Chemistry

15 Mar 17:30
Duty six : Purple

Start	Time	Activity	Requirements	Instructions	Scouter
15 Mar 17:30	5	**Activities :** Opening	Register, beans, flag, totem and skin	Grand Howl Flag Break Register Inspection - belts and shoes	Akela
15 Mar 17:35	25	**Activities :** Make a fire	Wood/charcoal matches firelighters kindling bicks	Cubs to collect kindling Prepare and light fires, taking safety into account	Akela
15 Mar 18:00	20	**Activities :** pH Indicator	• A grater or blender • Red cabbage • Hot water • A saucepan • A sieve • Cups or small containers • Different substances to test (I use bicarbonate of soda and vinegar and water but you could try any other substance in the home as long as supervised and act with caution) Wearing latex gloves and goggles are good safety practices when using chemicals.	1. Grate or blend the cabbage. 2. Tip into a saucepan and pour over boiling water from the kettle. 3. Heat until simmering and leave for 10 minutes 4. Sieve the water and cabbage into a jug – you will notice that the cabbage liquid is very purple in colour. 5. Leave to cool for about 30 minutes and the indicator is ready to use. 6. Add a small amount of each test substance to a separate cup or container, try to keep the amount of test substance the same. 7. Use a pipette to drop about 20ml of red cabbage indicator into each cup and record the colour the indicator changes to. *Safety note* *Wear safety goggles if using strong acids/bases.* *An adult should help with the chopping and heating of the cabbage.* In this case of red cabbage indicator the colour will change from purple to red if it is an acid and from purple to green if it is an alkali. The different shades of colour will depend on the strength of the acid or alkali. If there is no colour change the substance is said to be neutral. **HOW DOES PH INDICATOR WORK?** Acid and bases are opposites, acids have a low pH and bases	Akela

				have a high pH. Red cabbage contains a pigment called anthocyanin which is what changes colour. **MORE PH EXPERIMENTS** • Make your own pH test strips by soaking filter paper in the red cabbage indicator and leave to dry. Once dry cut the filter paper into strips and dip into test substances. Try testing milk, fizzy drinks or soap. Can you predict their pH before testing? • Try using beetroot juice instead of red cabbage, which works the best? • You could also try blowing into the indicator. What happens? **WHAT HAPPENS WHEN YOU BLOW INTO RED CABBAGE INDICATOR?** The indicator should turn red, as the carbon dioxide we breathe out reacts with the water to form carbonic acid.	
15 Mar 18:20	5	**Activities :** Juice and biscuits		Juice and biscuit break	Akela
15 Mar 18:25	10	**Activities :** Growing Crystals	Borax Cups String Stick Pipecleaners Food colouring	You will want to set up your cups in a location where they won't be disturbed. You will want to keep the Cubs from shaking, moving, or stirring the mixture once you have filled the cups. Take a pipe cleaner and wind it tightly into a nest shape. Other shapes are possible too. To make it bigger, cut another pipe cleaner in half and wind it into the nest. Make one per cup. Tie a short piece of string to the pipe cleaner nest, and then tie the other end of the line to a stick. The pipe cleaner nest should hang down about an inch. Bring 4 cups of water to a boil and stir in the Borax until it is dissolved. There should be a little bit of Borax on the bottom of the pan or container that does not dissolve. This lets you know you have added enough borax to the water, and it has become a supersaturated solution. Pour ¾ cup of the mixture into each cup and add food coloring to the cups if desired. You do not have to add food coloring to the cups since the pipe cleaners are colored, but it can make crystals look a little bolder. Put one of the pipe cleaner nests into each cup and lay the skewer across the top of the cups so they hang freely. Try to make sure the pipe cleaners don't touch the sides or bottom of the cups. If they do end up touching, the crystals will attach the pipe cleaner to the cup. They may break off when you try to pull it free. Leave your geode shaped pipe cleaners in the borax solution	Akela

				overnight (or even two nights) until lots of crystals have grown on them! Remove your borax crystals from the water and let dry on a layer of paper towels. Once dry, you can cut the fishing line off and you have a gorgeous crystal for your Cubs to observe!	
15 Mar 18:35	10	**Activities :** Blowing up Balloons like magic	baking soda vinegar plastic bottle balloon funnels	1. Using your funnel pour vinegar into your bottle. You only need to fill about 1/3 of the bottle. 2. Using another (dry) funnel pour baking soda into your balloon. Fill the balloon approx. 1/2 way. 3. Cover the top of the bottle with you balloon. Make sure you don't let the baking soda spill into the bottle prematurely. 4. When ready, lift your balloon and let the baking soda fall into the vinegar. 5. Watch as the mixture fizzes, bubbles & expands your balloon! 6. Discuss how the baking soda & vinegar produce a gas which fills the balloon. 7. Repeat! Believe me, your kids will want to do this more than once and form a reaction that was so visual - blowing up the balloon. The science behind it - Baking soda and the vinegar create an ACID-BASE reaction. When combined/mixed they create a gas - carbon dioxide. Gasses need room to spread, so the carbon dioxide fills the bottle and then moves into the balloon inflating it.	Akela
15 Mar 18:45	10	**Activities :** Elephant toothpaste	• A clean 16 ounce plastic soda bottle • 1/2 cup 20-volume hydrogen peroxide liquid (20-volume is a 6% solution, get this from a beauty supply store or hair salon) • 1 Tablespoon (one packet) of dry yeast • 3 Tablespoons of warm water • Liquid dish washing soap • Food coloring • Small cup • Safety goggles	NOTE: The foam will overflow from the bottle, so be sure to do this experiment on a washable surface, or place the bottle on a tray. What to do: 1. Hydrogen peroxide can irritate skin and eyes, so put on those safety goggles and ask an adult to carefully pour the hydrogen peroxide into the bottle. 2. Add 8 drops of your favorite food coloring into the	Akela

				bottle. 3. Add about 1 tablespoon of liquid dish soap into the bottle and swish the bottle around a bit to mix it. 4. In a separate small cup, combine the warm water and the yeast together and mix for about 30 seconds. 5. Now the adventure starts! Pour the yeast water mixture into the bottle (a funnel helps here) and watch the foaminess begin! How does it work? Foam is awesome! The foam you made is special because each tiny foam bubble is filled with oxygen. The yeast acted as a catalyst (a helper) to remove the oxygen from the hydrogen peroxide. Since it did this very fast, it created lots and lots of bubbles. Did you notice the bottle got warm. Your experiment created a reaction called an Exothermic Reaction – that means it not only created foam, it created heat! The foam produced is just water, soap, and oxygen so you can clean it up with a sponge and pour any extra liquid left in the bottle down the drain. This experiment is sometimes called “Elephant’s Toothpaste” because it looks like toothpaste coming out of a tube, but don’t get the foam in your mouth!	
15 Mar 18:55	5	**Activities :** Closing	Totem, Skin Badges, certificates	Announcements Badge handouts Grand Howl Flag Down Prayer Dismiss	Akela

Programme prepared on 08 May 23:19