North Gower Partnership

Investigations Year 5 and 6

YEAR 5 INVESTIGATIONS

TOPIC	ATT. TARGET	INVESTIGATION
Keeping Healthy	2	What makes our hearts beat faster?
Life Cycles	2	What affects seed germination?
Gases/Evaporation	3	What makes clothes dry?
Gases/Evaporation	3	Which container is best for evaporation?
Sound	4	What stops sound travelling?

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** KEEPING HEALTHY

INVESTIGATION WHAT MAKES OUR PULSE RATES INCREASE?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
Remind the children of previous work on pulse rate. What causes a pulse rate? What makes your heart beat faster? Pupils are usually able to name exercise (or something related to it) but might need prompting to suggest illness, smoking and fear/fright! (This can be effectively demonstrated!)	bar or line	1, 2 & 3	Stopwatches. Suitable exercises are 'step-ups on benches, deep knee bends or any running activity!

BRAINSTORM

What I could change

The amount of exercise	The amount of rest following exercise

What I could measure

Pulse rate	

Notes: SAFETY- check on pupils health before they exercise for asthma etc. Some pupils have difficulty taking their pulse rate. They can find other peoples' or use the class average. Alternatively use the pupils in the group who takes their own pulse rate most accurately to do the exercise.

POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Amount of exercise or Period of recovery	Pulse rate (beats per minute)

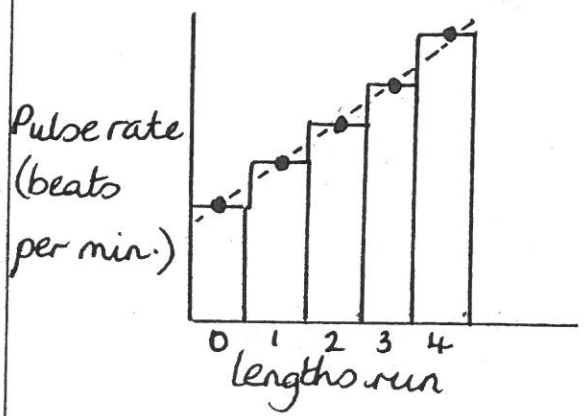
POSSIBLE RESULTS TABLE

I changed Lengths of hall run	I measured Pulse rate (heart rate)
0	75
1	86
2	93
3	99
4	112

APPARATUS

POSSIBLE GRAPHS

TYPE OF GRAPH bar (histogram or line)



POSSIBLE PUPIL CONCLUSIONS

'Running further made my pulse go up'

'The more we run the faster our hearts beat'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** LIFE CYCLES

INVESTIGATION HOW DOES WATER/TEMPERATURE/LIGHT AFFECT SEED GERMINATION?

SCENE SETTER	**TYPE OF GRAPH POSSIBLE**	**1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS**	**RESOURCES REQUIRED**
Do seeds germinate/grow all the year round? What things do seeds need to germinate/grow? (Pupils should have previously studied this) How can we investigate the pupils ideas?	bar or line	1, 2 & 3	Egg boxes/paper cups, growing medium e.g. sand, potting compost (**not outdoor soil**), suitable seeds (cress, radish, lettuce etc.)

BRAINSTORM

What I could change

The amount of light	The amount of water
The temperature	

What I could measure

How many seeds germinate	

Notes: Temperature and the amount of light are difficult to measure. The amount of water is easier

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** GASES/EVAPORATION

INVESTIGATION WHAT MAKES CLOTHES DRY FASTER?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
My sister always has lots of washing to do because she has a young family. She often has trouble drying it especially if it's raining. How can she find a good place in the house to dry her washing? Will some clothes dry faster than others? How can we investigate our ideas?	bar	1 & 2	Equal sized pieces of cloth (thin cloths e.g. cotton would be best), same sized cloth of different materials, an electric fan/ fan heater would be useful, 'washing lines', pegs.

BRAINSTORM

What I could change

- The place the washing is put
- The material the cloth is made from
-
-

What I could measure

- How long the cloth takes to dry*
-

Notes: *How long the cloth takes to dry can be measured by a) taking its dry weight b) soaking it in water c) timing how long it takes to come back to its original weight. All cloths must be the same size and material for a fair test.

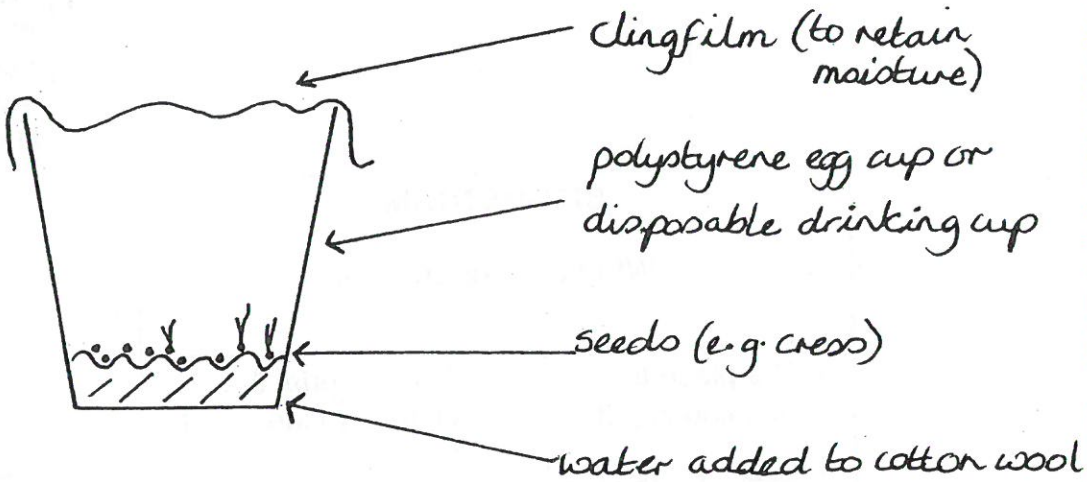
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Temp. OR Amount of water OR Amount of light	Number of seeds germinated (e.g. out of 10)

POSSIBLE RESULTS TABLE

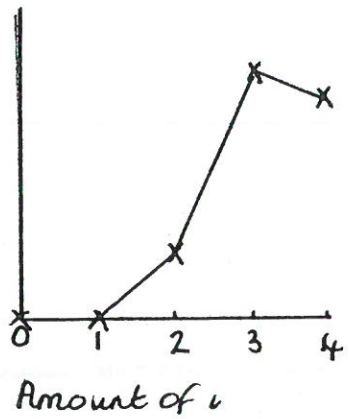
I changed Amount of water (cm^3)	I measured No. of seeds germinated
0	0
1	0
2	3
3	10
4	9

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH bar or line



POSSIBLE PUPIL CONCLUSIONS

'Seeds don't germinate/grow without water'

'At least 3cm^3 of water is needed for all the seeds to germinate'

'The more water added - the more seeds germinate'

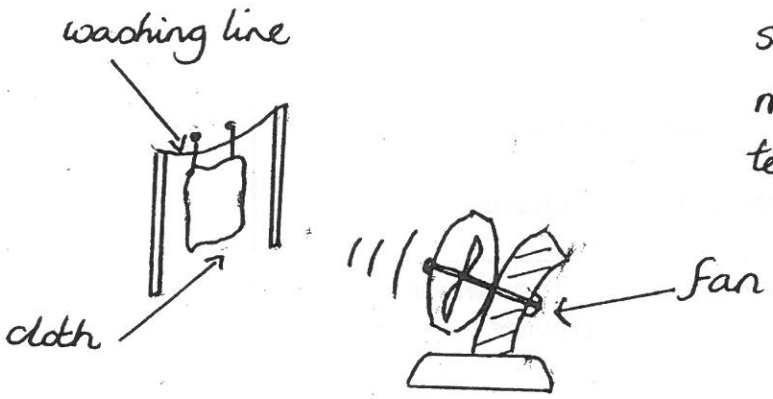
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Conditions clothes dry under	Time to dry (get back to dry weight)

POSSIBLE RESULTS TABLE

I changed Condition	I measured Time to dry
dark cupboard	did not dry
on radiator	15
in front of cold fan	20
in front of warm fan	5

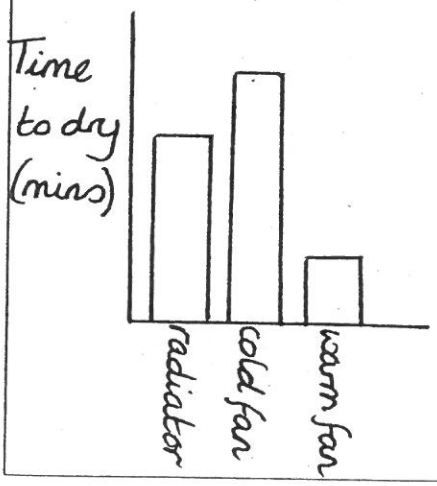
APPARATUS



All cloths must be same size and same material for a fair test

POSSIBLE GRAPHS

TYPE OF GRAPH bar



POSSIBLE PUPIL CONCLUSIONS

'The cloth took longer to dry with a cold fan'

'Warmth and wind are needed to dry clothes best'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** LIFE CYCLES

INVESTIGATION HOW DOES WATER/TEMPERATURE/LIGHT AFFECT SEED GERMINATION?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
Do seeds germinate/grow all the year round? What things do seeds need to germinate/grow? (Pupils should have previously studied this) How can we investigate the pupils ideas?	bar or line	1, 2 & 3	Egg boxes/paper cups, growing medium e.g. sand, potting compost (**not outdoor soil**), suitable seeds (cress, radish, lettuce etc.)

BRAINSTORM

What I could change

The amount of light	The amount of water
The temperature	

What I could measure

How many seeds germinate	

Notes: Temperature and the amount of light are difficult to measure. The amount of water is easier

POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Amount of exercise or Period of recovery	Pulse rate (beats per minute)

POSSIBLE RESULTS TABLE

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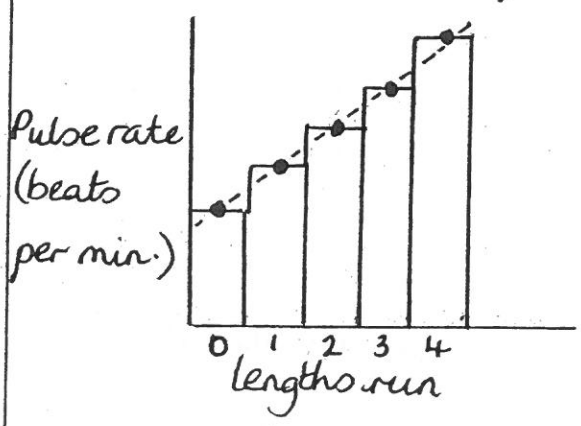


POSSIBLE PUPIL CONCLUSIONS

'Running further made my pulse go up'

'The more we run the faster our hearts beat'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** GASES/EVAPORATION

INVESTIGATION DOES WATER EVAPORATE FROM SOME CONTAINERS FASTER THAN OTHERS?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
After it has been raining, water seems to dry up from some puddles faster than others. Some areas of the playground take longer to dry up than others- why do pupils think this happens? What could be different about the puddles (shape, depth, diameter, surface area)? What else would make a difference (temperature)?	bar for type and shape line for diameter and depth	1, 2 & 3	Various containers which vary in one feature e.g. diameter but are otherwise identical (for a fair test), measuring jugs/cylinders

BRAINSTORM

What I could change

- The shape of the container
- The depth of the container
- The diameter of the container
- The surface area of the container

What I could measure

- How long the water takes to evaporate
-

Notes: This may be a long-term investigation. Place all the cups near the radiator to keep the test fair and speed up the experiment.

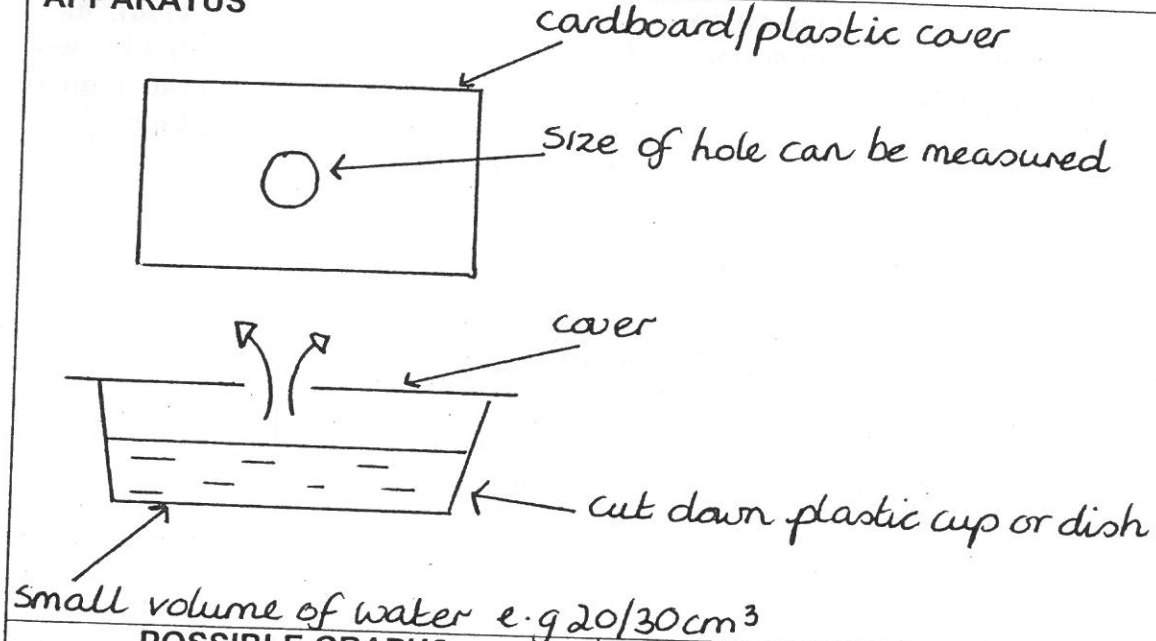
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Type/shape/ depth/ diameter of containers	Time for a (given volume) of water to evaporate

POSSIBLE RESULTS TABLE

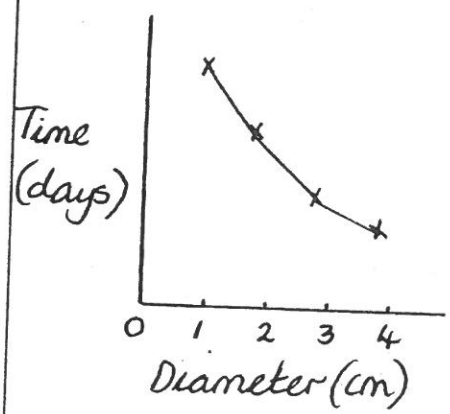
I changed Diameter of container (cm)	I measured Time to evaporate (days)
1	7
2	5
3	3
4	2
5	1

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH line



POSSIBLE PUPIL CONCLUSIONS

'The cup with the smallest hole took most time to go dry'

'The bigger the hole - the faster the water evaporated'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** SOUND

INVESTIGATION HOW DOES SOUND TRAVEL THROUGH DIFFERENT MATERIALS/WHAT STOPS SOUND TRAVELLING?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
'Some of the classrooms in our school are very noisy and you can hear the children talking next door' Does sound travel through all materials? Are walls made out of different materials? What can we do to stop the sounds travelling through the walls? How can we test our ideas?	bar for different materials line for different thickness of the same material	1, 2 & 3	Loud clock, shoe box (or similar), different materials to wrap around the box e.g. cloth, 'fur', bubble-wrap etc, measuring tape.

BRAINSTORM

What I could change

The thickness of the material	The type of material

What I could measure

How far away pupils can move ear away from box and hear clock	

Notes:

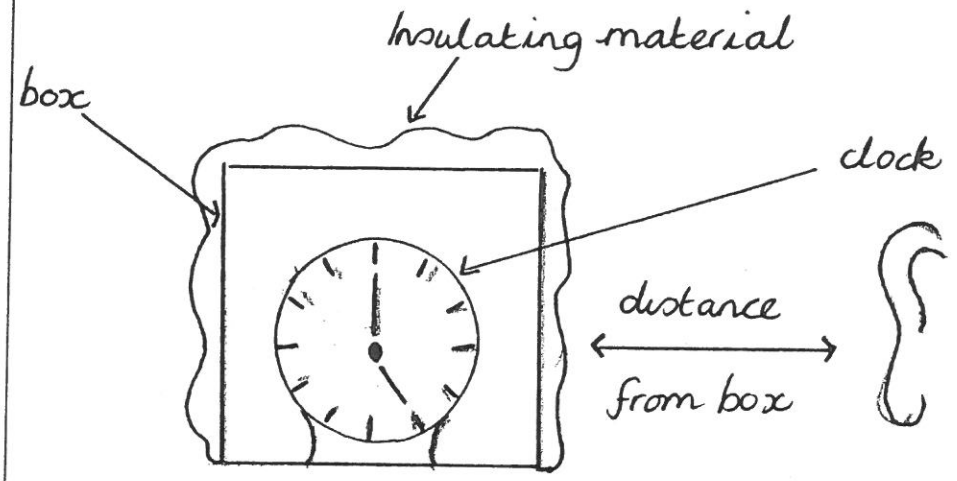
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
different insulating materials or different thickness of material	distance needed to hear clock ticking

POSSIBLE RESULTS TABLE

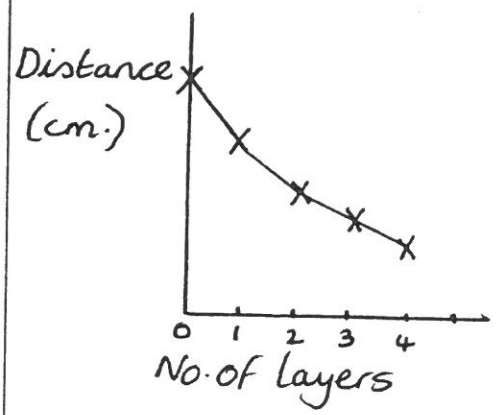
I changed Layers of bubble wrap	I measured Distance (cm)
0	90
1	65
2	42
3	29
4	12

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH bar or line (curve)



POSSIBLE PUPIL CONCLUSIONS

'Thicker layers stop you hearing the clock ticking'

'The more layers of bubble wrap the quieter the sound of the clock became'

YEAR 6 INVESTIGATIONS

TOPIC	ATT. TARGET	INVESTIGATION
Dissolving	3	How well do things dissolve?
Dissolving	3	What makes sugar dissolve?
Changes in Materials	3	What affects materials changing?
Forces	4	Which elastic band stretches most?
Forces	4	What affects 'spinners' falling?
Forces	4	What affects the size of a crater?
Forces	4	Which boat floats best?
Reflection	4	How many images can you see in a mirror?
How we see	4	What affects the way we see?

YEAR 6 INVESTIGATIONS

TOPIC	ATT. TARGET	INVESTIGATION
Dissolving	3	How well do things dissolve?
Dissolving	3	What makes sugar dissolve?
Changes in Materials	3	What affects materials changing?
Forces	4	Which elastic band stretches most?
Forces	4	What affects 'spinners' falling?
Forces	4	What affects the size of a crater?
Forces	4	Which boat floats best?
Reflection	4	How many images can you see in a mirror?
How we see	4	What affects the way we see?

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** DISSOLVING

INVESTIGATION HOW WELL DO THINGS DISSOLVE?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
'My mother puts an awful lot of sugar in her tea but some is always left at the bottom of the cup after she's finished.' Why doesn't all the sugar dissolve? What would happen if more sugar was added? Do all substances dissolve as well as sugar? What other substances do we need to dissolve? How can we test our ideas?	bar	1 & 2	A range of soluble and insoluble substances, water, spoons/scoops, stirring sticks, beakers, measuring cylinder/jug, scales if weighing the substances.

BRAINSTORM

What I could change

The substance	

What I could measure

How much dissolves in a given volume of water	

Notes: Pupils could add a spoonful/scoop/weighed amount at a time until no more will dissolve. Using a small amount of water e.g. 100/200cm3 speeds the investigation up.

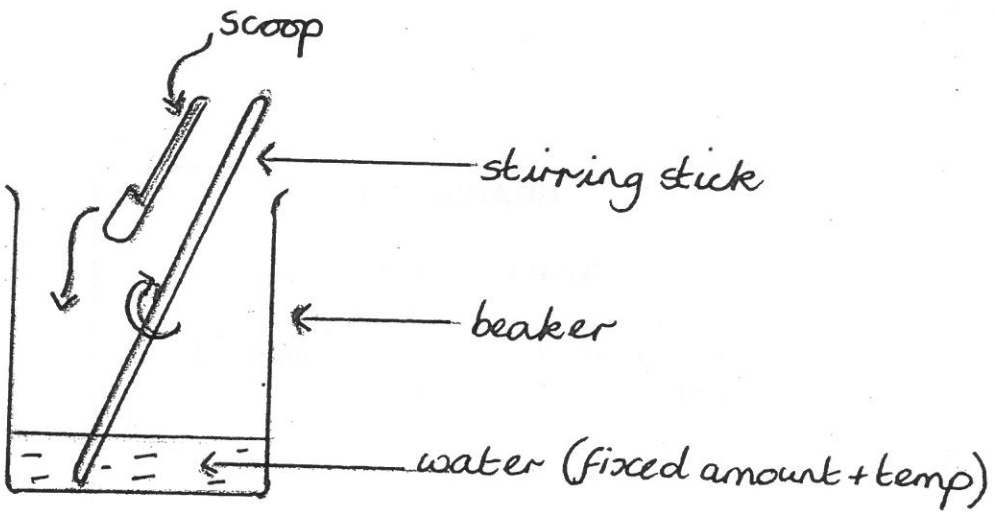
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
A range of soluble / insoluble substances	How much dissolves in a given amount of water (e.g 100cm³)

POSSIBLE RESULTS TABLE

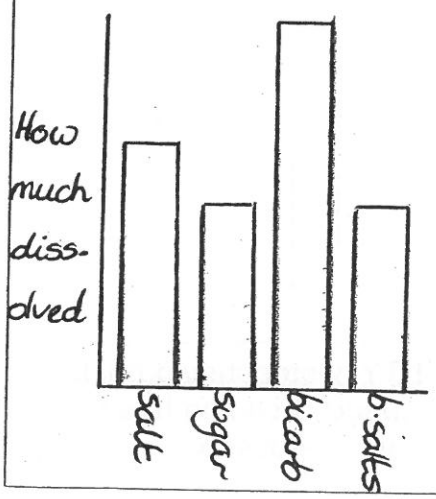
I changed Substance	I measured How much dissolved
salt	4 scoops
sugar	3 "
bicarb soda	6 "
bath salts	3 "
sand	0 "
etc	

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH bar



POSSIBLE PUPIL CONCLUSIONS

'The bicarbonate of soda dissolves the best'

'Different substances dissolve in different amounts - some are more soluble than others'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** DISSOLVING

INVESTIGATION WHAT MAKES SUGAR DISSOLVE?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
'My mother puts an awful lot of sugar in her tea but some is always left at the bottom of the cup after she's finished.' Why doesn't all the sugar dissolve? What could she change about her tea making to make sure there was no sludgy mess left in the bottom of the cup? What would happen if more sugar was added? How can we test our ideas?	bar or line	1, 2 & 3	Different types of sugar, beakers, stirring sticks, thermometers (spirit not mercury), measuring cylinders or jugs, warm water, timers / stopwatches

BRAINSTORM

What I could change

- The amount of sugar
- The amount of water
- The type of sugar
- The temperature of the water OR Number of stirs

What I could measure

- How long sugar takes to dissolve
-

Notes: Using warm water speeds the investigation up. SAFETY: water should not be over 60 . If results are unexpected it is usually because the speed of stirring has been varied- emphasise that the speed of stirs should be as constant as possible.

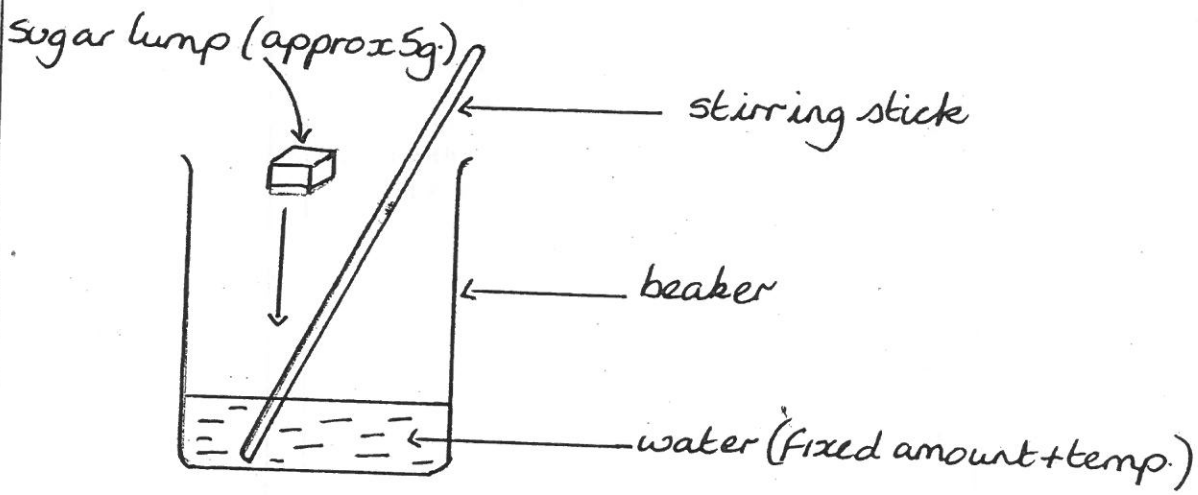
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Amount of water/sugar/ stirring etc. (could use weight of sugar/lumps)	Time to dissolve

POSSIBLE RESULTS TABLE

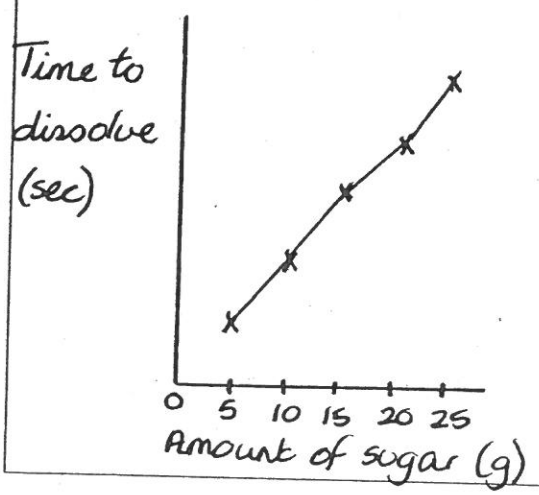
I changed Amount of sugar (g)	I measured Time to dissolve (secs)
5	9
10	17
15	32
20	44
25	57

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH Line



POSSIBLE PUPIL CONCLUSIONS

'A small amount of sugar dissolves fastest'

'The more sugar is added - the longer it takes to dissolve'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** CHANGING MATERIALS

INVESTIGATION WHAT SPEEDS UP CHANGES IN MATERIALS?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
Demonstrate what happens when a teaspoon of Andrews salts are added to a teaspoon of water (a gas is given off- carbon dioxide) How can we get more gas to be given off? (by adding more salts or more water) How can we measure if this is true?	bar or line	1, 2 & 3	Andrews salts, water, 20cm3 syringes, old ice cream containers, tubes or jugs, balance/scale.

BRAINSTORM

What I could change

The amount of water	The amount of Andrews salts

What I could measure

How much gas / bubbles given off*	

Notes: Pupils can measure amount of bubbles/gas using a syringe in water- see diagram over page.

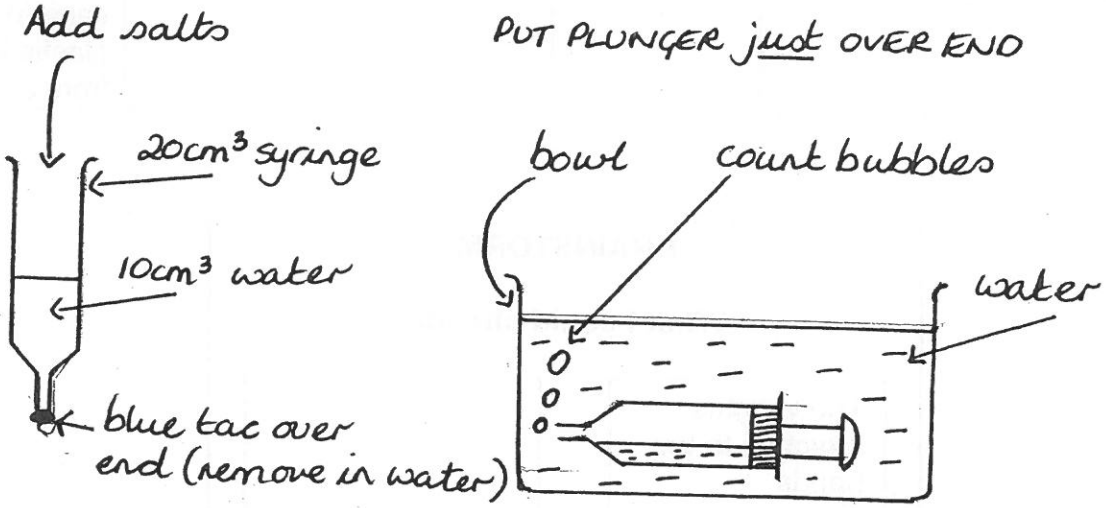
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Amount of Andrews salts (g) OR level teaspoons	Amount of gas given off (by counting bubbles)

POSSIBLE RESULTS TABLE

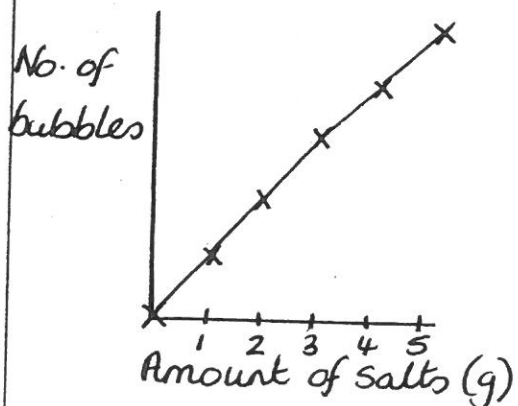
I changed Amount of salts (g)	I measured Number of bubbles
0	0
1	22
2	41
3	59
4	74
5	93

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH line



POSSIBLE PUPIL CONCLUSIONS

'Lots of salts gave lots of bubbles'

'The more salts we added the more bubbles were given off'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** FORCES

INVESTIGATION WHICH IS THE BEST ELASTICE BAND FOR HOLDING THE POSTMAN'S LETTERS?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
'My postman is always dropping his letters. He says the elastic bands that he is given by the Post Office do not stretch enough and keep breaking. The post is not held together.' Is there a way that we can test which elastic bands stretch the most/ are strongest? Can we recommend a suitable elastic band for the postman to use?	bar or line	1, 2 & 3	A selection of elastic bands of different colours but physically the same, weight hangers (borrow from local comp.), rulers, a method securing elastic band from a chair.

BRAINSTORM

What I could change

The weights attached to the bands

What I could measure

How much the band stretches

Notes: SAFETY: take care not to add too many weights. Using different coloured bands makes results easier to graph.

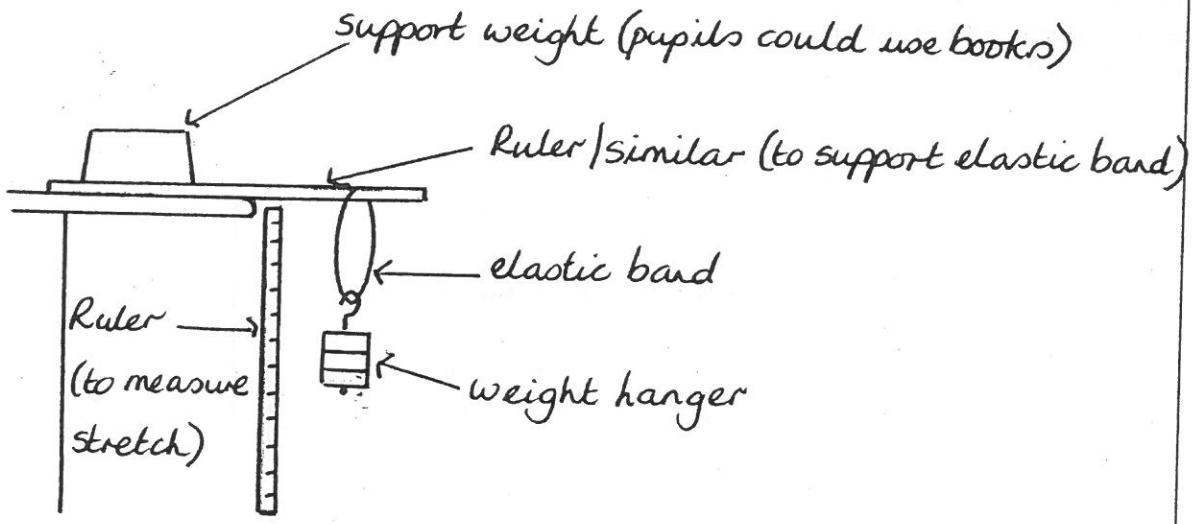
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Weights added (100g at a time)	Stretch of elastic band (cm)

POSSIBLE RESULTS TABLE

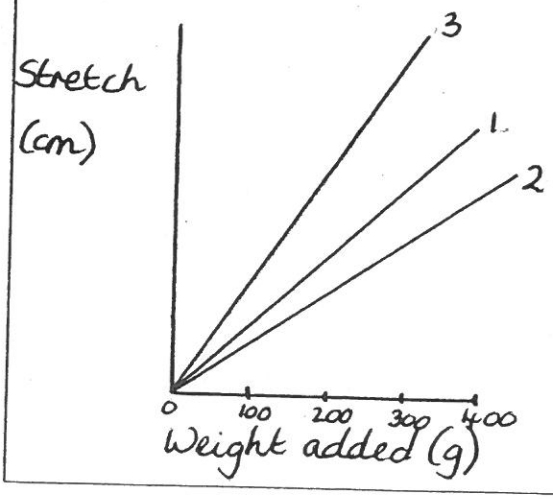
I changed	I measured Stretch (cm)		
Weight added (g)	1	2	3
100	10	7	12
200	21	15	25
300	31	22	33
400	38	29	41
500	45	34	49

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH line (3)



POSSIBLE PUPIL CONCLUSIONS

'The blue elastic band stretched the most'

'As more weight was added - the elastic band stretched more. The blue one stretched the most, the red one the least. The blue one would be best for holding letters together'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** FORCES

INVESTIGATION WHAT AFFECTS THE TIME IT TAKES 'SPINNERS' TO REACH THE GROUND?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
Show the pupils sycamore seeds or pictures of them. 'I found some of these in my garden but the nearest tree is half a mile away!' How did the seeds get there? What makes them travel so far? Are all sycamore seeds the same? How are they different? How could we test whether our ideas change the speed that spinners fall to the ground?	bar or line	1, 2 & 3	Thin card, paper clips, stopwatches

BRAINSTORM

What I could change

Length of spinner wing	Weight of spinner
Height spinner is dropped from	

What I could measure

How long the spinner takes to fall	

Notes: SAFETY: choose and monitor a safe release point for pupils. See diagram for suggestion of how to make spinners.

POSSIBLE VARIABLES

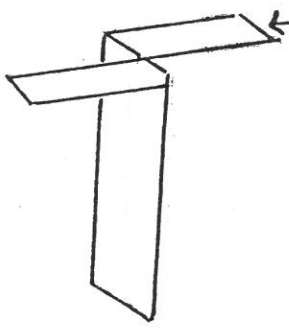
What pupils could change	What pupils could measure
Length of wing OR Weight of spinner OR Height of drop	Time to fall

POSSIBLE RESULTS TABLE

I changed Height of drop (cm)	I measured Time to fall
50	2
100	3
150	3.5
200	4
250	6

APPARATUS

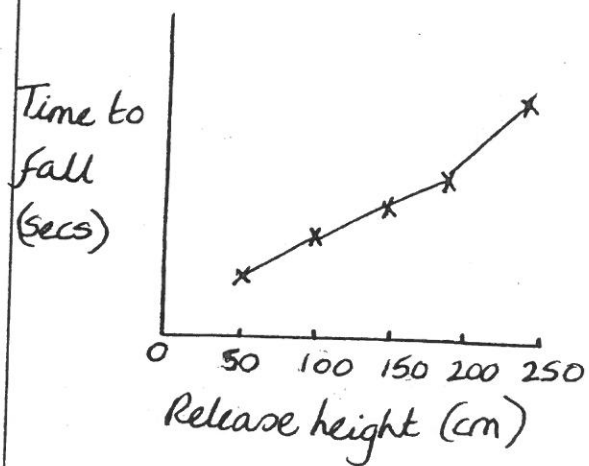
Use piece of card approx 12x3 cm



Paper clips can be attached if changing weight

POSSIBLE GRAPHS

TYPE OF GRAPH line



POSSIBLE PUPIL CONCLUSIONS

'The spinner took longer to fall from a high place'

'The higher the spinner was dropped from the longer it took to fall to the ground'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** FORCES

INVESTIGATION WHAT AFFECTS THE SIZE OF A CRATER?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
Some pupils will have seen or heard of disaster movies such as 'Armageddon' and 'Deep Impact'. Ask them what affect meteor may have if they hit the Earth. Would the size of the meteor make any difference to the damage it would do? Would speed make any difference (height in our investigation)?	bar or line	1, 2 & 3	Sand tray, plastecine (for making meteors) or different sized marbles/ball bearings, metre ruler (to measure height), ruler (to measure crater)

BRAINSTORM

What I could change

The size of the meteor	The height of the drop

What I could measure

The width of the crater	The depth of the crater

Notes: the width of the crater is easier to measure than the depth of the crater. Pupils should be reminded to measure carefully from edge to edge as differences can be quite small.

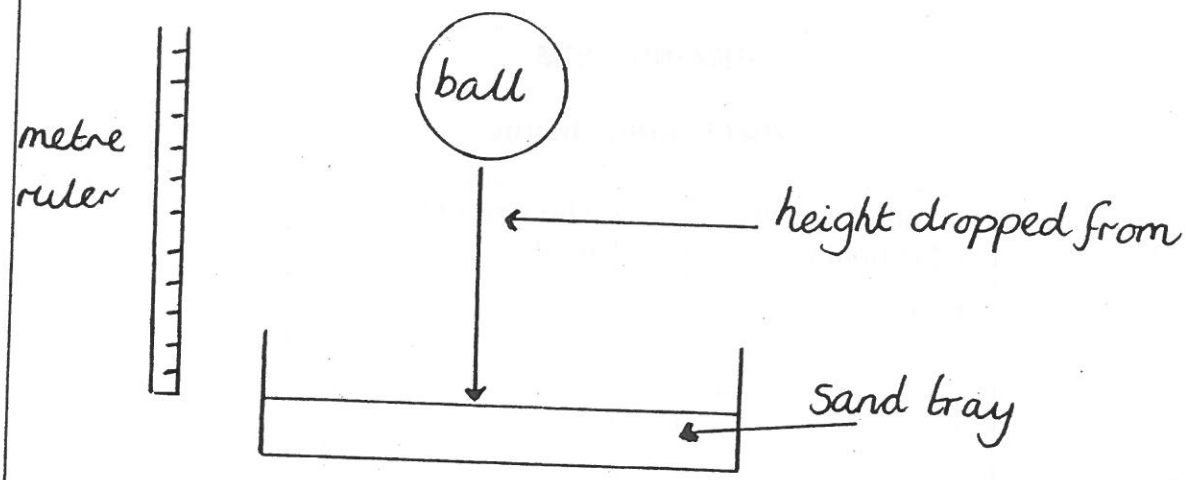
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Height (cm) meteor is dropped from OR Size of meteor (cm)	Width / depth of crater (cm)

POSSIBLE RESULTS TABLE

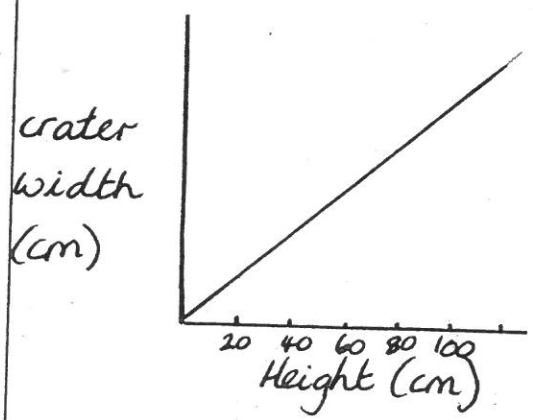
I changed Height (cm)	I measured Width of crater
20	4
40	5
60	7
80	7·5
100	8

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH line



POSSIBLE PUPIL CONCLUSIONS

'The highest ball made the biggest crater'

'The higher the ball was dropped from - the wider the crater it made'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** FORCES

INVESTIGATION WHICH BOATS FLOAT THE BEST?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
Show pupils pictures of different shaped boats. What are these different boats used for? Does the shape affect how ell they travel/float? Suggest that they can make different shapes/sizes of boats with plastecine. Can they suggest how to test how ell their boats float? Which boats float the best?	bar or line	1, 2 & 3	Plastecine, water, bowls, small weights or marbles

BRAINSTORM

What I could change

The shape of the boats	The size of the boats

What I could measure

The weight the boat will hold before it sinks	

Notes:

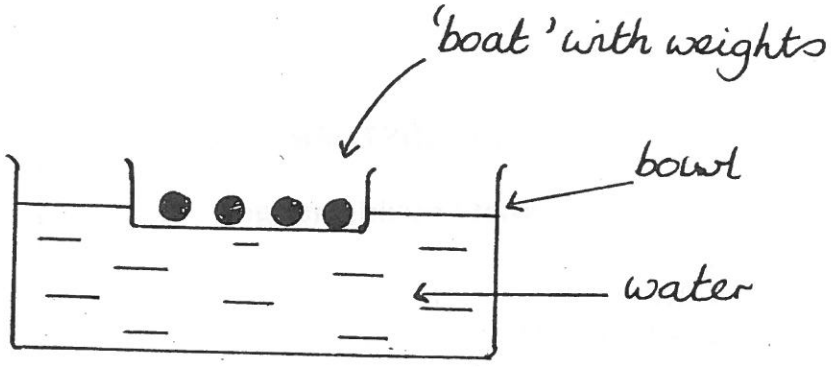
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Shapes of boats (for bar graph) OR Size of boats (cm^2 diameter)	Weight boat will support (number of weights or marbles)

POSSIBLE RESULTS TABLE

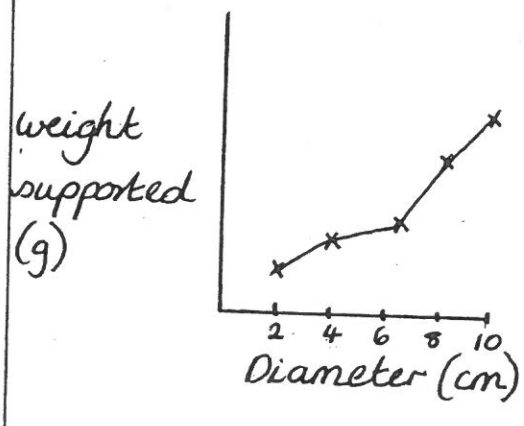
I changed Diameter	I measured Weight supported (g)
2	10
4	15
6	25
8	40
10	70

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH line



POSSIBLE PUPIL CONCLUSIONS

'The biggest boat was the hardest to sink'

'The wider the boat the more weight it supported'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** LIGHT

INVESTIGATION HOW MANY IMAGES CAN YOU SEE IN A MIRROR?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
'Have you ever been in a hall of mirrors at a fair? You can see lots of strange reflections (images) of yourself? Did you sometimes see more than one reflection of yourself? Kaleidoscopes work by making lots of reflections too. Ask pupils to count how many reflections they can see when a pin/pencil is placed between 2 mirrors at 90 . Do you think that changing the angle might make a difference?	bar or line (best as line)	1, 2 & 3	Plastic mirrors, pin/pencil, paper to stand mirrors on and to mark the angles, protractor (or stencil with angles ready marked).

BRAINSTORM

What I could change

The angle between two mirrors	

What I could measure

The number of images seen	

Notes: The object needs to be placed between the two mirrors at different angles. See diagram overpage.

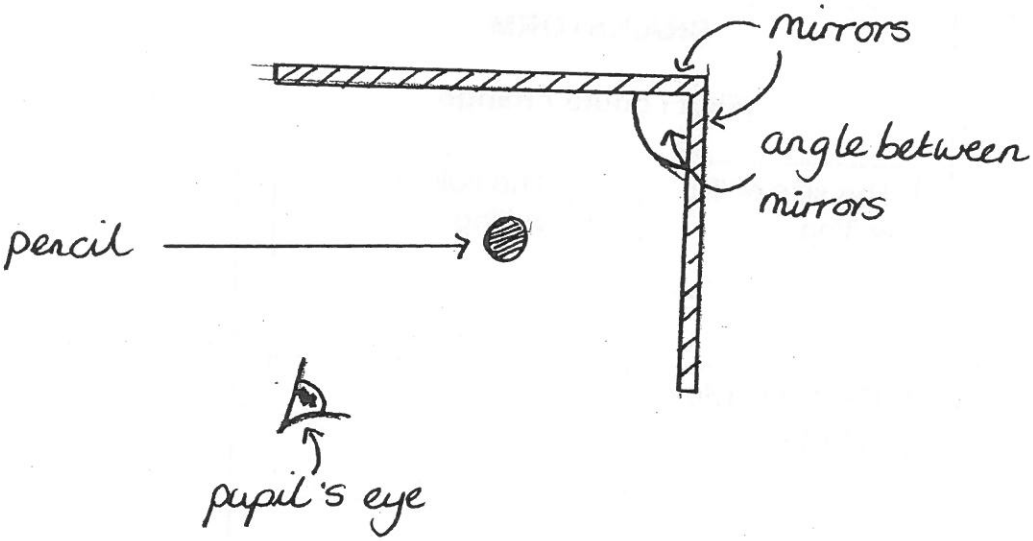
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
The angle between 2 mirrors	How many images were seen

POSSIBLE RESULTS TABLE

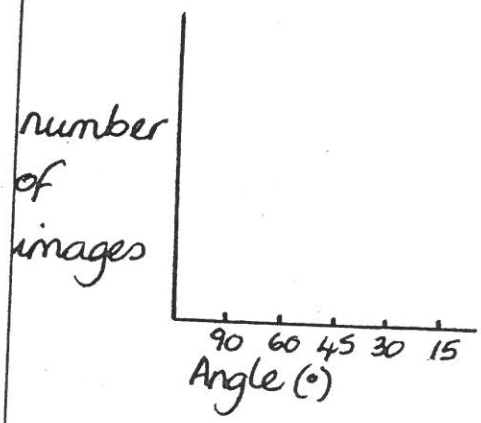
I changed Angle between mirrors	I measured No. of images
90°	
60°	
45°	
30°	
15°	

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH line



POSSIBLE PUPIL CONCLUSIONS

'I saw more images when the mirrors were close together'

'The smaller the angle - the more images were seen'

SCIENCE INVESTIGATIONS FOR PRIMARY SCHOOLS

KEY STAGE 2 **TOPIC** LIGHT

INVESTIGATION WHAT AFFECTS HOW CLEARLY WE SEE WRITTEN WORDS?

SCENE SETTER	TYPE OF GRAPH POSSIBLE	1. WORDS/WORDS 2. WORDS/NUMBERS 3. NUMBERS/NUMBERS	RESOURCES REQUIRED
Our head teacher must be getting old. He can't read books from far away. He needs to put his eyes right up to his newspaper to read it properly. What things about the newsprint could affect how clearly he sees it? How could we test our ideas?	bar or line (best as line)	1, 2 & 3	Sample of print of different sizes, colour and style, metre sticks/ measuring tapes

BRAINSTORM

What I could change

- The size of the writing
- The colour of the writing
- The type/style of the writing
-

What I could measure

- How close you need to be to read letters
-

Notes: Pupils could use an optician's eye chart. Pupils generally have better vision than adults.

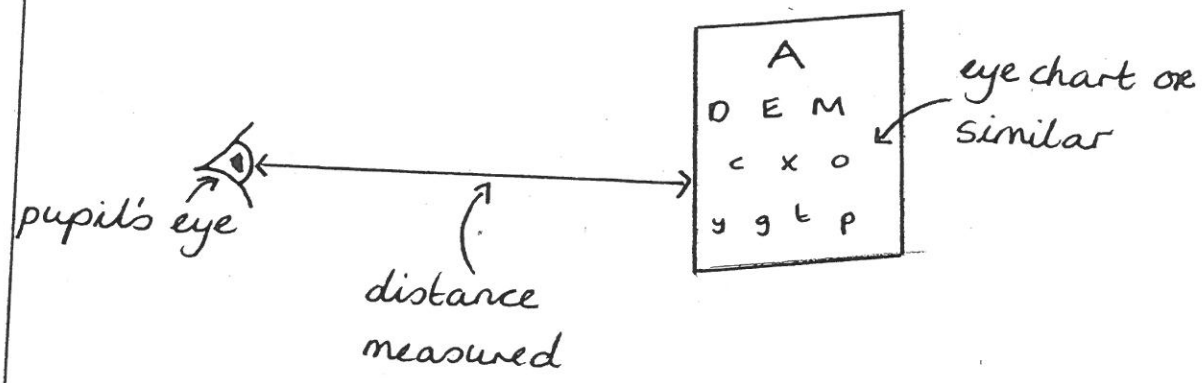
POSSIBLE VARIABLES

What pupils could change	What pupils could measure
Size of print OR Colour of print OR Style of print	Distance to read it properly

POSSIBLE RESULTS TABLE

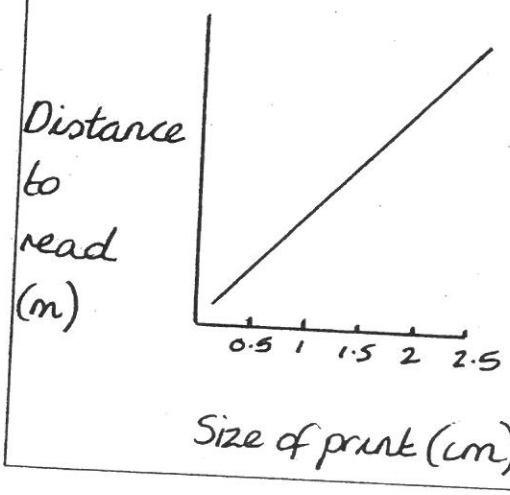
I changed Size (height) of print (cm.)	I measured Distance to read it (m.)
0·5	2
1·0	3
1·5	4
2·0	5
2·5	5

APPARATUS



POSSIBLE GRAPHS

TYPE OF GRAPH line



POSSIBLE PUPIL CONCLUSIONS

'It was easier to read the larger writing'

'The larger the print the further away it could be read'

RESOURCES

The following resources/equipment are likely to be required for science investigations listed. Much is already present in most primary schools.

General

Polystyrene cups/egg cups (for growing seeds)
Seeds (various)
A selection of materials & fabrics
Plastic or polystyrene beakers/bowls/trays etc.
Balsa wood strips
Torches
Tape recorder
Wire (coat hanger type)
Measuring tapes/rulers
Ice trays (various)
Toy cars/clockwork cars/boats/ducks etc.
Planks etc. for toy car slopes
Marbles
Paper towels (various makes) / toilet paper (various makes)
A variety of balls (tennis, golf, squash, hockey etc.)
Paper /card
Overhead projector
Sand
Potting compost/vermiculite (much cleaner to use)
Electric fan/fan heater
String
Disinfectant
Balloons
Spoons/scoops etc.
Stirrers/stirring sticks
Electric kettle (if hot water tap not available in classroom)

Science Specific

Weight hangers with 100g. weights (borrow from comp. school)
Wooden blocks
Metre rules
Balance (small - measuring in g.)
Balance (large - bathroom scales type)
Thermometers (spirit **not** mercury filled)
Timers/stopclocks/stopwatches
Plastic beakers/measuring jugs (with volume measures on side)
Plastic rainwater guttering with stop ends
Batteries - various (but 1.5 volt round best) & holders
Bulbs - match voltage to batteries
Bulb holders
Ammeters (borrow from comp. school)
Resistance wire (borrow from comp. school)
Wires & crocodile clips
Glycerine/glycerol (same)
Sandpaper/glasspaper
Forcemeters (Newtonmeters) in different ranges (borrow from comp. school)
Magnets (various shapes & sizes - can be obtained as 'mixed bag' from County Supplies catalogue)
Filter funnels (tops of plastic pop bottles make good funnels - see sheets)
20cm3 syringes
Andrews salts
Sugar (various types)
Elastic bands (various but preferably different colours)
Plastic mirrors (**not** glass)

If you have difficulty in obtaining any of these materials, please contact me. I have a limited range of resources available but may be able to help.