

THE 4 ELEMENTS CHALLENGE PATHFINDERS



PROGRAM COMMITTEE

INTRODUCTION

We are going to learn about **FIRE**, **WATER**, **AIR** and **EARTH**! Read through the activities under each element. **Complete at least one item from under each element** that will be most interesting, challenging, and FUN for your Unit.

FIRE

1. **Investigate the types and uses of extinguishers, fire hoses, and fire detectors.**
2. **Start a fire relay race.** Gather the supplies, build and light the fire.
3. **Light a fire with a method other than matches.**
4. **Make fire starters or fuzz sticks** (Ask your Camp Adviser for help if you don't know how!). Fire Starter #1: roll a newspaper tightly, tie a small piece of string around the roll every 5 cm, cut the roll midway between each string. Dip each piece in melted paraffin wax. Let dry. Place among the wood when you are building a fire, and light the string.
Fire Starter #2: Save dryer lint and a cardboard egg carton. Place some lint in each "hole" in the carton. Pour melted paraffin wax over the top. Once dry, tear into sections.
5. **Do a service project to raise money for your local burn unit or fire station.**

WATER

Detailed activity instructions are provided at the end of this section.

1. **Learn a traditional rain dance or make one up.**
2. **Find a way to turn salt (or dirty) water into fresh water and try it.**
3. **Participate in a campfire that includes at least 5 water related songs.**
4. **Make and use an outdoor shower or take a bath in a garbage bag.**
5. **Make a water bath for birds.** Remember to change the water every few days, and don't let it go dry. It may take a couple of weeks for the birds to notice your bath, be patient!

Make fresh water

- Need: clear plastic cup, plastic wrap, small stone, clean marbles or stones, large container one quarter full of salt or dirty water.
- Place the marbles in the bottom of the plastic cup.
- Place the plastic cup in the large container with salt water.
- Place a large piece of plastic wrap over the top of the large container. You may need to tape the wrap if it isn't sticking to the sides of the container.
- Put a small stone in the centre of the sheet so that it will sag towards the cup and water caught on the plastic will run into the cup.
- Put the container in the sunshine and see what happens over time.

Outdoor Shower

- Need: Hula-hoop, shower curtain, curtain hooks, bungee cord, rope, solar shower bag or dark garbage bag with clothespin or similar kind of clip.
- Put curtain on hula-hoop using the curtain hooks. Hang the hula-hoop from a tree with the bungee cord. Fill the bag with water and hang from the same bungee cord. Ensure that the bag is in the sun as it will warm the water.
- Alternatively, wrap a tarp around a couple of trees or poles to make a private area instead of using the hula-hoop and cord.
- When ready for the shower, open the valve on the solar shower bag, or poke a hole in the corner of the garbage bag. Have a clothespin handy to seal it up again when you are finished.

EARTH

Detailed activity instructions are provided at the end of this section.

- 1. Learn how to compost or verma compost** and compost the remnants of 1 meal, which will take approximately 3 weeks.
- 2. Go for a walk and discuss what contaminates the earth, e.g. litter, pollution, misuse of each.**
 - Scavenger Hunt Bingo: make a bingo card of the things that pollute the soil (empty food wrappers, bottles, gasoline spills, paint spills, cardboard boxes, cigarette butts, etc.) and have the girls check them off as they find examples on their walk.
- 3. Decomposition** - Visit an old landfill if possible to see what has not decomposed. Your local landfill might have some interesting information or try the Internet.
 - Decomposition Game – use actual samples or cards with pictures of a number of items that we might throw in the garbage. In a relay, line up the items in order of how long you think the items will take to decompose, given the right conditions.

- 4. Have a mud facial or use mud to decorate your face.**
- 5. Build a mud house or visit a mud house** (Ukrainian Cultural Heritage Village has one).

Compost in a Pail Using a Large Ice Cream Pail

- Punch holes in the lid of the pail. Put a layer of soil in the bottom of the pail.
- Add a 1" layer of vegetable matter on top of the soil. Add a second layer of soil to the top, repeat as often as you like. No meat or dairy products should be added.
- Put the lid on the pail. Keep the pail in a cool shady place and do not let it dry out!
- It will take about 1 month to compost.

Verma Compost in a Large Ice Cream Pail

- Punch holes in the lid of the pail. Fill pail 2/3 full with loose soil. Add a few live earthworms.
- Place small amounts of vegetable matter on the top of the soil, and mix in slightly (be careful of the worms!). No meat or dairy products should be added.
- Put the lid on the pail. Keep the pail in a cool shady place and do not let it dry out!

AIR

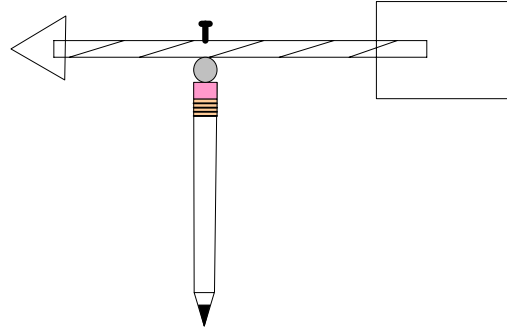
Detailed activity instructions and the Beaufort Scale are provided at the end of this section.

- 1. Build a weather vane.**
- 2. Estimate the speed of the wind using the Beaufort Scale.**
- 3. Make up a story or skit about a constellation.** Some constellations to consider:
 - Cassiopeia – the Lady in a Chair
 - Cygnus – the Swan
 - Pleiades – the Seven Sisters
 - Orion – the Hunter (most prominent in Winter sky)
 - Pegasus – the Winged Horse
 - Ursus Major – the Great Bear
 - Ursus Minor (the Little Dipper)
- 5. Learn about Windmills that are used to generate electricity.**
 - Check out the Enmax web page on green power:
<http://www.enmax.com/Energy/Residential/Greenmax/Harvesting+the+Wind.htm>

Wind Vane

Wind is named based on the direction from which it's blowing, i.e. a north wind comes from the north and blows towards the south. The arrow on this weather vane points into the wind and indicates the direction from which the wind is blowing

- Materials: drinking straw, cardboard, pin, pencil (eraser on top), small pony bead, tape.
- Prepare the cardboard: Cut out a rectangle approx. 10 cm x 5 cm. Cut out a triangle with sides of approximately 3 cm each.
- Prepare the straw: refer to the picture for the alignment of the cardboard on the straw. Tape the cardboard to the straw.
- Push the pin through the straw, then through the bead and into the pencil eraser.
- The straw must be level to work, so you might need to add paper clips to the triangle or to the rectangle to balance the straw.
- Find a nice windy spot. Hold onto the pencil and raise the vane above your head. The wind will push on the tail, pointing the arrow at the direction from which the wind is blowing (thereby telling you the name of the wind).

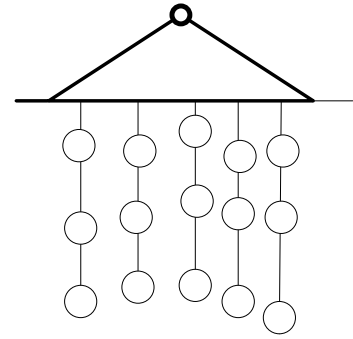


Beaufort Scale

Beaufort Number	Description	Wind		Speed	Observations
		mph	kph	Knots	
0	Calm	0	0	0	Tree leaves don't move; smoke rises vertically.
1	Light Air	1-3	1-5	1-3	Tree leaves don't move; smoke drifts slowly; Direction of wind shown by smoke, not by vane;
2	Slight Breeze	4-7	6-11	4-6	Tree leaves rustle; flags wave slightly; Vanes show wind direction
3	Gentle Breeze	8-11	12-19	7-10	Leaves and twigs in constant motion; small flags extended;
4	Moderate Breeze	13-18	20-29	11-16	Small branches move; flags flap.
5	Fresh Breeze	19-24	30-38	17-27	Small trees sway; flags flap and ripple;
6	Strong Breeze	25-31	39-50	22-27	Large branches sway; umbrellas used with difficulty; flags beat and pop;.
7	Moderate Gale	32-38	51-61	28-33	Sea heaps up, white foam streaks; whole trees sway; difficult to walk;
8	Fresh Gale	39-46	75-86	34-40	Twigs break off trees;
9	Strong Gale	47-54	75-86	41-47	Branches break off trees; tiles blown from roofs;
10	Whole Gale	55-63	87-101	48-55	Some trees blown down; damage to buildings
11	Storm	64-74	102-120	56-63	Widespread damage to trees and buildings; mountainous waves.
12	Hurricane	75+	120+	64+	Severe and extensive damage.

Wind Chimes

- Materials: 30 cm long twig, 15 recycled lids from frozen juice cans, small key ring, 3m length of fishing line or invisible thread or wire.
- Punch 2 holes opposite each other on each lid with a nail.
- Tie three lids together with pieces of wire approximately 15 cm long. Repeat until you have 5 strings of three lids each.
- Tie a length of wire approximately 45 cm long to the one end of the twig. Secure the key ring to the middle of the wire, and then tie the other end of the wire to the other end of the twig.
- Tie the 5 strings of three lids each onto the twig.
- You can also paint the lids or use stickers to decorate.



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