

Te Paepae o Aotea Science Badge

HOME CHEMISTRY			
Complete 20 stars			
Rating	No	Exercises in Home Chemistry	Sign
*	1	Build a small meths burner using a small glass bottle and cotton wool as a wick. Your burner must contain less than a quarter of a cup of meths when full. CAUTION, do not use any other liquid in your burner and only use if with an adults permission Show it to your teacher	
**	2	Construct a small tripod to go with your burner, perhaps using a small tin. Demonstrate your burner and tripod to your teacher by boiling some water in a small can. Time how long it takes to boil half a cup of water	
*	3	Make a funnel by cutting the top third off a plastic soft drink bottle. Use a circle of paper towel as filter paper. Demonstrate how it works to your teacher by filtering a mixture of soil and water	
**	4	A mixture of colours can be separated using paper chromatography. Cut a strip of paper towel 20 cms long and 2 cms wide. Place small dots of either food colouring or water based felt pen 2 cm from the bottom. Suspend the strip in a glass with 1 cm of water in the bottom. Make sure the dots of colour are above the water level. Leave until the water has soaked $\frac{3}{4}$ of the way up the strip. Remove the strip from the water and leave to dry. Mount your strips on a chart and label	
**	5	Construct an acid-base indicator by boiling some red cabbage leaves in a small amount of water. Add lemon juice or vinegar to a small sample of the indicator and record the colour. This colour indicates that a substance is acidic. Repeat using baking soda. This colour indicates that a substance is basic. Test the acidity of several household substances and record the results on a chart. Note – black tea	

		is also a good indicator as are the liquids obtained from boiling flowers	
*	6	Make hokey pokey by putting 4 tablespoons of sugar and 2 tablespoons of golden syrup in a saucepan. Bring to the boil and simmer gently for about 5 minutes. Then add a heaped teaspoon of baking soda and stir vigorously. Put in a greased dish to cool. Heating baking soda releases CO ₂ which makes the hokey pokey rise. Show a sample to your teacher.	
***	7	Make a fizzy drink mixture by mixing together 1 teaspoon each of baking soda, tartaric acid, (or citric acid) and sugar. Put 1 teaspoon in a glass of water and stir vigorously. Add cordial for flavour. The baking soda and the acid combine to release CO ₂ . Investigate which proportions of tartaric acid and baking soda produce the most bubbles and record your results on a chart or graph.	
**	8	Crush some barbeque charcoal to a powder. Shake a coloured liquid such as meths or a cordial with the charcoal and then filter. Write a brief report on what you saw happen	
**	9	Write a brief report on what an enzyme is. To see the effect of an enzyme make a jelly and place some slices of kiwi fruit on top of the jelly. Observe the spots where the kiwi fruit were placed after 1 hour and record the result. This effect is caused by an enzyme in the kiwi fruit acting on the protein in the jelly	
*	10	Find out what electrolysis is and write a brief report. Submerge a 9 volt battery upright in a glass containing water and 1 $\frac{1}{2}$ teaspoons of salt. Report what occurs and offer an explanation	
**	11	Construct a simple meter by winding several coils of insulated wire, in the same direction, around a charm compass. Connect one end of the wire to a galvanised nail and connect the	

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		other end to a copper nail (or copper wire). Place both nails into a glass containing vinegar and observe what happens to the needs in the compass. Record your observations. Include a diagram of your apparatus	
**	12	Dissolve one teaspoon of a household cleaner in $\frac{1}{2}$ glass water. Stir and allow to settle. Record how much solid abrasive material is present. Repeat for other cleansers and record your findings on a chart	
*	13	Work out a method which would enable you to distinguish between sugar and salt without tasting them	
**	14	Make up a saturated solution of salt by stirring into a glass of hot water until no more will dissolve. Leave to cool and then suspend a small crystal of salt on a length of cotton in the solution. Observe over the next week and then show the result to your teacher	
*	15	Design an experiment that tests the amount of salt that must be in water before it will not freeze when left overnight in your freezer. Write down your method. Repeat using sugar to receive an extra star	
*	16	Half fill a paper cup with water and place on the element and observe what occurs. Make sure the bottom of the cup is in contact with the element and that an adult knows you are doing the experiment. Ensure there is some water in the cup at all times. Write a report saying what happened and offering an explanation	
**	17	Cook something in the kitchen and provide a sample for your teacher	
*	18	Place some drops of water on a piece of cotton or wool material and observe what happens. Now touch each of the drops with a match which has been dipped in dish washing liquid (detergent). Record what you saw and why detergents (or soaps) are necessary to do a good job when washing clothes	

**	19	Read the labels on some substances in your kitchen. Record the names of at least 10 chemicals contained in these substances	
***	20	Visit your local supermarket and record the names of at least 10 chemical substances that you can purchase there, eg meths etc	