

## New style OSMOSIS

This is the first issue of our new style *OSMOSIS*. You can see that we are presenting the newsletter in two parts. The 8-page section is aimed mainly at teachers of secondary pupils and will contain a range of articles and ideas or protocols for practical investigations. These all use plants or plant material, similar to those in our earlier issues of *OSMOSIS*. Our emphasis is always to offer fresh ideas that are realistic for teachers or students to do in the laboratory, without excessive demands for sophisticated equipment, and to encourage teachers to find interesting ways to use plants in their teaching. The 8-page section will also include the SAPS workshop calendar and other short news items.

This 4-page section is aimed mainly at primary teachers, though we hope you will also read the 8-page section and find interesting ideas in it. In this primary section, we plan to give you worksheets in a form that you can use directly with your pupils as well as some other ideas that may help you in your teaching.

Please send us your comments on this new style. We want to know whether you find it useful (or whether you prefer the mixture as in previous issues of *OSMOSIS*). More than that, if you have ideas you would like to share with other teachers, send them to us so that we can publish them in a future issue of *OSMOSIS*.

As a start, here is a flower wordsearch, just to fill in those idle moments. Once your pupils have found the words, they could then find the parts on a diagram or model of a flower.

*Paul Beaumont, Director, SAPS*

## A flower wordsearch

All these words are parts of a flower. Can you find them?

a	n	t	h	e	r	p	t	e	s	p	s
l	m	s	e	e	d	a	b	t	r	y	t
s	f	g	t	k	s	a	i	p	a	w	y
v	x	s	l	a	c	g	d	a	d	g	l
p	o	s	o	f	m	r	w	f	h	v	e
o	p	e	u	a	l	e	l	s	l	k	a
l	s	p	i	u	y	o	n	a	o	p	k
l	d	a	x	q	w	j	v	s	t	l	o
e	f	l	g	e	h	b	l	p	n	e	p
n	w	m	r	s	q	o	m	a	f	b	p
n	n	s	r	l	e	p	r	a	c	f	c
b	u	a	w	e	t	r	y	d	z	x	d

anther  
carpel  
flower  
petal  
pollen  
seed  
sepal  
stamen  
stigma  
style

Now try to find all these parts on a diagram of a flower.

*Dr Colin Bielby, Manchester Metropolitan University*

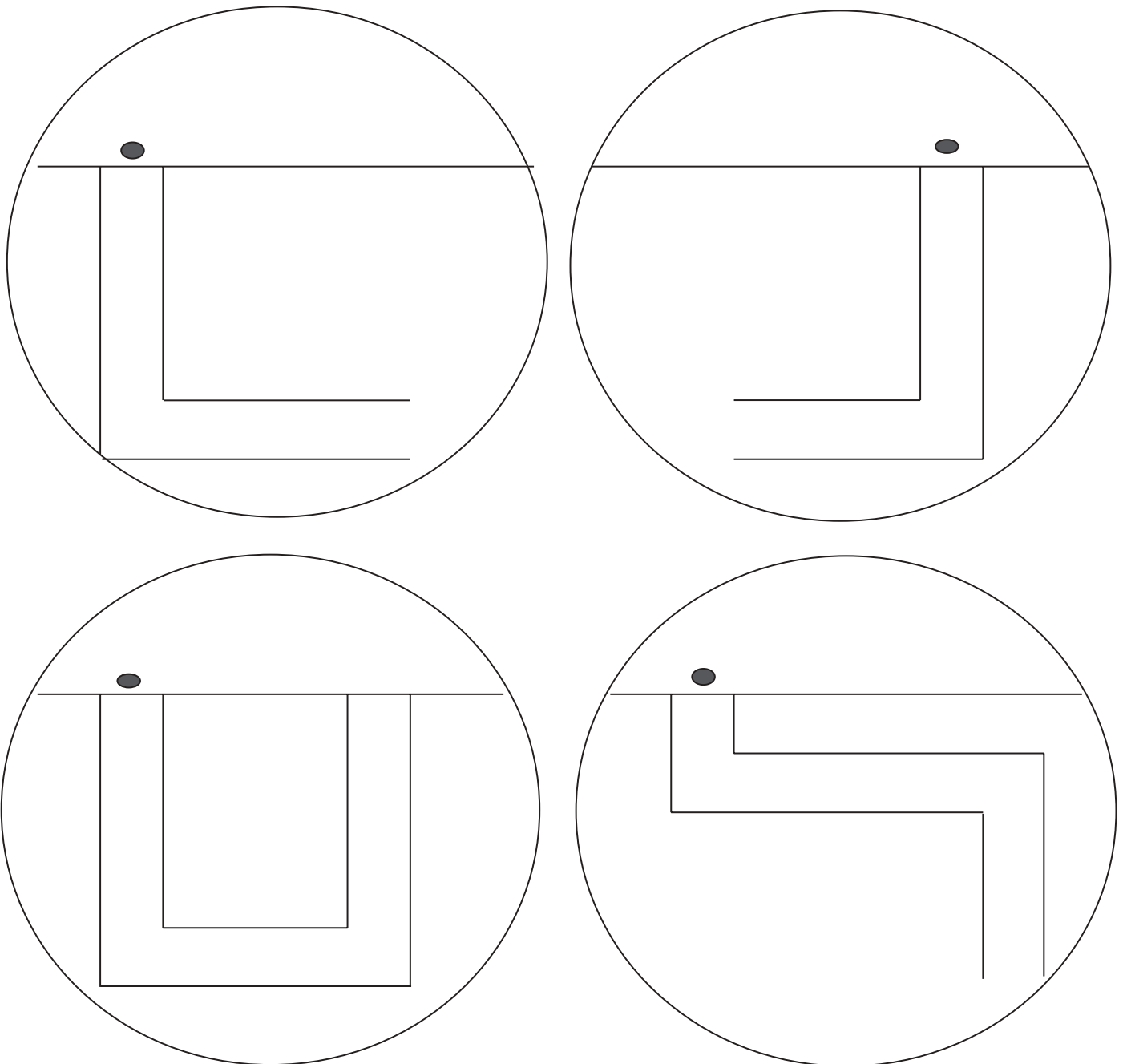
## TEACHER'S PAGE

### Can you make a root of a plant move through a maze?

When a seed germinates, a root and a shoot appear. Their directional movements are a response to gravity or geotropism. Primary roots show positive geotropism as they grow toward gravity. This can be seen in this experiment, because the pupils must decide how to position the petri dish to make the root pass through the maze.

The bottle boat is made as shown in *OSMOSIS 3*, Investigating Seed Germination. ([www-saps.plantsci.cam.ac.uk/worksheets/ssheet5.html](http://www-saps.plantsci.cam.ac.uk/worksheets/ssheet5.html)),

Make the mazes below by photocopying onto transparencies and then cutting out. To measure the rate of growth, draw these mazes onto graph paper and then photocopy onto transparencies. The pupils can then calculate how far the root has grown per day.



# PUPIL'S PAGE

## Can you make a root of a plant move through a maze?

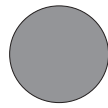
### What you will need



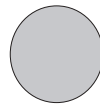
Plastic bottle



Petri dish



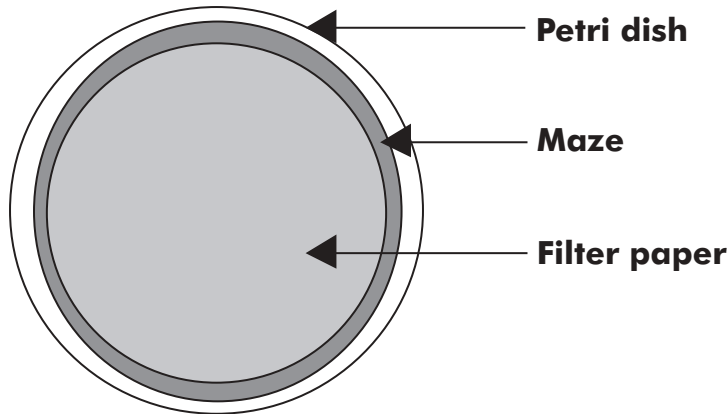
Maze



Filter paper

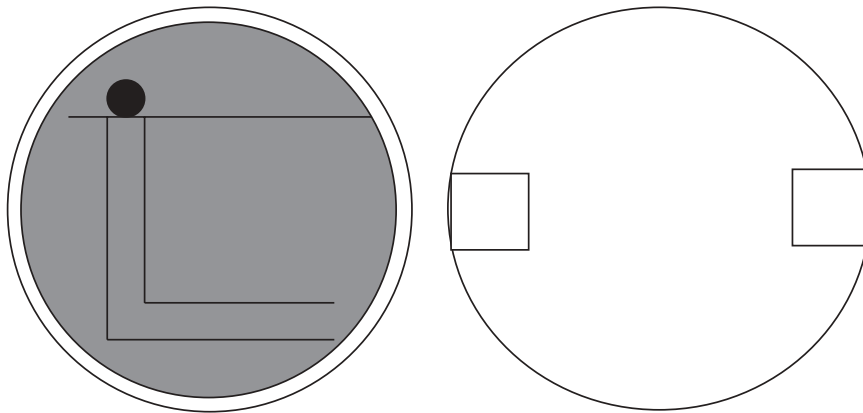


Mustard seeds

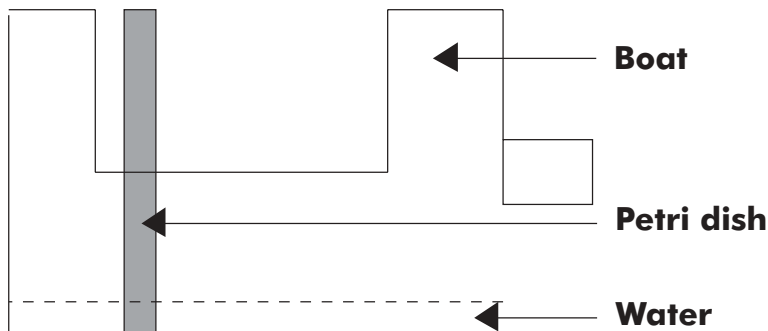


Set out the dish as shown and add some water to make the filter paper wet.

### What to do



Place a mustard seed at the start of the maze. Leave for 20 minutes. Tape lid to dish.



Cut out a boat from a plastic bottle. Get a teacher to help.

Put water in the boat so that it is about 1cm deep. Put the petri dish in the boat.

Look at your dish every day and move it round so that the root grows through the maze.

# National curriculum links on the SAPS website

## Your quick guide to activities with plants for KS1 and KS2 . . .

The SAPS website has plenty of ideas and outlines of investigations that you can use in your teaching. Much of the material is in past issues of *OSMOSIS* while some is in other parts of the website or in occasional publications produced by SAPS.

This 'Quick Guide' has been developed to help you find suitable activities, related to specific National Curriculum topics. Using this guide, you can choose your curriculum topic, and then see the range of material that is relevant to this topic. When you do this on the SAPS *website*, you can follow the hotlinks direct to different worksheets or articles . . . and plenty more ideas to use in your teaching.

Here we give you KS1 links, then KS2 links will follow in a later *OSMOSIS*. You will see there are some empty boxes and we hope to fill these soon. Or do *YOU* have any ideas to contribute?

SAPS website is at: [www-saps.plantsci.cam.ac.uk](http://www-saps.plantsci.cam.ac.uk)

## Your KS1 links

Life processes and living things		Practical activities on the SAPS website
SC2 section	Pupils should be taught:	
1. Life processes	c) to relate life processes to . . . plants found in the local environment	
3. Green plants	a) to recognise that plants need light and water to grow	1. Growing radishes in film cans: <i>Osmosis 7</i> 2. A propagator for small plants and seedlings: <i>Osmosis 14</i> 3. What do plants need to grow? How does light affect growing plants?: <i>Osmosis 21</i> 4. The response of seedlings to light: <i>Osmosis 6</i> 5. Doubling and dabbling in duckweed: <i>Osmosis 5</i> 6. Primary numbers in plants. Part 1 <i>Amaryllis</i> flowers: <i>Osmosis 15</i>
	b) to recognise and name the leaf, flower, stem and root of flowering plants	1. A model <i>Brassica</i> flower: <i>Osmosis 13</i> 2. Investigating seed germination: <i>Osmosis 3</i> 3. Life cycle of the flowering plant: <i>worksheets and diagrams of Brassica rapa</i>
	c) that seeds grow into flowering plants	1. <i>Brassica gigantea</i> , a model seed: <i>Osmosis 6</i> 2. Growing radishes in film cans: <i>Osmosis 7</i> 3. A propagator for small plants and seedlings: <i>Osmosis 14</i> 4. Growing fast plants (rapid-cycling brassicas): <i>Student sheets 1 &amp; 2 - [coming soon]</i>
4. Variation and classification	b) to group living things according to observable similarities and differences	
5. Living things in their environment	a) to find out about the different kinds of plants . . . in the local environment	1. Differences between species: <i>Osmosis 16</i>
	b) to identify similarities and differences between local environments and ways in which these affect which . . . plants are found there	