

Materials List

Chapter 1

Pangaea Salt Dough Puzzle

- Continent Cookie Cutters (optional)
- Cardboard
- Scissors
- Paint (optional)
- Salt Dough

Salt Dough Ingredients:

- 2 cups flour
- 1 cup salt

Chapter 2

Playdough Layers of the Earth

Kool-Aid Playdough

- 1 TBSP oil
- 2 TBSP cream of tartar
- 1/4 cup salt
- 1 cup flour
- Kool-Aid packets:
 - blue raspberry lemonade
 - cherry
 - black cherry
 - orange
 - lemonade

Cocoa Playdough

- Kool-Aid recipe plus:
 - 1/2 cup cocoa powder

Gingersnap Playdough

- Kool-Aid recipe plus:
 - 1 TBSP ground ginger
 - 2 TBSP cinnamon
 - 1 TBSP molasses

Graham Cracker Plate

Tectonics

- Cool whip (optional: dyed red and orange)
- A plate for each child
- 4 graham crackers per child

Chapter 3

Sand Dough Volcano Bases

- 4 1/2 cups flour
- 4 1/2 cups sand
- 1 1/2 cup salt
- 6 TBSP cream of tartar
- 4 1/2 TBSP oil

Volcano Experiments

- 1/2 c. hydrogen peroxide
- 1/2 TBSP quick rising yeast
- 1 c. ketchup
- 5 TBSP baking soda
- 3 squirts of dish soap
- 1/2 cup lemon juice
- 1/2 cup vinegar

Underwater Volcano Experiment

- large clear glass jar or vase
- smaller clear glass jar that fits inside the larger jar or vase
- red food coloring
- rock

Balloon Gas Experiment

- Narrow-necked bottle (such as a glass Rootbeer bottle)
- Balloon
- 1/3 c. Baking Soda
- 1 c. Vinegar
- Small Funnel

Rainshadow Experiment

- Newspaper or other paper to form mountains
- Fan
- Spray bottle

Chapter 4

Canyon Carving Activity

- 2 cups cornmeal
- 1 cup flour
- 1 cup salt
- spray bottle
- rectangular container
- 1-2 ice cubes with gravel frozen in them (optional)

Tsunami Experiment

- Plastic container
- Dirt
- Sand
- Plastic cup or other item to push water
- Houses/cars to replicate a village

Great Wave Watercolor

- Watercolor set
- Brush or water pen
- Watercolor paper
- Pencil

Chapter 5

Evaporation Experiment

- 2 plastic ziplock bags
- Sharpie marker
- Tape (recommend blue painter's tape)
- Blue food coloring

Popsicle Longhouse Activity

- 15 regular popsicle sticks
- 14 wide popsicle sticks
- Hot glue gun & glue sticks
- A way to cut the popsicle sticks (I used tin cutters)

Chapter 6

Water Purification Experiment

- Empty 2-liter bottle
- Coffee filter
- Dirty water

Variety of filtration materials, such as:

- Sand
- Pebbles
- Gravel
- Sticks
- Cotton balls
- Rocks
- Weeds/algae
- Bark
- Activated charcoal

Estuaries Experiment

- 8 TBSP salt (1/2 cup)
- Spoon or whisk to stir

- 1 gallon water (16 cups)
- 2 opposite colors food dye
- 1 large clear container that will hold 16 cups
- 1 container that will hold 8 cups

Longhouse on Beach Watercolor

- 5x7 piece of watercolor paper
- Watercolors
- Brush or water pen
- Narrow brush
- Longhouse cutout

Bonus Activity

Cree Octopus Bag Activity

- Sewing machine or needle and thread to pre-sew the pouch
- Scissors
- Felt
- Chalk marker (optional)
- Puff paint
- Beads (preferably blue and white)

Chapter 7

Sketching

- Pencil

Chapter 8

Make Your Own Compass Activity

- Needle
- Cork or styrofoam
- Magnet
- Bowl of water
- Compass pattern

A Portuguese Polaris

- 5x7 Canvas or mixed-media paper
- Paint brush
- Ship silhouette
- Acrylic paints:
(I used Arteza paint)
 - Ultramarine blue
 - Phthalo blue
 - Lemon yellow
 - Silver
 - Burnt umber (optional)

Chapter 9

Clay Bas-Relief Sculptures

- Air dry clay
- Clay tools or toothpick, popsicle stick, or spoon

Chapter 10

Little Dipper Lightbox

- 5 x 7 stretched canvas (with narrow back)
- Battery operated fairy lights
- Acrylic paint and brush
- Nail, hammer, and surface to make holes in the canvas
- Reverse Little Dipper pattern
- Tape

Chapter 11

Popsicle Stick Blockhouse

- 12 wide popsicle sticks
- 6 regular popsicle sticks
- 8 craft matchsticks
- craft glue
- sharp scissors
- hot glue gun and glue

Watercolor Snoqualmie Pass

- Watercolor set
- Brush or water pen
- Watercolor paper
- Pencil

Chapter 12

Stained Glass Activity

- Elmer's (or craft) glue
- Black acrylic paint
- Watercolor paper (5x7)
- Watercolors
- Water pen or paintbrush

Chapter 13

Hardtack

- 1 cup white flour
- 1 tsp salt

Geysers Experiment

- 2 Liter Diet Coke
- Roll Mint Mentos
- Paper and tape to make a tube

Popsicle Wagon Activity

- 18-20 regular popsicle sticks
- 1 wide popsicle stick cut in half with curved ends cut off
- 4 craft match sticks (or 2 more popsicle sticks cut in half)
- 6 brown chenille stems*
- Pick a size paper towel
- Something to cut the popsicle sticks and chenille stems (I used tin cutters)
- Hot glue gun & glue

*OPTIONAL CARDBOARD WHEELS MATERIALS:

- Cardboard wheels kit
 - 1 Straw
 - 1 Vegetable skewer
 - 1 Extra popsicle stick
- (If you use the wheels cutout kit, you only need 2 chenille stems.)*

Chapter 14

Watercolor Mount Hood

- Watercolor set
- Brush or water pen
- Watercolor paper
- Pencil

Chapter 15

Telegraph Craft

- Foam board cut about 5" long by 3" wide
- 1 jumbo popsicle stick
- 1 metal washer 3/8"
- 1 metal nut 3/8"
- metal paper clip
- 2 small square beads, like the alphabet beads
- Hot glue gun and glue sticks

Morse Code Jewelry

- Two colors of beads
- Metal spacers
- Twine, round ribbon, or elastic bracelet string
- Morse Code handout

Chapter 16

Canal Locks Activity

- Container
- Sand

- Cardboard or cardstock
- Small boat that easily fits in the container

Paddlewheeler Activity

- Small rectangular disposable plastic lunch container that is about 5" x 7" in size
- 6 popsicle sticks
- foam boards that can make at least two 3" x 4" rectangles
- razor blade to cut foam board
- 2 rubber bands
- glue gun and hot glue sticks
- sink or large container

Chapter 17

Chief Joseph Watercolor

- 5x7 piece of watercolor paper
- Watercolor set
- Brush or water pen
- Pencil
- Thin black sharpie marker
- Teepee silhouette cutout

Chapter 18

Mat Weaving Activity

- burlap
- raffia
- tapestry needle
- scissors
- sharpie markers
- hot glue gun & glue
- scraps of paper
- pattern

Chapter 19

Mat Weaving Activity

- Tubes from toilet paper, paper towel, or wrapping paper rolls
- Package of vegetable skewers
- Hot glue gun and glue
- Scissors or way to cut skewers
- Marble
- Foam Board

Chapter 20

Glowing Light Bulb Activity

- 2 alligator clips
- Electrical tape
- Mechanical pencil lead
- 8 D batteries
- Toilet paper cardboard tube
- Quart size glass jar

Chapter 21

Lightning Experiment #1

- Balloon
- Metal Spoon

Lightning Experiment #2

- Disposable aluminum pie pan
- Clean styrofoam tray or plate
- Pencil with eraser
- Thumb tack
- Wool cloth, sock, or mitten

Lightning Art

- 5x7 Size watercolor paper

- Food dye (I used blue)
- Small spray bottle
- Clipboard (optional)
- Paper towel
- Water colors
- Brush or water pen for the water colors

Chapter 22

Jazz Acrylic Art

- 5x7 size sheet of mixed media paper
- Acrylic paint:
 - Dark blue
 - Light blue
 - Red
 - Yellow
 - Purple
 - Black
 - Brown
 - White
- Paint brushes
- Pencil and eraser
- Thin black sharpie marker
- Pattern from this lesson

Optional: Stem Bridge Challenge

- Popsicle sticks

Chapter 23

Make a Periscope

- 2 milk cartons or hash brown cartons
- 2 mirrors, rectangular is preferred, but round will work
- X-Acto precision cutting knife
- Cutting mat to protect surface
- Hot glue gun and glue

- Brown paper or paint/markers for decorating

Chapter 24

STEM Straw Rocket Challenge

- Sharpened #2 pencil
- Paper
- Cardstock
- Crayons/Color pencils
- Scissors
- Tape/glue/glue sticks
- Possibly hot glue gun
- Straw (or you can make a straw with paper)
- Tape for starting line
- Measuring tape
- Small beach
- String