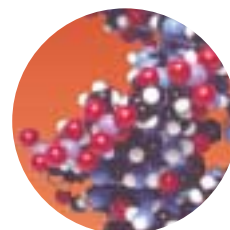


Teach Assist Resource Worksheets

Series 11 of 16



"Paper chromatography of ink"



Teach Assist 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

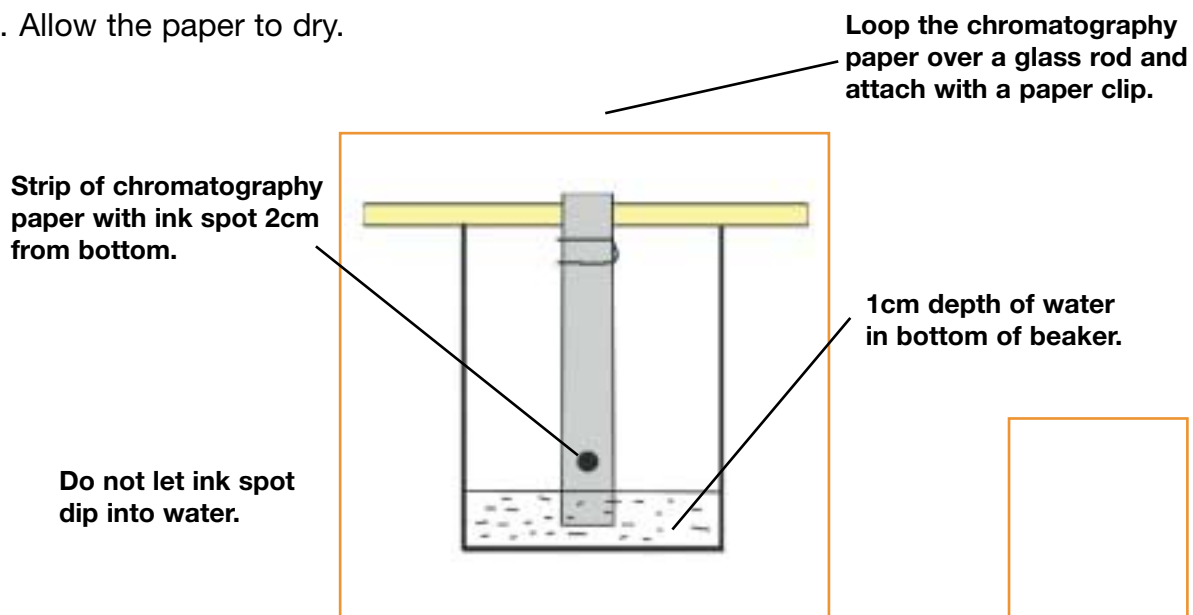


Important information:

Follow all the safety instructions that your teacher gives you.
Take care with any sharp edges on glass rods.

Chromatography

1. Take one piece of chromatography paper and put a small spot of ink about 2cm from the bottom.
2. Let the ink dry.
3. Loop the chromatography paper over the glass rod and secure it with a paper clip.
4. Suspend the chromatography paper so that it just touches the surface of the water. Do not let the water touch the ink spot.
5. Watch as the water soaks up the chromatography paper.
6. Take it out of the beaker when the water has soaked up to 1cm from the glass rod.
7. Allow the paper to dry.



Use the outline to draw the pattern of lines made on the chromatography paper.

- Is black ink made of just one colour?
- Which colour has moved the furthest?
- Which colour has moved the least?
- Which colour do you think is “pulled along” by the water molecules the most?

Position of original ink spot



TECHNICIANS' EQUIPMENT LIST

QCA Unit 7H: Solutions

Date:	Room	Time/Period:
--------------	-------------	---------------------

Equipment Class of 30 pupils, working in pairs.	Quantity	Check	Out	Back
400ml beakers or tall jars	15			
Strips of filter/chromatography paper (Approx. 3cm x 15cm)	20			
Glass rods	15			
Paper clips	15			
Plastic dropping pipettes	15			
Black fountain pen ink (approx 5ml in 25ml beakers)	5			

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.**
- **Black ink usually gives several bands of colour but it is best to try a few different inks before the practical as some give better patterns than others.**
- **Spots made by water-based felt tip pens can be used. Again, test to find colour that gives the best separation.**
- **Filter paper can be used in place of chromatography paper.**

ORDER REQUISITION

Equipment	Griffin Catalogue No.	Page	Unit cost (£)	No.	Cost (£)
400ml beakers (pack of 10)	FB33113	362	13.95		
Chromatography paper (30mm x 100m) Grade 1.	CJF-230-030A	381	15.20		
Glass rods, approx 0.5m lengths, 8mm dia. (pack of 25)	RND-291-081H	487	27.60		
Plastic pipette, 1ml graduated, (pack of 500)	PMK-400-021U	397	15.95		
				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.

By phone: 01509 233344
By post: Griffin Education
 Bishop Meadow Road
 Loughborough
 Leics. LE11 5RG

By fax: 01509 231893
By email: griffin@fisher.co.uk
On-line: www.griffineducation.co.uk

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