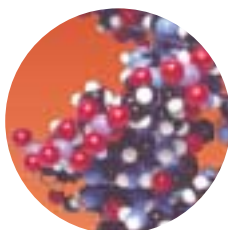


TeachAssist Resource Worksheets

Series 7 of 16



"Which antacid is best?"



TeachAssist Resources

TeachAssist resources are written with the practical needs of science teachers in mind. Each resource covers a practical activity that is integral to the QCA schemes of work to provide quick and easy preparation for practical classes.

Please feel free to photocopy the sheets to suit your needs.

Each TeachAssist resource contains:

- Student worksheet with practical instructions and activities.
- Technicians' equipment list for a class of 30 students.
- Reference to allow trouble-free ordering of materials and resources.

A summary table links each resource to the National Curriculum programme of study which allows TeachAssist practical activities to be quickly included into lesson plans and schemes of work.

If you require other booklets in the series, please telephone the Griffin Education Sales team or send your request to the following address:-

Griffin Education
Bishop Meadow Road
Loughborough
Leicestershire LE11 5RG

STUDENT WORKSHEET



Important information:

Follow all the safety instructions that your teacher gives you.
Wear safety glasses.
Wash off with water any solutions that get onto your skin.
Inform the teacher immediately of any spillage.

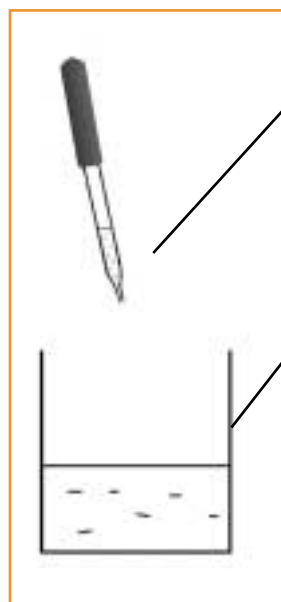
Which antacid is best?

Your stomach contains a strong acid. It is important because it helps to sterilise food that you have eaten.

Sometimes excess acid in the stomach can cause “heartburn”. This feels like a burning pain just under your chest. To stop this, an antacid medicine can be taken. It contains an alkali that neutralises the excess acid.

You have three antacid powders, labelled A, B and C to compare. Each has been measured out to be the same weight.

- Dissolve antacid powder “A” in 25ml of water in a beaker.
- Add a few drops of indicator. The solution should go pink / deep red. A piece of white paper or a tile under the beaker will help you see the colour more clearly.
- Use the pipette to accurately add 1ml of the acid to the beaker.
- Mix the solution in the beaker and note the colour of the indicator.
- Keep a running total of the amount of acid you have added.
- Keep adding and mixing 1ml of acid at a time until the indicator goes colourless.
- Note the total amount of acid added to turn the indicator colourless.



Add 1cm³ of hydrochloric acid at a time. Note the total amount used.

Beaker containing:
Antacid powder dissolved in 25ml of water.
Few drops of indicator.

When the indicator goes colourless it is because the antacid powder has been neutralised, or “used up”. The more acid that is needed to do this, the stronger the antacid is.

Repeat the experiment with antacids B and C.

Draw a table to show your results. Which antacid powder is the best?

TECHNICIAN'S EQUIPMENT LIST

QCA Unit 7E: Acids and alkalis

Date:	Room	Time/Period:
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Equipment Class of 30 pupils, working in pairs.	Quantity	Check	Out	Back
6g Na ₂ CO ₃ + 14g NaCl mixture labelled 'A'	20g			
4g Na ₂ CO ₃ + 16g NaCl mixture labelled 'B'	20g			
2g Na ₂ CO ₃ + 18g NaCl mixture labelled 'C'	20g			
Measure out 1g of each powder into weighing boats and distribute in groups of three.				
Approx. 80ml of 0.4M hydrochloric acid 1 dm ³ in 150ml beakers	15			
25ml measuring cylinders	15			
250ml beakers	15			
Phenolphthalein indicator in dropping bottles	3			
White paper/ tiles	15			
Plastic pipettes (1ml graduated)	15			
Safety glasses	30			

Important information:



- The activity contains reagents and procedures that can be hazardous. It should not be performed unless an appropriate risk assessment has been made.
- Reagents are toxic, irritant and corrosive. They should be handled using the appropriate safety precautions.
- Students should wear safety glasses at all times.
- Commercial antacid tablets can be used in place of the made-up powders.
- Phenolphthalein is not the most accurate indicator here but is the easiest to see as the colour changes from magenta to colourless. Methyl orange is more accurate and could be used, with a change from yellow to true orange – red is too far.

ORDER REQUISITION

Equipment	Griffin Catalogue No.	Page	Unit cost (£)	No. Required	Cost (£)
150ml beakers borosilicate glass (pack of 10)	FB33111	362	11.10		
250ml beakers borosilicate glass (pack of 10)	FB33112	362	11.70		
Sodium carbonate (1kg, decahydrate)	S/2720/60	197	10.05		
Sodium chloride (3kg)	S/3105/63	198	8.06		
Hydrochloric acid 2m (2.5 litres)	J/4250/17	159	7.61		
25ml measuring cylinders polypropylene (pack of 5)	CYP-740-050E	394	7.15		
Phenolphthalein solution (500ml, 0.2% solution)	P/2400L/08	182	7.97		
Phenolphthalein dropping bottle 60ml, labelled	BTR-752-130L	368	4.80		
Plastic pipette (1ml graduated, pack of 500)	PMK-400-021U	397	15.95		
White tiles 15cm x 15cm (pack of 5)	PRC-300-050A	543	6.65		
Plastic weighing boats, 30ml, 80x60mm diamond, (pack of 500)	FB50325	353	11.65		
Safety glasses	FB55125	492	2.25		
Total cost					
VAT					
Order total					

Complete the order form above and place your order with Griffin Education in your usual way. Prices are correct at time of print, please contact the Griffin Sales Office or check on the Griffin Education website for the latest prices.

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SUMMARY TABLE

QCA unit	KS3 NC programme	Y7 TeachAssist	Activity	Relevant experience from Key stage 2
7A: Cells	Sc1.2f Sc2.1a	1	How to use a microscope and prepare an onion epidermis slide	Use of hand lenses and basic microscopes. Plants and animals, including internal body organs and plant structures
7C: Environments and feeding relationships	Sc1.2g	2	Using a data logger to monitor environmental conditions	Some use of data loggers How organisms are suited to their environment
	Sc1.1a,c,d Sc1.2h,k,o	3	Wood lice in choice chambers	Asking questions and designing a fair test How organisms are suited to their environment
	Sc2.5b,e	4	Organisms and food chains in leaf litter	How organisms are suited to their environment Food chains as a feeding relationship
7E: Acids and alkalis	Sc3.3d	5	Finding the pH using universal indicator solution	Little or no previous coverage of pH
	Sc1.2g Sc3.3e	6	Using a data logger to monitor changes in pH when an acid is added to an alkali	Some use of data loggers Identification of patterns and trends
	Sc3.3e	7	Investigating the neutralisation of acids with antacid tablets	Use of tables and line graphs to represent data Mixing materials can lead to a change
7F: Simple chemical reactions	Sc3.3a	8	Reactions of metals with acids	Describing how materials change when mixed or heated and how irreversible changes produce new materials
7H: Solutions	Sc1.2a Sc3.1h	9	Purifying salt from rock salt	Use of dissolving, filtering and evaporation to separate mixtures
	Sc3.1h	10	Simple distillation	Knowledge of evaporation as a separation technique
	Sc3.1h	11	Paper chromatography of ink	Separation of colours in food colourings such as sugar-coated sweets
7I: Energy resources	Sc1.2f	12	Using the Bunsen burner	Possible use of methylated spirit burners or candle-burners
	Sc4.1c Sc4.5a,e	13	Demonstrating solar energy: solar cells and absorption of heat energy by different surfaces	Little or no previous coverage of energy
	Sc4.5a	14	Finding the energy content of foods	Little or no previous coverage of energy
7J: Electrical circuits	Sc4.1a	15	Current in series and parallel circuits	Construction of series circuits from circuit diagrams
7K: Forces and their effects	Sc1.2f,g,j,k Sc4.2b	16	Extension of springs and elastic bands	Push and pull in springs Testing elastic band catapults. Some may have extended bands with masses Measurement of forces and weight