get the writing skills they need in all kinds of genres.

1. Modeled writing: Teachers demonstrate and students observe. Students can make suggestions and give ideas, but the teacher does the actual writing. This is great when you're introducing a new style of writing, or showing how to use writing strategies like sentence combining or editing.
2. Shared writing: Together, the teacher and students write. The

Additional Layer

Want something fascinating to mull over? Look up the Sator Square, an old Roman acrostic.

Additional Layer

The Erythraean Sibyl (prophetess) always wrote her prophecies on leaves, which were arranged so the first letter on each leaf formed an acrostic.

Fabulous Fact

List poems are also called "catalog poems" and shape poems are also called "concrete poems."

Additional Layer

Sometimes shape poems take on a more physical form as in this verse from a shi'ite poem which has been engraved in a steel plate which would have been a decoration on a door. The words create art.

Teaching Tip

Writing descriptively can be challenging for budding authors. Try suggesting they add in details using their 5 senses.

What does autumn *smell* like? Spicy pumpkin pie, fresh breezes, and Mom's hot cocoa

What does autumn *look* like? Bright yellow, vibrant red, and orange leaves; pumpkins on porches, and jackets all around

What does autumn *sound* like? Whooshing breezes, doorbells and trick-or-treaters asking for candy

What does autumn *feel* like? Cold and breezy, fresh, warm when I'm snuggled in my bed at night

What does autumn *taste* like? Gooey cinnamon rolls, warm soup, and sticky caramel apples

You are bound to awaken more vivid details that will create images and meaning as kids write if you simply remind them to *use their senses*!

teacher does the physical act of writing, but it's almost entirely based on student responses and ideas. The "I Can't Write A Poem Exploration" below is an example of this.

3. Interactive Writing: Teachers and kids share the pen. The teacher may do some of the physical writing and have kids come up and help too. Perhaps the student will fill in an adjective of their choice, or just write the beginning sounds of words. A student may come up and fill in punctuation where it's needed.
4. Guided Writing: Teachers plan writing assignments and then watch as kids write. They may jump in with suggestions, but the kids do the writing. Poetry writing is often this level because the teacher is guiding how the poem will be structured.
5. Independent Writing: kids do the writing themselves and go through the writing process on their own from choosing their own topic all the way through to editing.

☺ ☻ EXPLORATION: I Can't Write A Poem

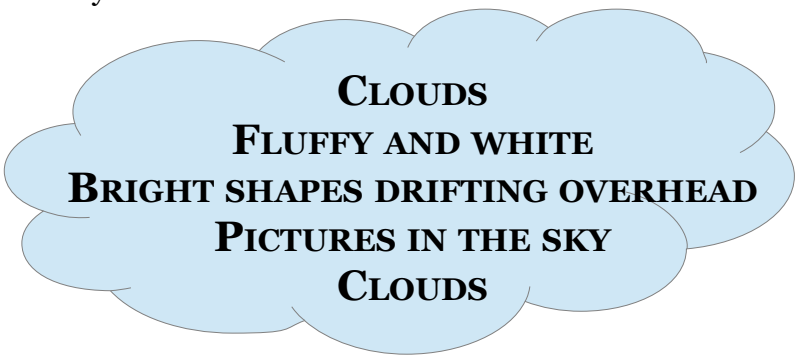
This is a great one to do as a group, especially to introduce list poems to kids. This is a list poem where you list all the reasons you can't write a poem. Brainstorm all the reasons writing poetry is hard and write down every idea. At the end, you have your poem! Bruce Lansky, a famous children's poet, has a terrific "I can't write a poem" poem. He includes a lot of silly list poetry among his works. Here's an example:

I Can't Write A Poem

No way.
I hate poetry.
I can't rhyme.
I'm bored already.
I don't know what to say.
Just tell me what to write.
I'm not going to be a poet when I grow up .
It's too bright in here.
My head hurts.
I should have been sick today.
My hand is cramping.
Oh, no! I can't be out of time yet!
All I have is this list!
A list can be a poem?
Awesome! I'm glad you like it!

EXPLORATION: Shape Poem

A shape poem is a graphic poem that somehow includes a picture in it. Either the words fill in a picture or form the picture somehow. The sky is the limit on what kids can do. Perhaps they'll start with a picture and then fill words that fit into it. Similarly, they may come up with the words to use, and then work them into a picture. Here are a few examples of what shape poems may look like:



I
LOVE
CHRISTMAS
BECAUSE ALL THE
ORNAMENTS ON MY TREE
REMIND ME OF SUMMER TRIPS
AND GOOD TIMES WITH MY FAMILY.
THE LIGHTS
ARE NICE TOO.

EXPLORATION: Non-Fiction and Poetry

Read a non-fiction book on anything that interests you, anything at all. You might want to take a few notes on the topic as you read. Then create a poem using one of the forms from this unit – either an acrostic or a list poem.

I frequently ask my kids to make a poem rather than just a paragraph about a topic we're learning about. Writing an acrostic about Albert Einstein causes you not only to recall facts, but also to think critically, be creative, and push your mind beyond mere regurgitation of facts. Much like learning while doing a hands-on project, more of your brain is engaged in the process. It requires real thinking.

Famous Acrostics

Hymn I of Astrea by Sir John Davis

An Acrostic by Edgar Allen Poe

George Washington Poem by the Boston Gazette (1789)

Famous List Poems

For I Will Consider My Cat Jeoffry by Christopher Smart

Old Noah's Ark from Tomie dePaola's Book of Poems

Good Night Moon by Margaret Wise Brown

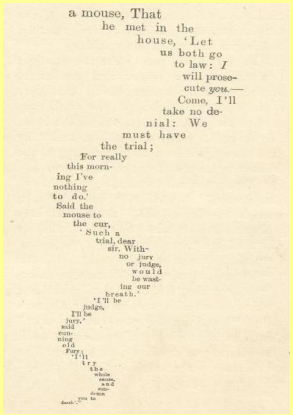
I Hear America Singing from Leaves of Grass by Walt Whitman

Famous Shape Poems

Old Mazda Lamp by James Hollander

Easter Wings by George Herbert

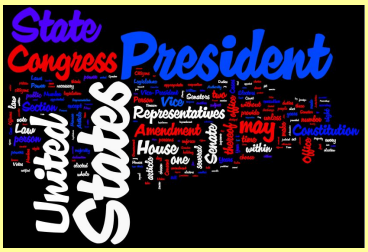
The Mouse's Tale by Lewis Carroll, found in Alice's Adventures in Wonderland


a mouse, That
he met in the
house, 'Let
us both go
to law: I
will prose-
cute you.—
Come, I'll
take no de-
nial: We
must have
the trial;
For really
this morn-
ing I've
nothing
to do.'
Said the
mouse to
the cur,
'Such a
trial, dear
sir, With-
no jury
or judge,
would
be wast-
ing our
breath.'
'I'll be
judge,
I'll be
jury,'
said
cun-
ning
old
Fury:
'I'll
try
the
whole
cause,
and
con-
demn
you to
death.'

Writer's Workshop

Try to create a shape poem about a non-fiction topic you're reading or studying as well.

On The Web



There's a cool website called Wordle that lets you create pretty cool word cloud art. Making a digital word project would be a cool companion to this unit.

Additional Layer

Make a nice alliteration poem using one of your friend's names and the things you like about him or her. Turn it into the front of a greeting card. Then write a nice note on the inside and give it to your friend.

EXPLORATION: Letter Round-Up

Make a 26 page booklet using half sheets of construction paper for the pages. Write one letter of the alphabet on each page. For each letter, set the timer for one minute and write as many words as you can using that letter on its page. Much like practicing rhyming, practicing alliteration and coming up with the same initial sounds is a great tool for a poet. You can see how it would be especially useful in an acrostic poem. Fill out a page for each letter. Keep the book to use as a reference while you write poetry.

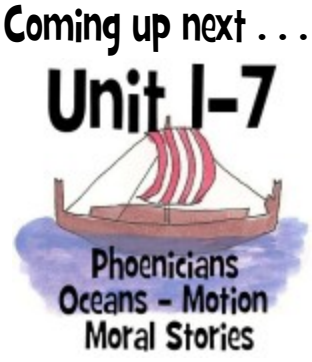
EXPLORATION: Alliteration Alphabet

If you did the "Letter Round Up" Exploration, use the back sides of each page in your book for this activity. For each letter, create an alliteration that is the description of a person with that name real or imagined). If you'd like you can draw a picture of each of your characters as well. Here's one example:

B

Bossy Betty bullied big boys and broke the blokes' baseball bats before bolting.

Coming up next . . .



My Ideas For This Unit:

Title: _____ Topic: _____

Title: _____ Topic: _____

Title: _____ Topic: _____

The Levant – Physical Earth– Laws of Motion – List Poems

My Ideas For This Unit:

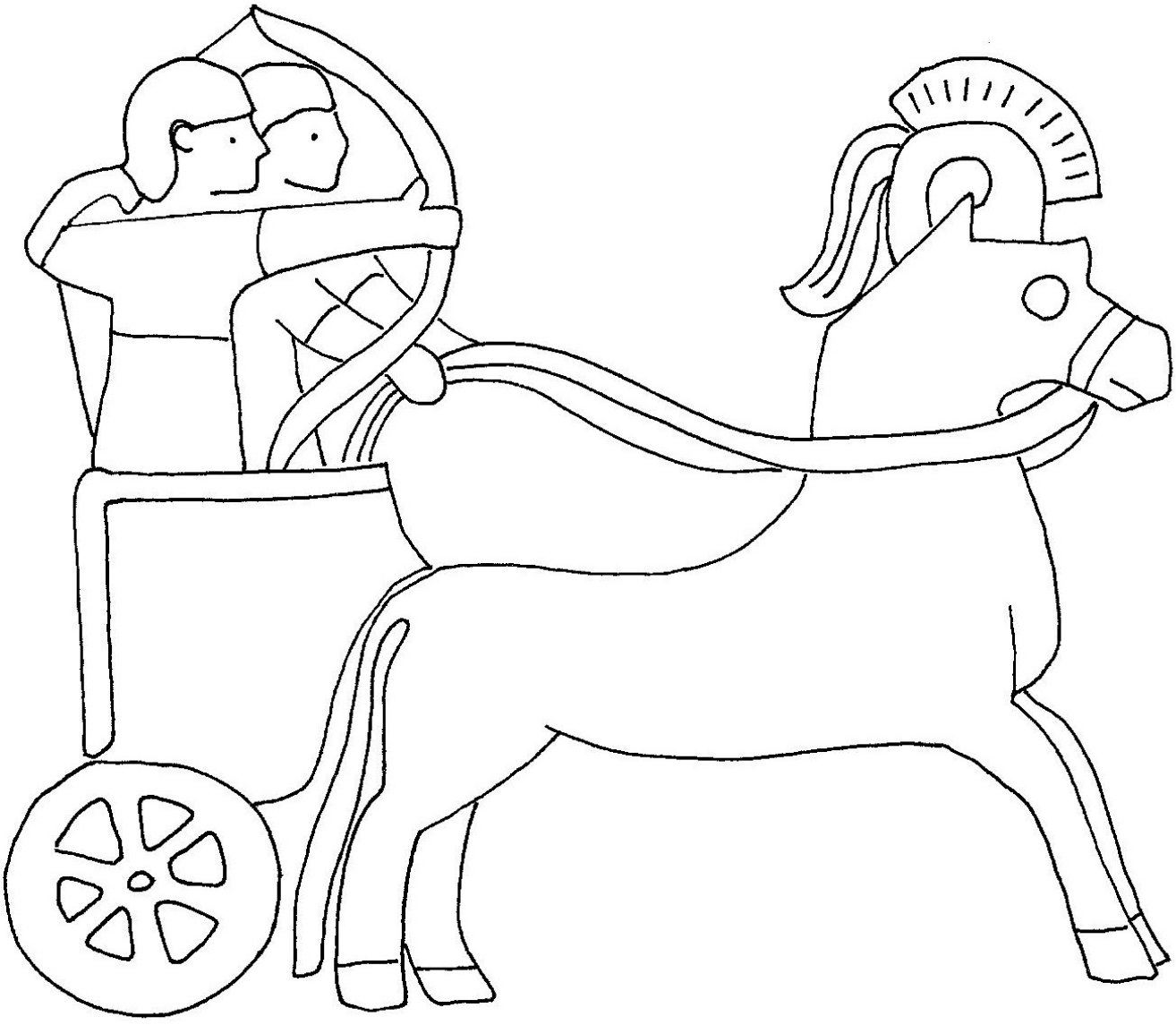
Title: _____ Topic: _____

Title: _____ Topic: _____

Title: _____ Topic: _____

Chariots

Chariots were used by the ancient people of the Middle East. It was a quick way to travel. They were used for hunting, sport, and especially in battle. They made a perfect platform for shooting arrows from and could get soldiers from place to place very quickly. They were driven by charioteers.



The Levant: Unit 1-6

1650 BC 1-6

Hittite Kingdom founded

1500 BC 1-6

Abraham, father of Hebrew nation, leads his nomadic tribe from Sumer to Canaan then to Egypt

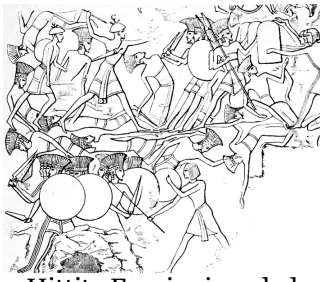
1250 BC 1-6

Moses leads Hebrews from Egypt to Palestine where they defeat Jericho and establish a nation

1200 BC 1-6

Philistines settle along the shore of Palestine

1185 BC 1-6

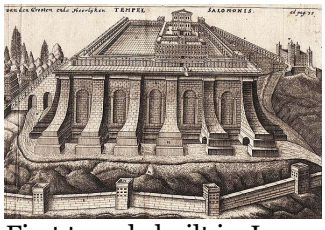


Hittite Empire invaded and defeated by the Sea Peoples

1020 BC 1-6

King David of the Hebrews defeats the Philistines and unifies Israel

950 BC 1-6



First temple built in Jerusalem

922 BC 1-6

King Solomon of the Hebrews dies and his kingdom is split into north and south.

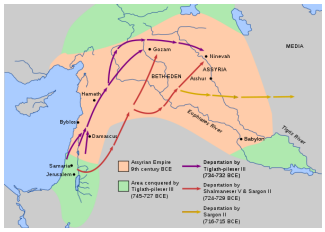
836-823 BC 1-6

Assyrians defeat the Persians, Media (northeastern Iran), Palestine, Turkey, southern Mesopotamia, and Babylon.

743-727 BC 1-6

Assyrians defeat Hittites, Arameans (Syria), and Israel

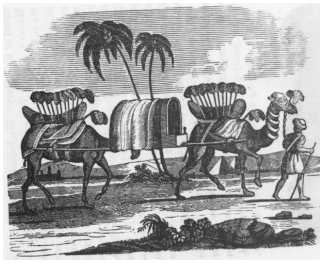
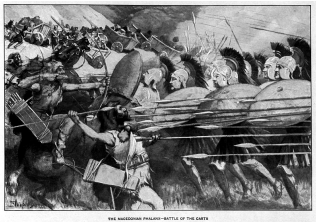
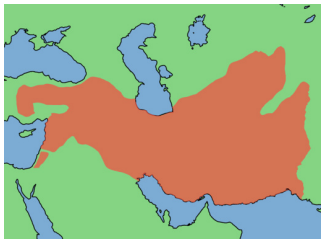
721 BC 1-6

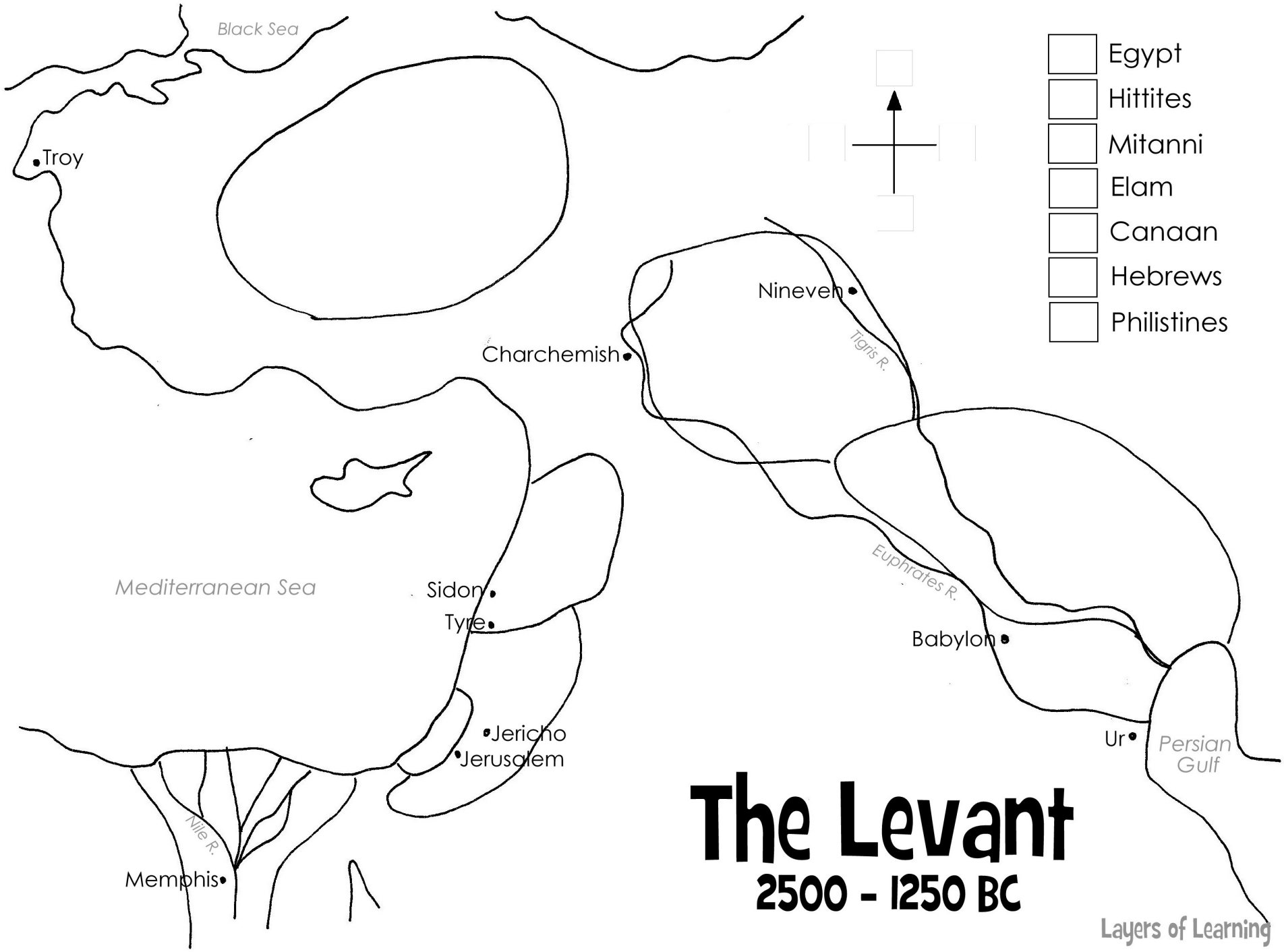


King Sargon of Assyria forces the diaspora of the Hebrews. Ten of the tribes are lost to history.

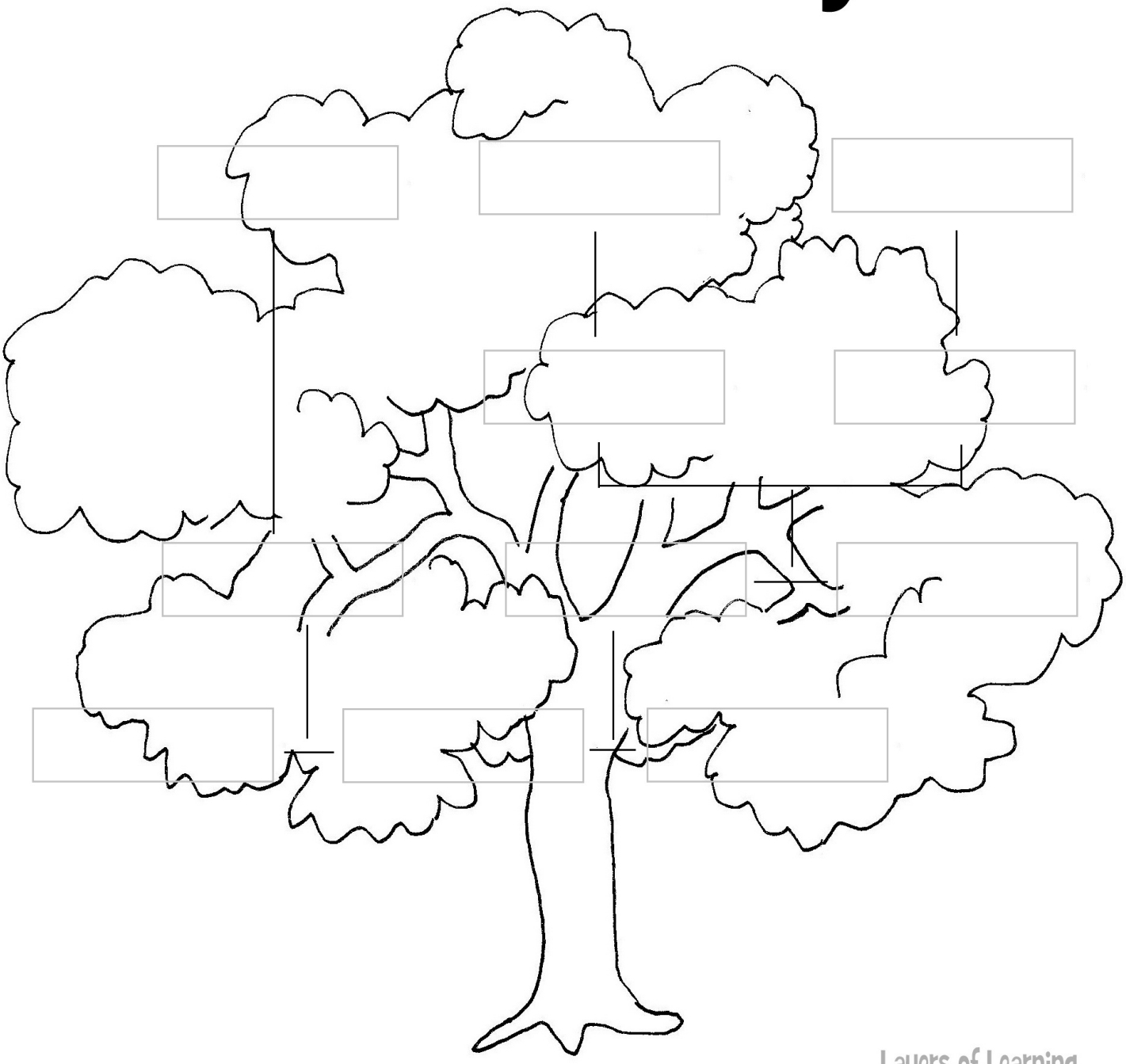
612 BC 1-6

Jews return to Israel upon the defeat of the Assyrians

600 BC I-6	587 BC I-6	539 BC I-6	334-391 BC I-6
 Aramaic has by now become the language of scholarship and business throughout the Middle East	 Jews are defeated by Babylon and deported from their homeland	 Jews return to Israel and rebuild their temple after being freed by Cyrus the Great	 Alexander the Great defeats all of the Middle Eastern Peoples, but makes special accommodation with the Jews, whose high priest he had seen in visions.
323 BC I-6	**198 BC** I-6	**156 BC** I-6	**64-63 BC** I-6
 Alexander's empire is divided into three parts by his leading generals. The Levant is disputed between Seleucid and Ptolemy, causing war.	 Seleucids conquer Palestine and Phoenicia from Ptolemy (Egypt)	 Maccabees revolt in Palestine and gain their independence from the Seleucids	 Rome conquers Phoenicia, Syria, Israel, Palestine. Roman General Pompey sacks Jerusalem and enters the temple.


Black Sea
Troy
Egypt
Hittites
Mitanni
Elam
Canaan
Hebrews
Philistines
Nineveh
Tigris R.
Charchemish
Euphrates R.
Mediterranean Sea
Sidon
Tyre
Babylon
Jericho
Jerusalem
Ur
Persian Gulf
Nile R.
Memphis
The Levant
2500 - 1250 BC
Layers of Learning

Abraham's Family Tree



Layers of Learning

Isaac	Ishmaelites 12 tribes/Arabs	Edomites	Sariah
Ishmael	Abraham	Hagar	Israelites 12 tribes/Jews
Rebecca	Esau	Jacob	

Near East Kingdoms
c. 830 BC

Aram-Damascus
Phoenician States
Kingdom of Israel
Kingdom of Judah
Philistine States
Kingdom of Moab
Kingdom of Edom
Kingdom of Ammon
Arabu Tribes
Nabatu Tribes
Aramean Tribes
Assyrian Empire

Labeling the World

Use this checklist when doing a major world labeling project. Remember to write neatly and do your best work. If you are in older grades, do the younger grades' work plus your checklist.

Grades 1-4

- Atlantic Ocean
- Pacific Ocean
- Indian Ocean
- Arctic Ocean
- Antarctic Ocean
- Europe
- Africa
- Asia
- Australia
- North America
- South America
- Antarctica
- Rocky Mountains
- Andes Mountains
- Himalayan Mountains
- Alps
- Gobi Desert
- Sahara Desert
- Kalahari Desert
- Great Victorian Desert
- Congo Basin
- Amazon Basin

Grades 5-8

- Arabian Peninsula
- Manchurian Peninsula
- Iberian Peninsula
- Great Plain of China
- Scandinavia
- Siberia
- Kamchatka
- North European Plain
- Greater Antilles
- Guiana Highlands
- Gulf of Mexico
- Hudson Bay
- Arabian Sea
- South China Sea
- Caribbean Sea
- Mediterranean Sea
- Black Sea
- Caspian Sea
- East China Sea
- Bering Strait
- Greenland
- Sahel
- Madagascar
- Ethiopian Highlands
- East Indies
- American Great Plains
- West Indies
- Canadian Shield
- Red Sea
- Persian Gulf

Grades 9-12

- Appalachian Mountains
- Sierra Madre Mountains
- Laurentian Mountains
- Atlas Mountains
- Carpathian Mountains
- Caucasus Mountains
- Zagros Mountains
- Hindu Kush
- Balkan Mountains
- Ural Mountains
- Western Ghats
- Eastern Ghats
- Anatolia
- Iranian Plateau
- Plateau of Tibet
- Patagonia
- Pampas
- Yucatan Peninsula

- Hawaiian Islands
- Polynesia
- Melanesia
- New Zealand
- Cape Verde Islands
- Canary Islands
- Maldive Islands
- Aleutian Islands

- Great Lakes
- Timor Sea
- Sea of Japan
- Bay of Bengal
- Tasman Sea
- Labrador Sea
- Beaufort Sea
- North Sea
- Baltic Sea
- Gulf of Aden
- Gulf of Guinea

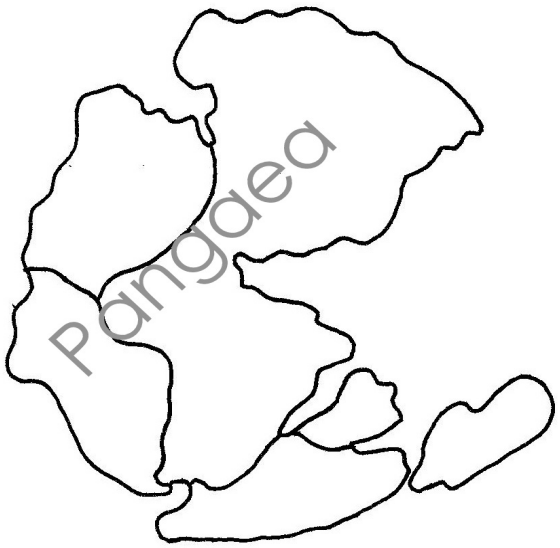
- North American Basin
- Mid-Atlantic Ridge
- Indian Ridge
- Brazil Basin
- Guiana Basin
- South Indian Basin
- East Pacific Rise
- Mariana Trench
- Mid-Pacific Mountains
- Emperor Seamounts
- Peru-Chili Trench
- Middle America Trench

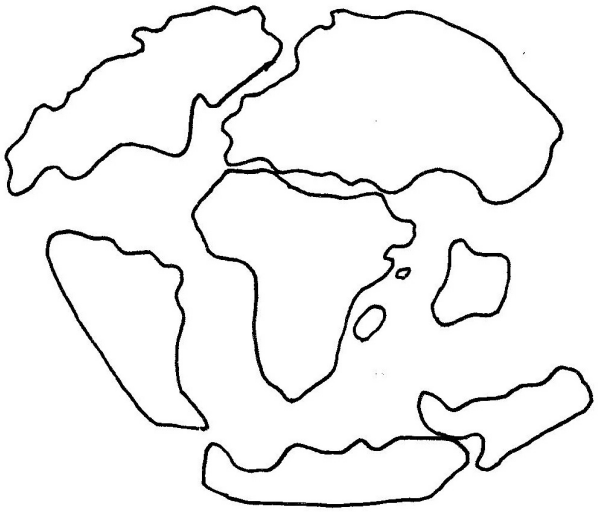
- Great Lakes
- Lake Victoria
- Lake Chad
- Aral Sea
- Lake Baikal
- Mississippi River
- Amazon River
- St. Lawrence River
- Zambezi River
- Orange River
- Nile River
- Congo River
- Niger River
- Danube River
- Volga River
- Indus River
- Ganges River
- Mekong River
- Yangtze River
- Yellow River
- Amur River
- Lena River
- Ob River
- Darling River

Pangaea

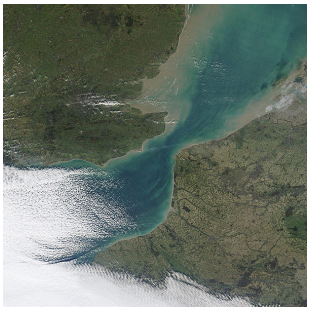
Flip through the pages quickly to see how the continents moved over time.

Layers of Learning

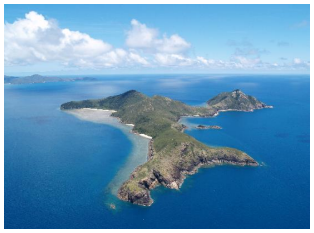




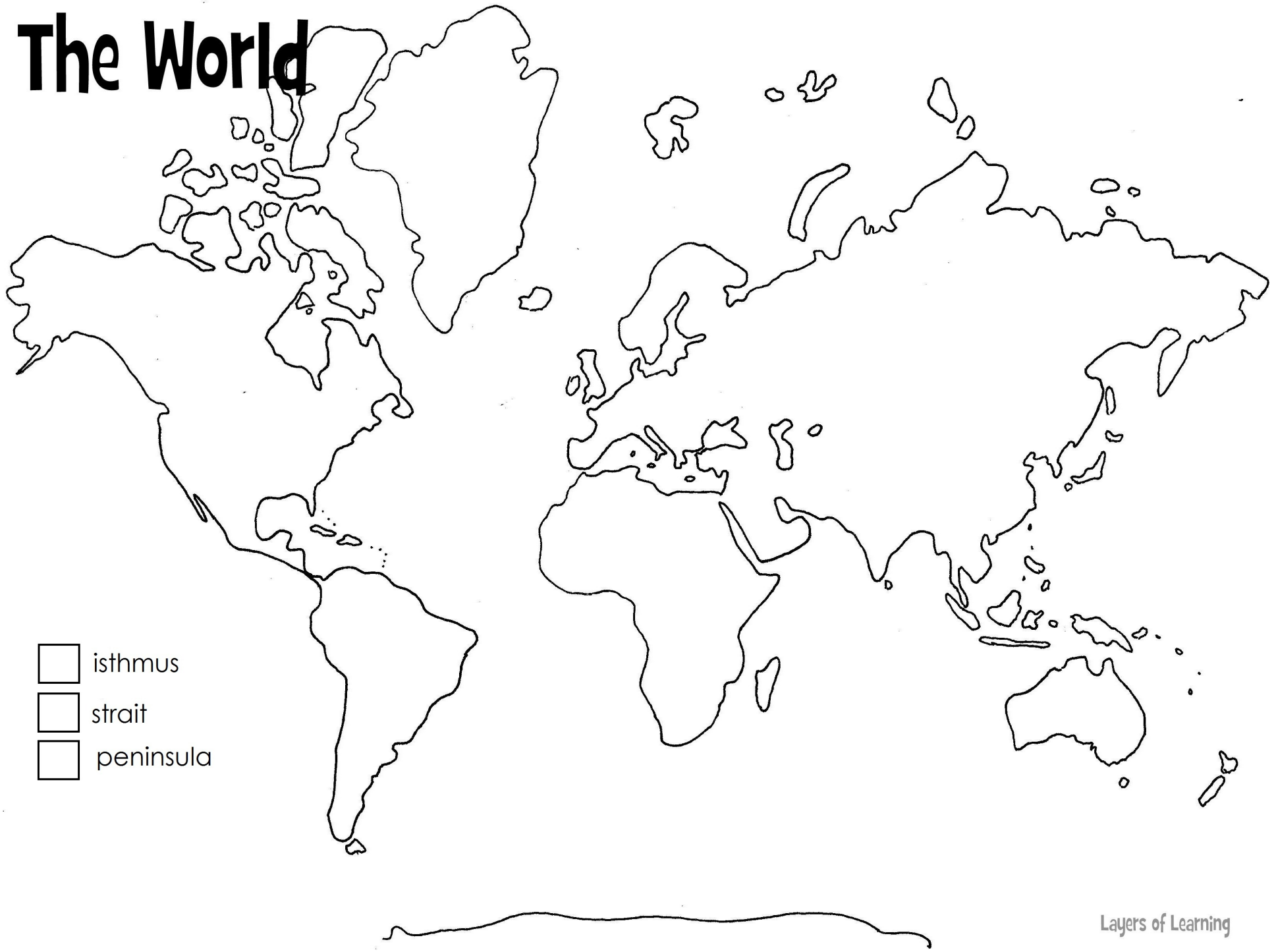
Landforms Memory Game

Lake		Peninsula	
Mountain		Headland	
Palisade		Strait	
Stream		Harbor	

Landforms Memory Game

Waterfall		Fjord	
Mesa		Delta	
Island		Mountain Range	
Volcano		River	

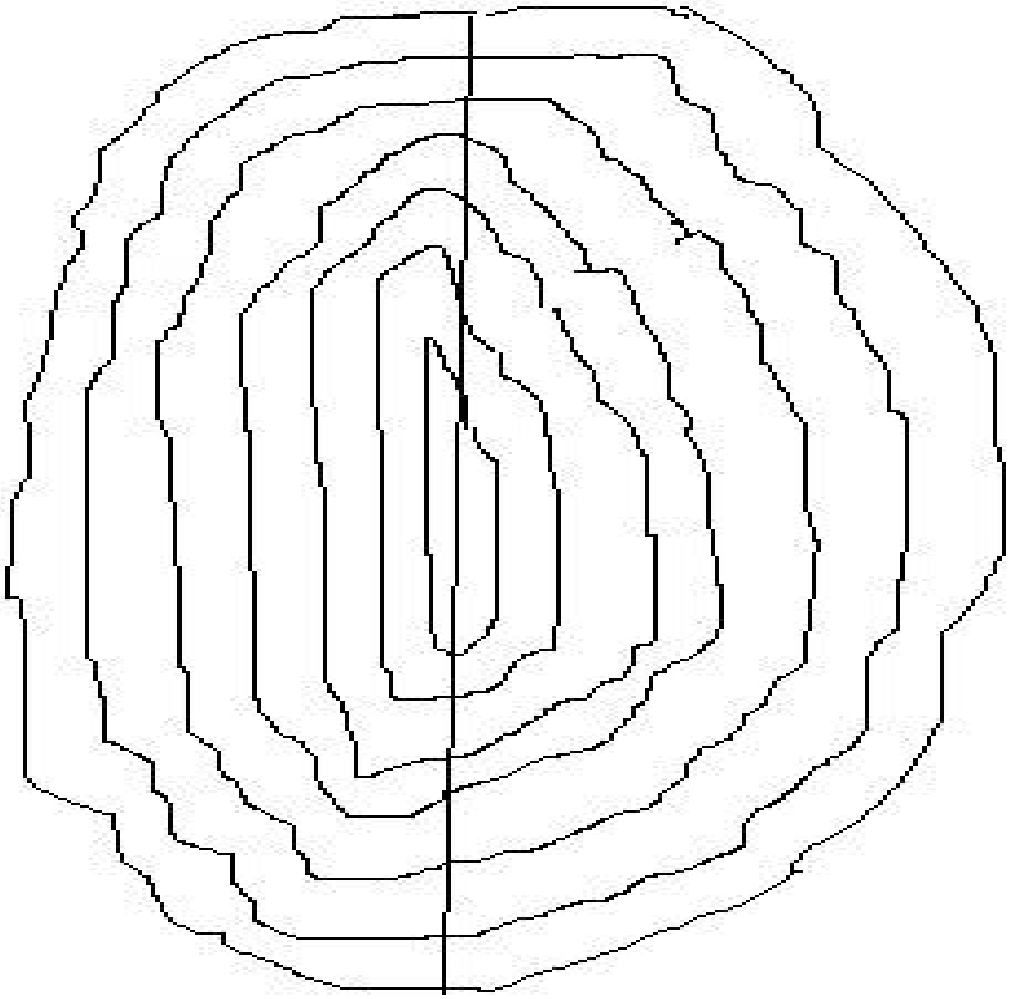
The World



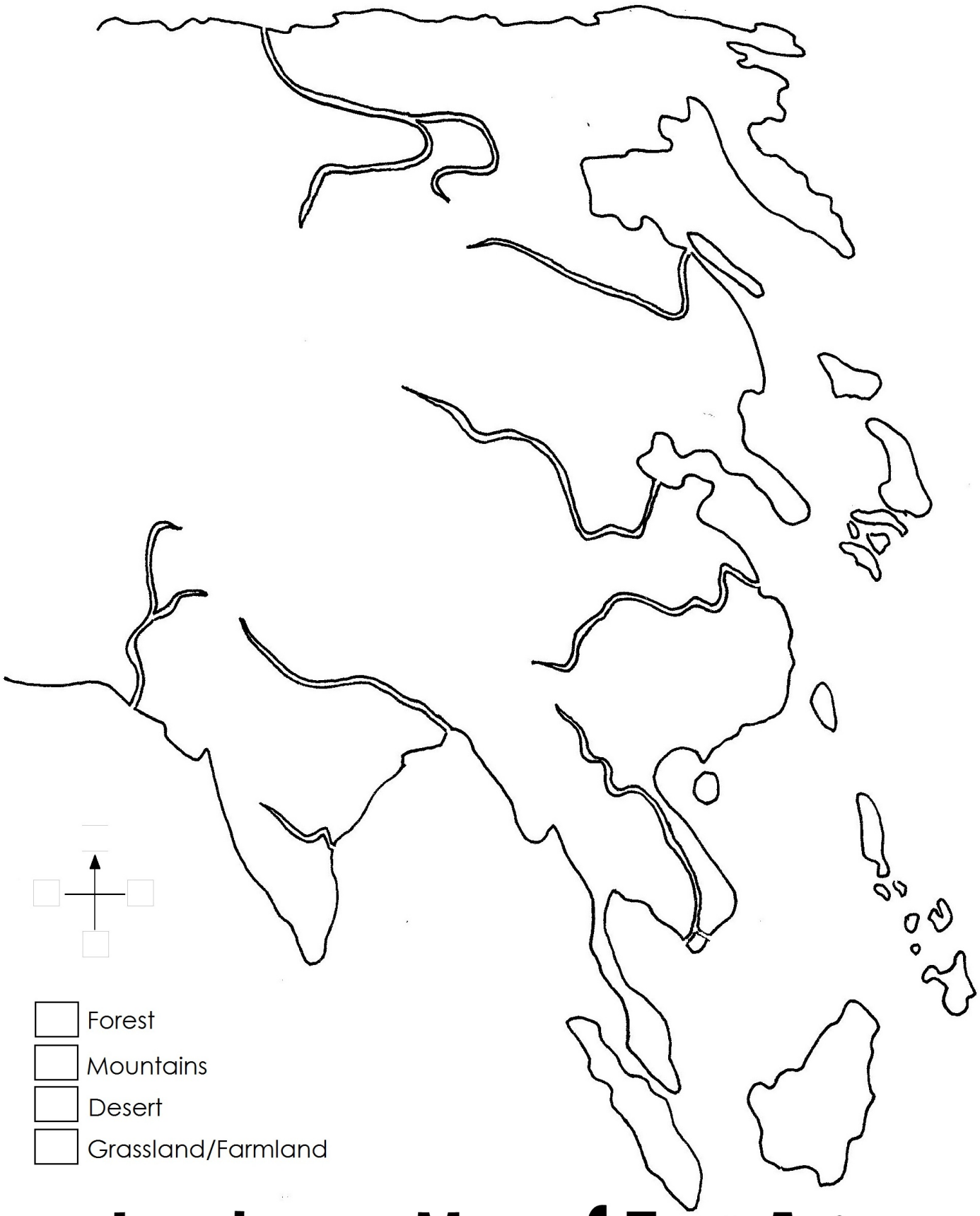
- [ ] isthmus
- [ ] strait
- [ ] peninsula

Mountain Relief

A relief map uses contour lines to show elevation. Each new line shows a rise in elevation. Begin by labeling each line. Start on the outside. We'll pretend this an island that is a mountain, so the outside line is right at sea level. Each line represents a 500 ft. rise in elevation. Begin with the outside circle and label it 0, then work inward, labeling each one with an additional 500 ft. on top of the last one.



When your lines are all labeled, create a 3-D model of this mountain island. Using the picture as a reference, sculpt a mountain from salt dough. Each 500 foot mark will be shown with 5 additional centimeters of salt dough (1 cm = 100 feet). Make your model match the map as accurately as possible.



Landscape Map of East Asia

Newton's Second Law

Newton's Second Law says that force equals mass times acceleration. We can write this with a mathematical equation that looks like this:

$$F = ma$$

One other thing you should know: Physicists measure force with kg m/s^2, which means kilograms time meters per second squared. They shortcut this by calling 1kg m/s^2 a Newton (N).

1. If a car has a mass of 2000kg, what force is required to accelerate it at 2 m/s^2?

2. NASA scientists send a rocket up with 3,150,000 N of force. If the rocket's mass is 45,000 kg, then how fast is it accelerating?

3. If you throw a ball that weighs .5 kg with an acceleration of 26 m/s^2, what is the force of your throw?

4. An SUV with a mass of 2500kg at an acceleration of 25 m/s^2 has how much more force than a Volkswagen Bug with a mass of 1500kg at the same acceleration?

Newton's Second Law

Newton's Second Law says that force equals mass times acceleration. We can write this with a mathematical equation that looks like this:

$$F = ma$$

One other thing you should know: Physicists measure force with kg m/s^2, which means kilograms time meters per second squared. They shortcut this by calling 1kg m/s^2 a Newton (N).

1. If a car has a mass of 2000kg, what force is required to accelerate it at 2 m/s^2?

$F = (2000kg)(2\ m/s^2)$
$F = 4000\ kg\ m/s^2$ or we can say $F = 4000\ N$

2. NASA scientists send a rocket up with 3,150,000 N of force. If the rocket's mass is 45,000 kg, then how fast is it accelerating?

3,150,000 N = (45,000 kg)(a)
3,150,000/45,000 = a
a = 70 m/s2

3. If you throw a ball that weighs .5 kg with an acceleration of 26 m/s^2, what is the force of your throw?

$F = (.5\ kg)(26\ m/s^2)$
$F = 13\ N$

4. An SUV with a mass of 2500kg at an acceleration of 25 m/s^2 has how much more force than a Volkswagen Bug with a mass of 1500kg at the same acceleration?

$F\ SUV = (2500\ kg)(25\ m/s^2)$
$F = 62{,}500\ N$

$F\ Bug = (1500\ kg)(25\ m/s^2)$
$F = 37{,}500\ N$

62,500 N – 37,500 N = An SUV has 25,000 N more force than the Bug at 25 m/s^2, 55miles per hour

About the Authors

Karen & Michelle . . .
Mothers, sisters, teachers, women who are passionate about educating kids.
We are dedicated to lifelong learning.

Karen, a mother of four, who has homeschooled her kids for more than eight years with her husband, Bob, has a bachelor's degree in child development with an emphasis in education. She lives in Utah where she gardens, teaches piano, and plays an excruciating number of board games with her kids. Karen is our resident Arts expert and English guru {most necessary as Michelle regularly and carelessly mangles the English language and occasionally steps over the bounds of polite society}.

Michelle and her husband, Cameron, homeschooling now for over a decade, teach their six boys on their ten acres in beautiful Idaho country. Michelle earned a bachelors in biology, making her the resident Science expert, though she is mocked by her friends for being the *Botanist with the Black Thumb of Death*. She also is the go-to for History and Government. She believes in staying up late, hot chocolate, and a no whining policy. We both pitch in on Geography, in case you were wondering, and are on a continual quest for knowledge.

Visit our constantly updated blog for tons of free ideas, free printables, and more cool stuff for sale:
www.Layers-of-Learning.com