

Overview of strategies, level, pages and units from the Programme of Study

		Strategy							
		Act out the situation	Draw a picture, make a model	Look for a (simple) pattern	Guess, check and improve	Be systematic	Work backwards	Take a simpler case, make a table, spot a pattern	
Level	Level A pages 1 - 10	1 - 2 Unit A7	3 - 8 Unit A8	9 - 10 Unit A9					
	Level B pages 11 - 27	11 - 12 Unit B6	13 - 20 Unit B7	21 - 22 Unit B8	23 - 27 Unit B9				
	Level C pages 28 - 47	28 Unit C4	29 - 33 Unit C5	34 - 39 Unit C6	40 - 43 Unit C7	44 - 47 Unit C8			
	Level D pages 48 - 77		48 - 52 Unit D3	53 - 55 Unit D4	56 - 59 Unit D5	60 - 68 Unit D6	69 - 71 Unit D7	72 - 77 Unit D8	
	Level E pages 78 - 98		78 - 82 Unit E4	83 & 84 Unit E5	85 - 88 Unit E6	89 - 92 Unit E7	93 & 94 Unit E8	95 - 98 Unit E9	

Problem Solving

Level A

Pages 1 - 10

Strategies

Pages 1 - 2 – ‘Act out the situation’ (new strategy)	Unit A7
Pages 3 - 8 – ‘Draw a picture’ (new strategy)	Unit A8
Pages 9 - 10 – ‘Look for a simple pattern’ (new strategy)	Unit A9

‘Unit’ refers to the Programme of Study

'Acting out' at level A

Line up at the door

You need 3 pupils to 'act out', and 3 differently coloured badges eg red, yellow and blue.

Get the 3 pupils to each put on one of the badges.

Ask the 3 pupils to line up at the door as if they were about to leave the room. They can choose any order they wish.

Record this order on the board using coloured circles.

Get the pupils to return to their seats and then ask them to line up again but this time in a different order. Again record the order chosen on the board.

Ask the rest of the class if they can give some, or all, of the remaining ways of lining up at the door.

There are 6 possible ways to line up with 3 pupils.

An extension could involve 4 pupils and 4 colours, giving 24 possible ways. Don't try 5 pupils, there are 120 different ways!

Lets get dressed

You need a pile of 3 hats each in a different colour and 3 scarves each in a different colour.

Get a pupil to choose a hat and a scarf to wear.

Record the choice of hat and scarf on the board using coloured chalk.

Get the pupil to put the hat and scarf back in the pile and ask another pupil to choose a hat and a scarf to wear.

The choice must be different from that made by the first pupil.

Note: the same hat could be chosen but with a different scarf, or the same scarf but with a different hat.

Record this second combination on the board.

Ask the rest of the class if they can suggest some or all the remaining ways of dressing up differently.

There are 9 possible combinations with 3 hats and 3 scarves.

An extension would be to have 4 types of hats and 4 types of scarves giving 16 possible combinations.

'Acting out' at level A

Leaving the room in order

You need 10 cards each with a number from 1 to 10, and 10 pupils.

The number on each card should be written large enough to be read by all the pupils in the class.

Mix up the 10 cards and give them to 10 pupils who will now each have their own number.

Get these 10 pupils to line up at the door from 1 to 10, (ascending order)
- they will have to sort themselves out according to their numbers.

The cards should be visible to the rest of the class so that all the pupils in the class can decide whether the order is correct.

If their order is the correct order, they can leave the room for their morning break or lunch, or home in the afternoon, handing their cards to the teacher as they go, and obviously there is only one correct order for leaving the room.

Extensions can include;

- * using numbers from 1 to 20, or 1 to 30 or more, to 100 (not all the numbers in any range need be used)
- * asking for a descending order, the biggest number first

Into your teams, or, Into your boats

You need 12 or 24 pupils, with the rest of the pupils in the class being supportive observers.

Ask the pupils to divide themselves into 2 teams with an equal number of players in each team.

Another context could be to get into 2 pretend lifeboats with the same number of pupils in each lifeboat (their big boat could be sinking!). The lifeboats would be safer if they had equal numbers of pupils in them.

Record on the board the 6 and 6, or the 12 and 12, depending on the number of pupils involved.

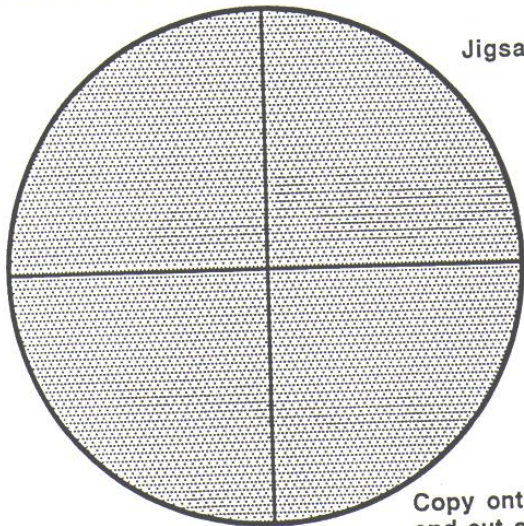
Ask the pupils to form the large group again and now get them to divide themselves up into 3 equal groups, again recording the 4, 4, 4 or 8, 8, 8.

Repeat for 4 equal groups and 6 equal groups.

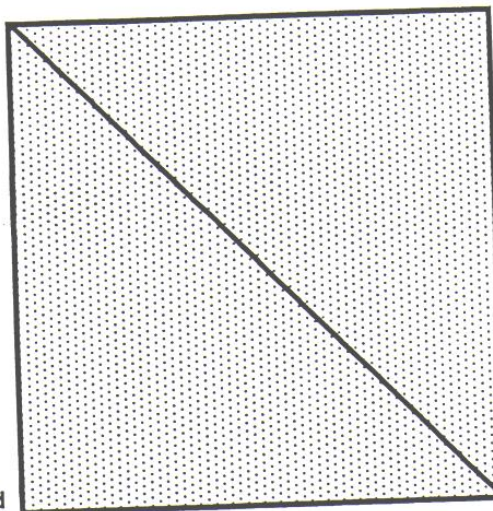
If 24 pupils are used they can try to get 8 and 12 equal groups.

Extensions can include 30 pupils (for 2, 3, 5, 6, 10 or 15 groups)

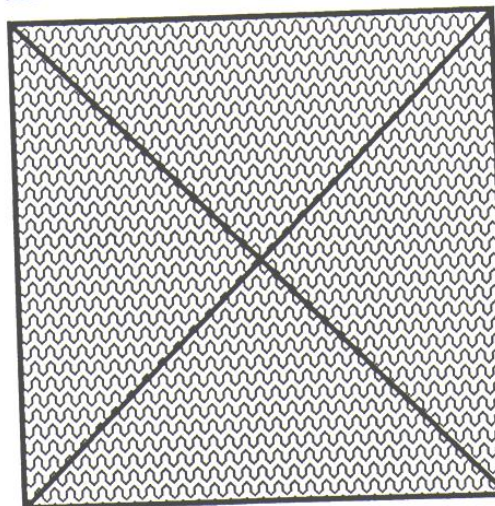
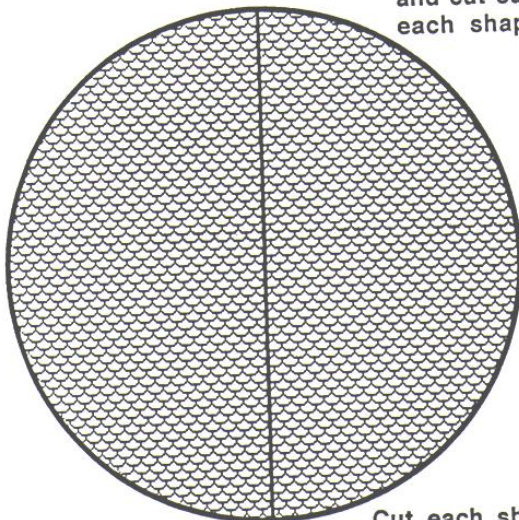
Models of circles and squares



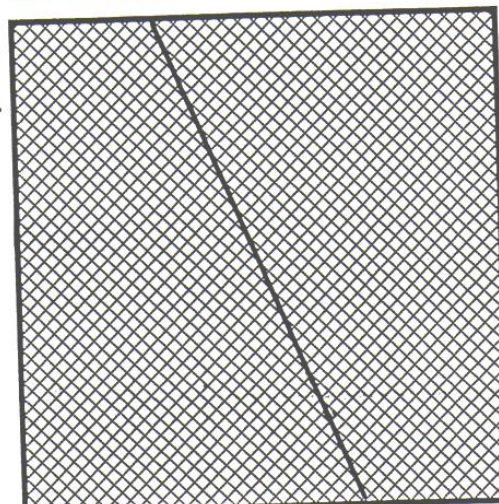
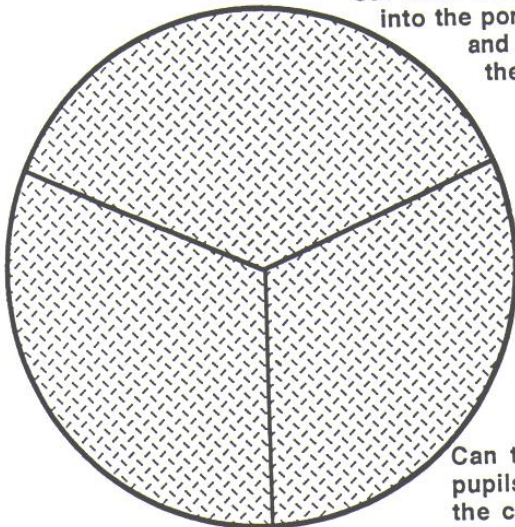
Jigsaws!



Copy onto card
and cut out
each shape.



Cut each shape
into the portions
and mix
them up.

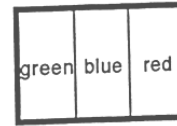
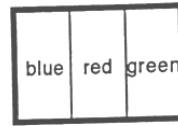
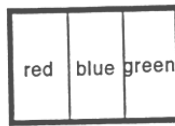


Can the
pupils make
the circles and squares again?

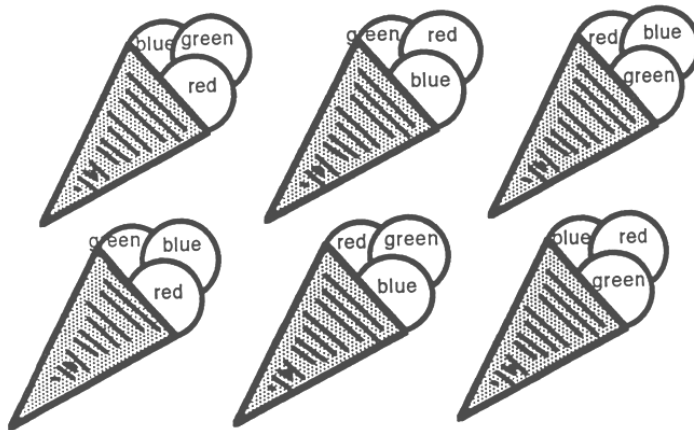
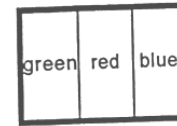
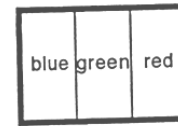
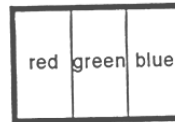
Red, blue and green

Problem Solving
draw a picture, make a model
(Level A) page 4

Colour
the flags



Use red, blue and
green to make each
flag different

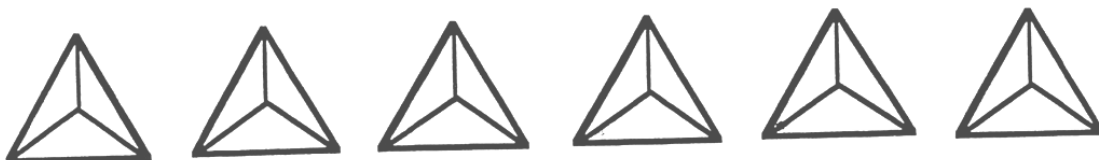
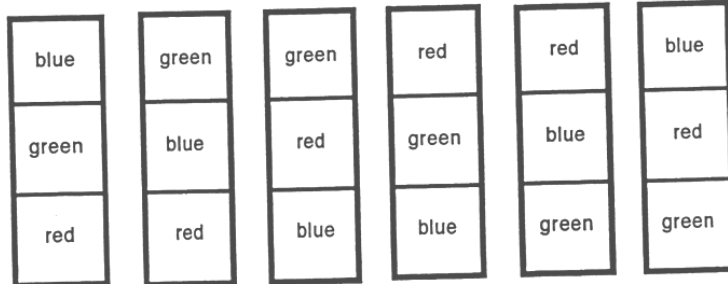


Colour
the cones

Use red, blue and
green to make each
cone different

Colour
the towers

Use red, blue and
green to make each
tower different



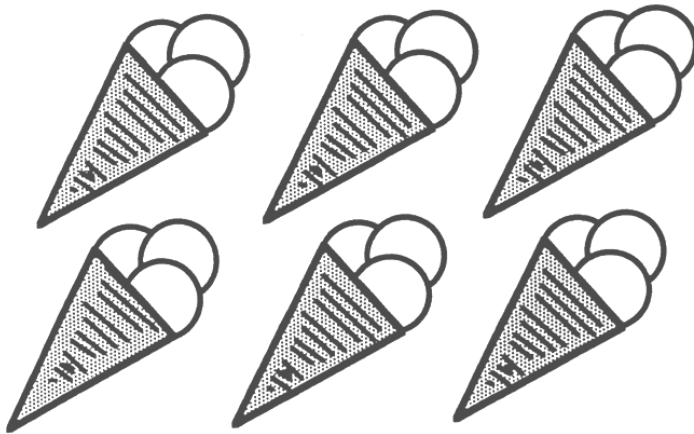
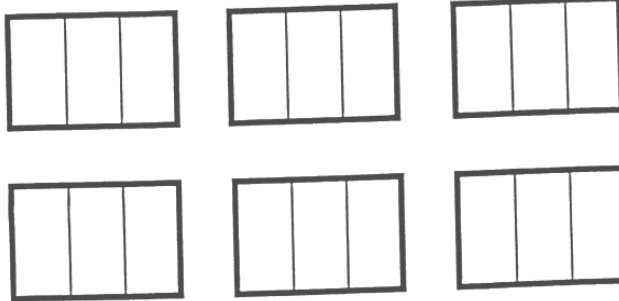
Colour the triangles

Use red, blue and green to make each triangle different

Yellow, orange and black

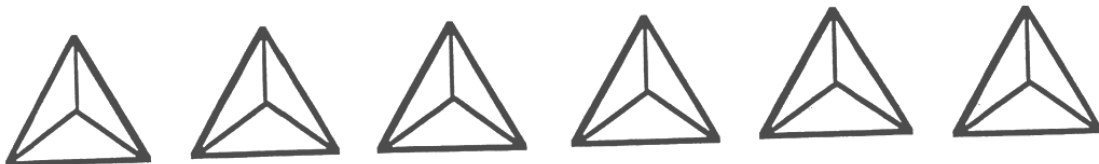
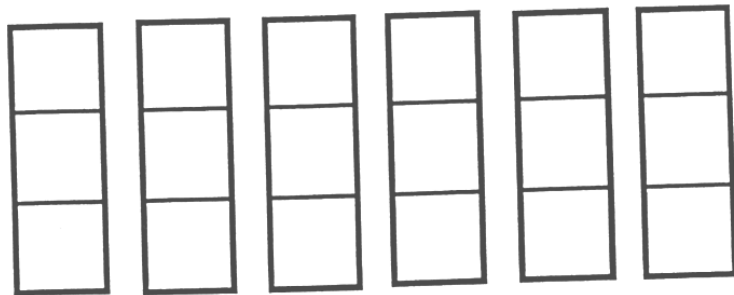
Problem Solving
draw a picture, make a model
(Level A) page 5

Use yellow, orange
and black to make
each flag different



Use yellow, orange
and black to make
each cone different

Use yellow, orange
and black to make
each tower different



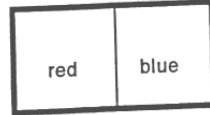
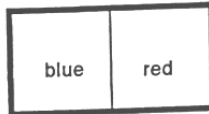
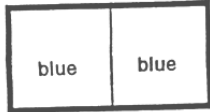
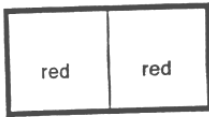
Use yellow, orange and black
to make each triangle different

Red or blue

Problem Solving
draw a picture, make a model
(Level A) page 6

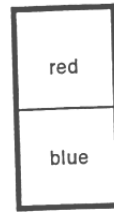
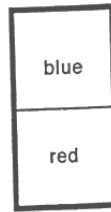
Colour the flags with red or blue.

Make each flag different.

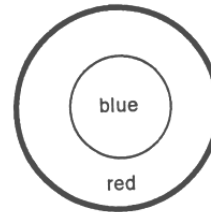
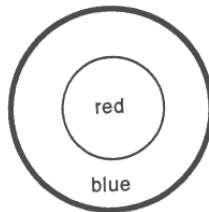
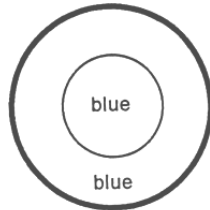
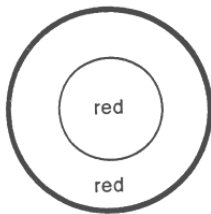


Colour the towers with red or blue.

Make each tower different.

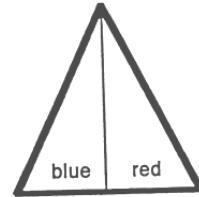
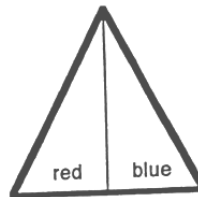
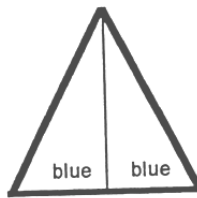
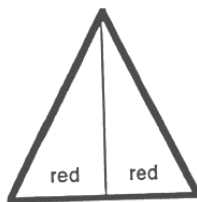


Colour the discs with red or blue. Make each disc different.



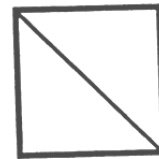
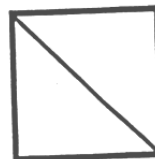
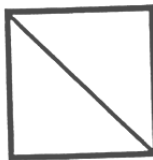
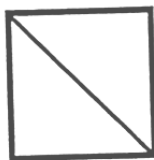
Colour the triangles with red or blue.

Make each triangle different.



Colour the flags with red or blue.

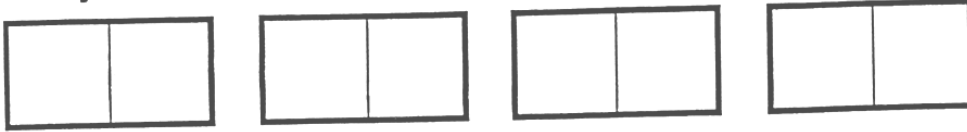
Make each flag different.



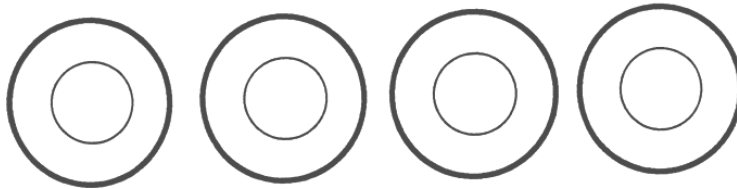
Yellow or green

Problem Solving
draw a picture, make a model
(Level A) page 7

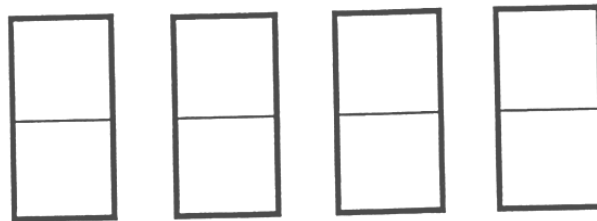
Use yellow or green to make each flag different.



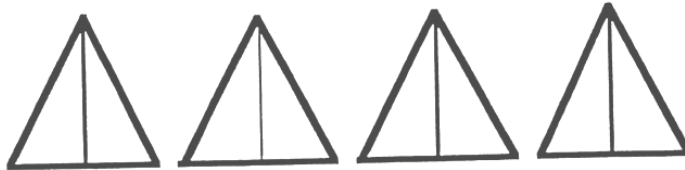
Use yellow or green to make each disc different.



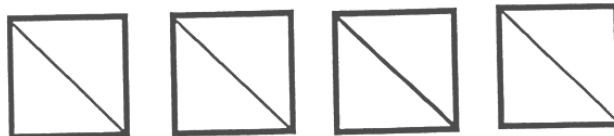
Use yellow or green to make each tower different.



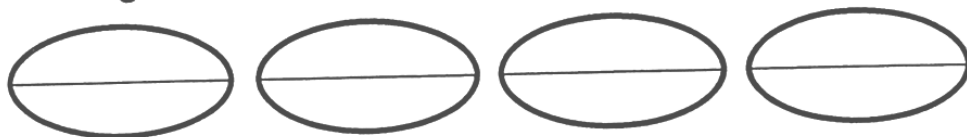
Use yellow or green to make each triangle different.



Use yellow or green to make each flag different.



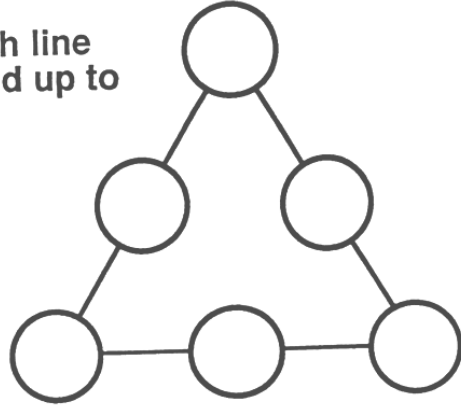
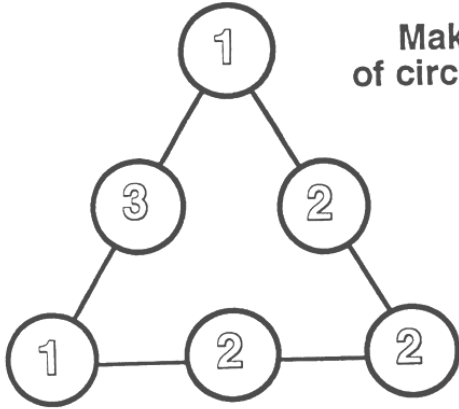
Use yellow or green to make each oval different.



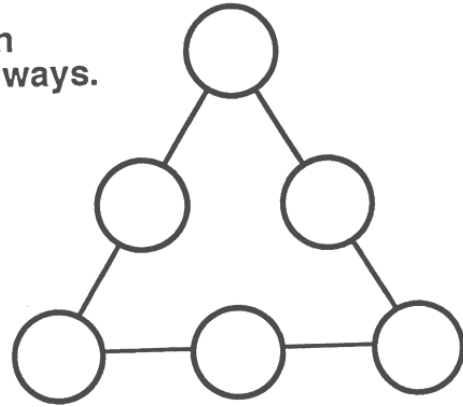
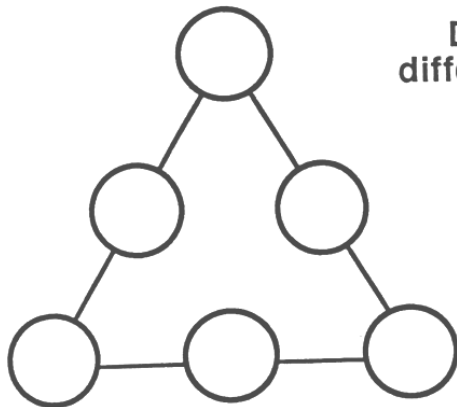
Add up to 5

Put a 1, 2 or 3
into each circle.

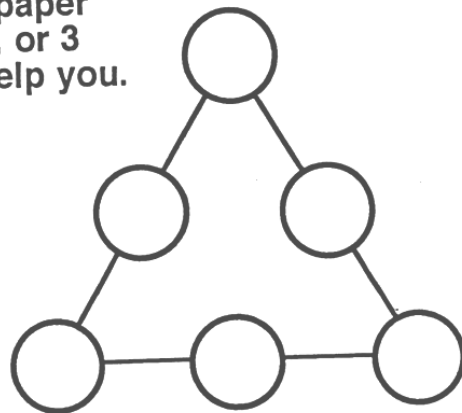
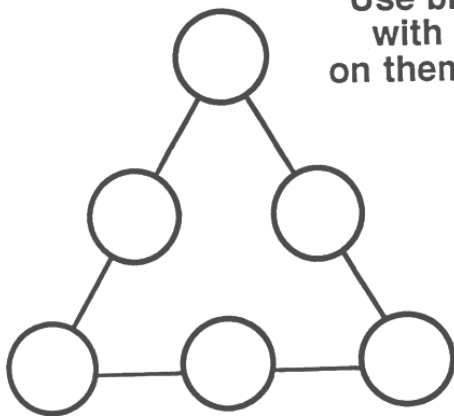
Make each line
of circles add up to
5.



Do it in
different ways.

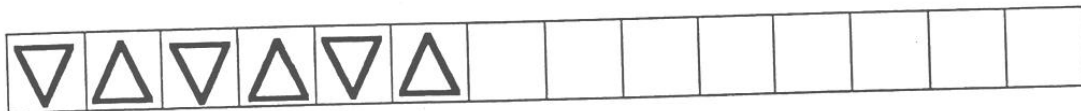
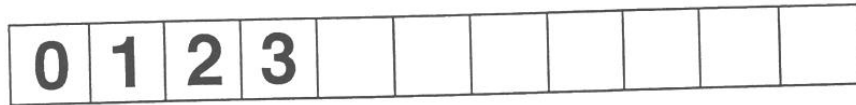


Use bits of paper
with a 1, 2, or 3
on them to help you.

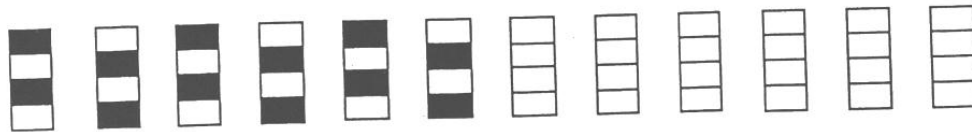
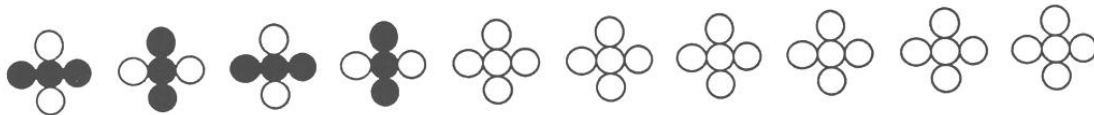


Patterns, keep them going

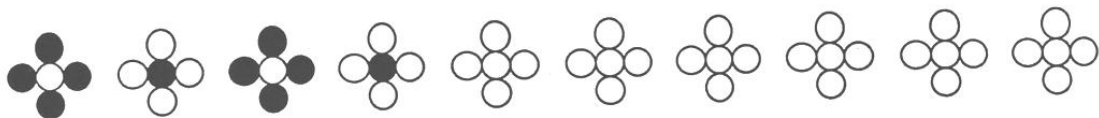
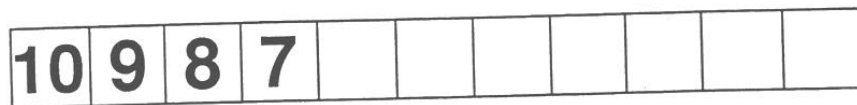
on, off, on, off,,,,,,



big, little, big, little,,,,



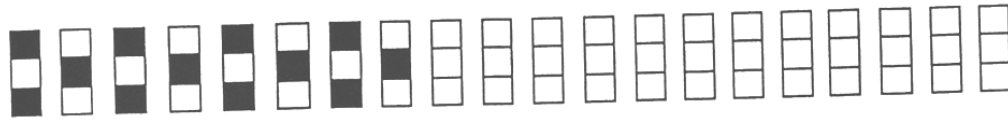
right, left, right, left,,,,



her, him, her, him,,,,,

Patterns, keep them going

Problem Solving
look for a simple pattern
(Level A) page 10



3, 4, 5,, 7,,,, 11,,,,,



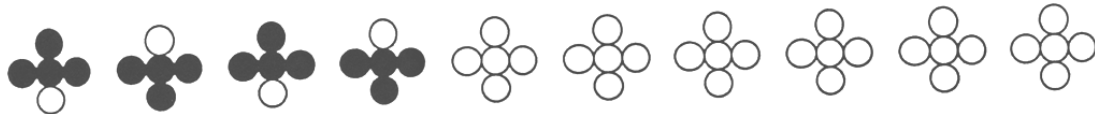
near, far, near, far,,,,,,



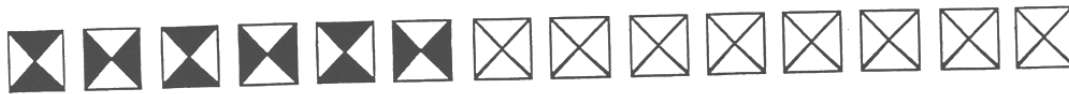
slow, fast, slow, fast,,,,



20, 19, 18,,,, 14,,,,



night, day, night, day,,,,



up, down, up, down,,,,,

5, 6, 7,, 9,,,, 13,,,,