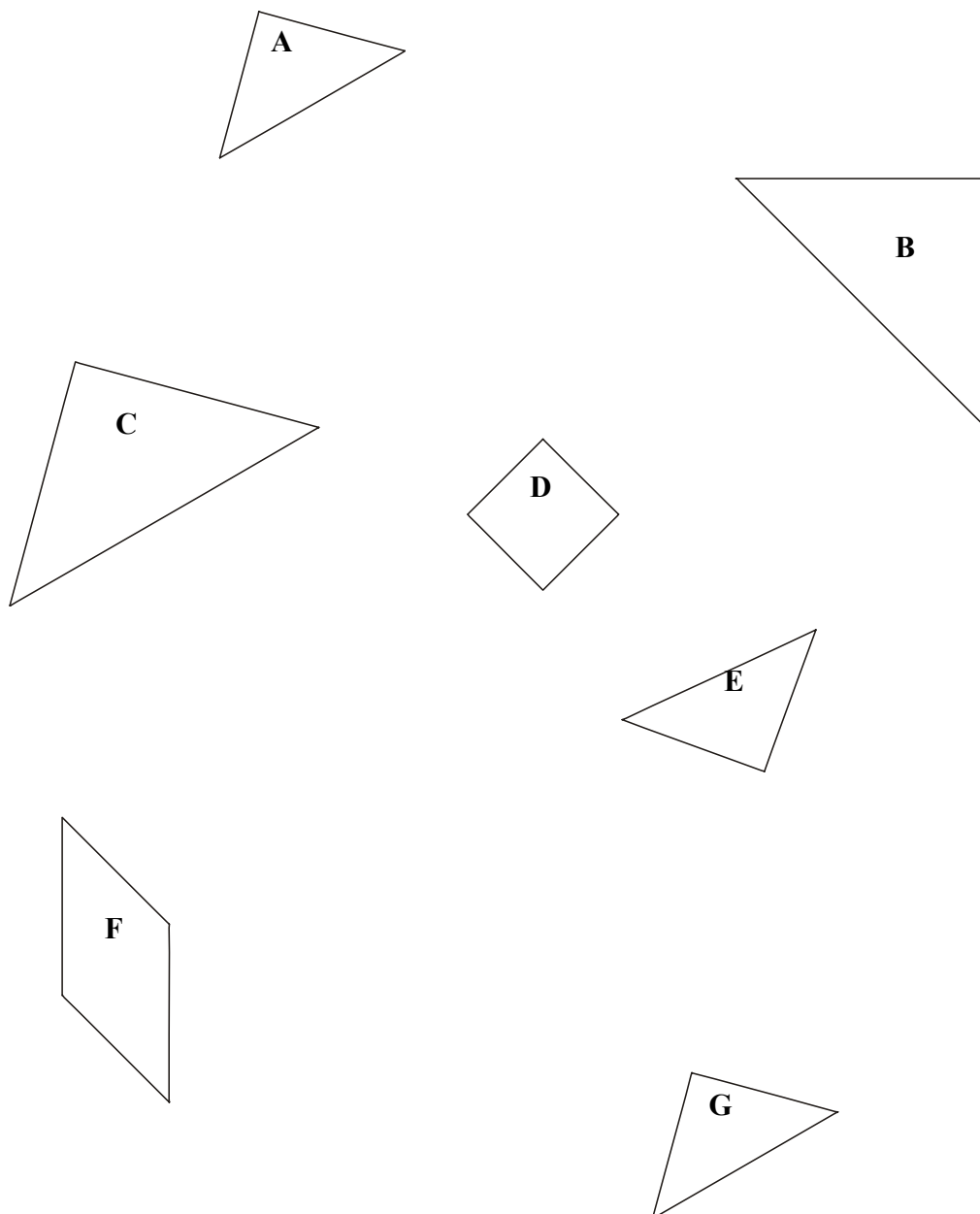
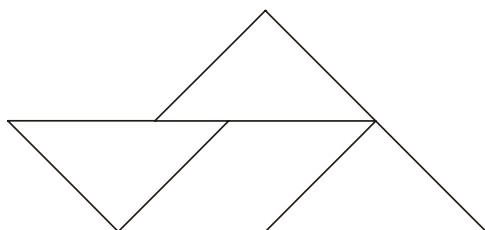
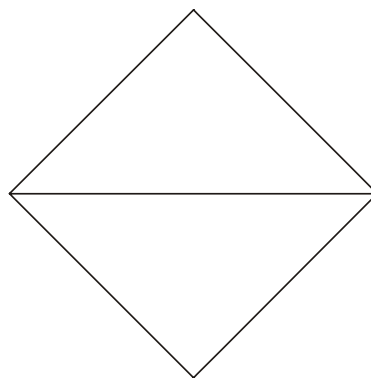
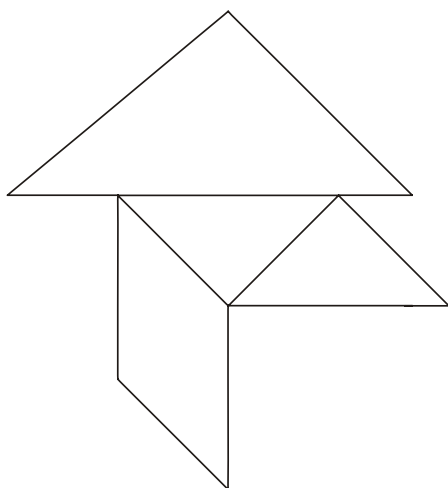


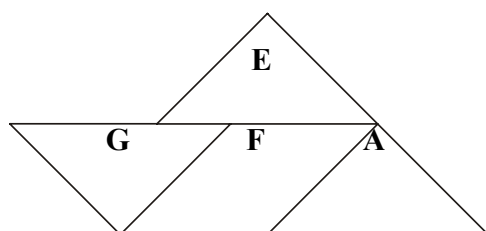
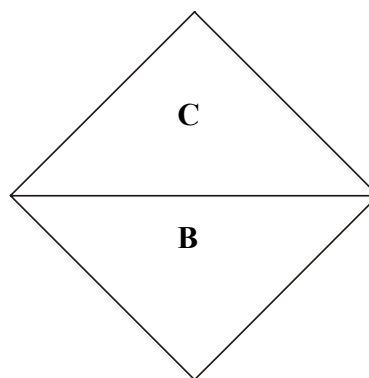
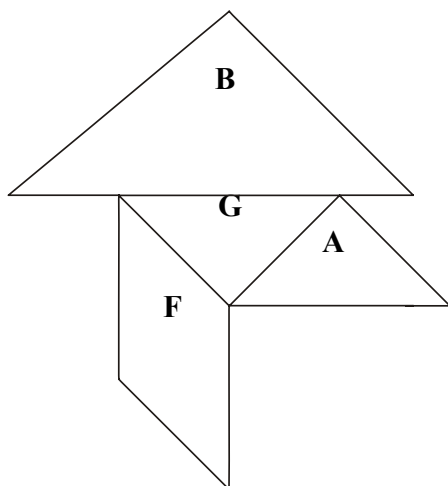
WORK IT OUT		Recognise shapes	2-31
		“Stained glass windows”	Level 3 Exercise 1
Aims	<ul style="list-style-type: none">- Combine shapes to form a given set.- Find the different parts which go to make up a set using geometric shapes.- Begin inclusion.- Begin reconstruction.		
Applications (examples)	<p><u>In class</u>: any mental operation consisting in recognising the different shapes that make up a set (in geometry, for example, find the different shapes that make up a complex form).</p> <p><u>At work</u>: any task of flat assembly requiring the identification of shapes and their inclusion in a set (printed circuits, for example).</p> <p><u>In everyday life and for leisure</u>: any domestic task or leisure activity implying the choice and arranging of shapes (laying floor tiles, doing jigsaw puzzles, etc.).</p>		
Materials	<ul style="list-style-type: none">-One page with several geometric shapes, such as triangles, squares, parallelograms, like the elements of a stained glass window.-Another page on which there are drawings of sometimes complex shapes, including several shapes among those from the first page.		
Instructions	The pupils will try to find which shapes from the first page can be used to reconstitute the shapes on the second page by writing the letters corresponding to their choice in the place where the shapes should be.		
Remarks	<ul style="list-style-type: none">-Some pupils might think of making the task easier by cutting out the shapes and trying to adapt them to the shapes on the second page like a jigsaw puzzle. The teacher can decide if this method can be used to solve the problem, or whether it should only be used as a checking procedure.-Those who wish can of course use a ruler.		
Variation(s) (examples)	<p>1. Since the authors of this tool recommend that, as often as possible, the pupils should be encouraged to be creative, this is a good opportunity to suggest that each one imagines a form, draws it and shows the group a number of shapes that would enable them to reproduce the shape. Basically, the pupils create a similar exercise to the one here, using their own creations. Thus the new exercises could be numbered (2-34, 2-35, 2-36, etc.) and included in the tool.</p> <p>2. Using photocopies of a photo of the group, each pupil could cut his copy into simple geometric shapes (squares, triangles, rectangles, etc.) and give the pieces to another pupil. The pieces will be placed face down so there is no visual aid, and each pupil will try to reconstruct the photo back to front, on a piece of picture glass, for example. By placing a piece of cardboard on the completed puzzle, the pupils can turn it over and judge their results. If there were several possibilities for reconstructing the photo, the results can be surprising and even very amusing!</p>		
Individualisation	Yes.		
Answers	Yes, but only suggested, as several solutions are possible.		

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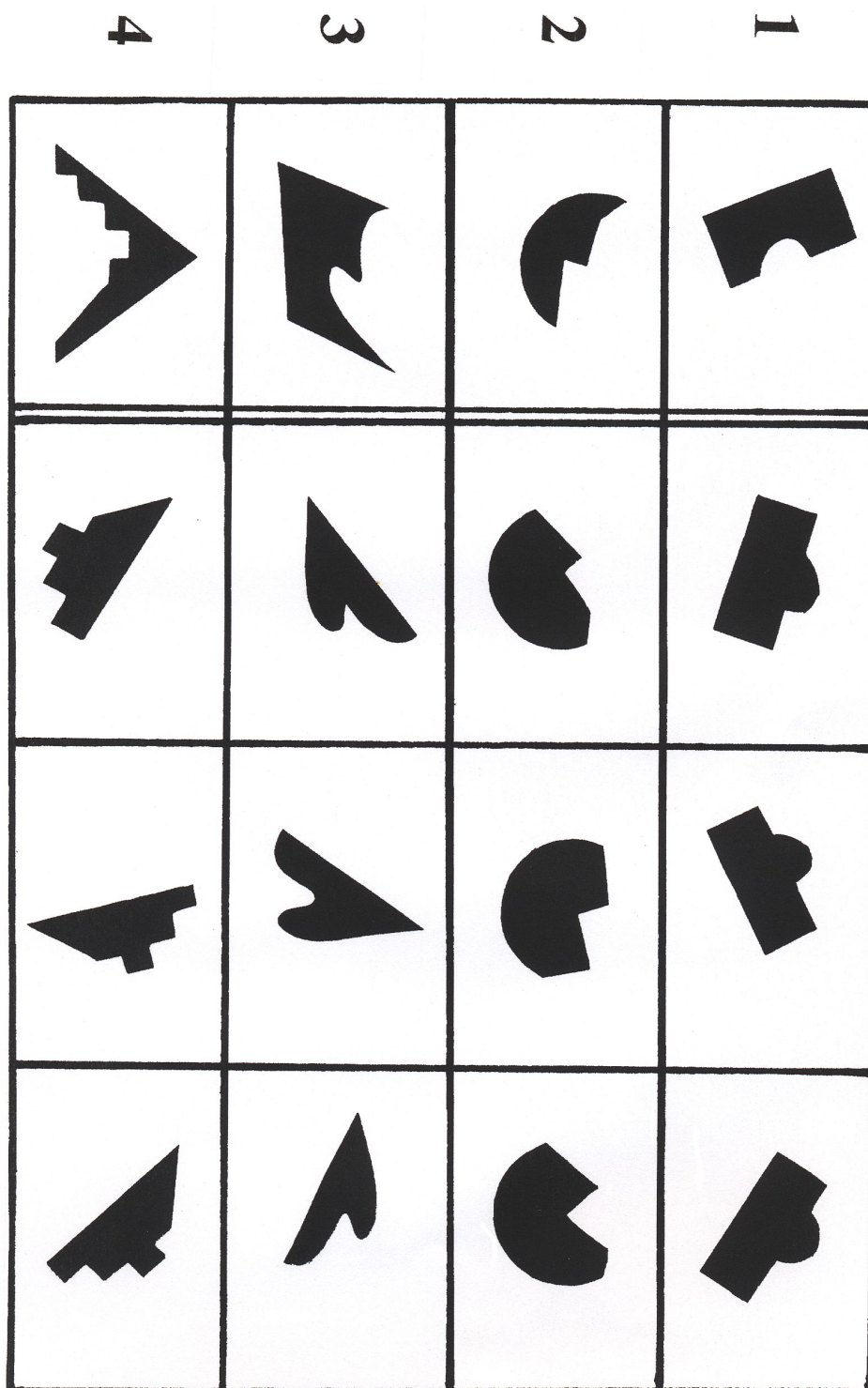


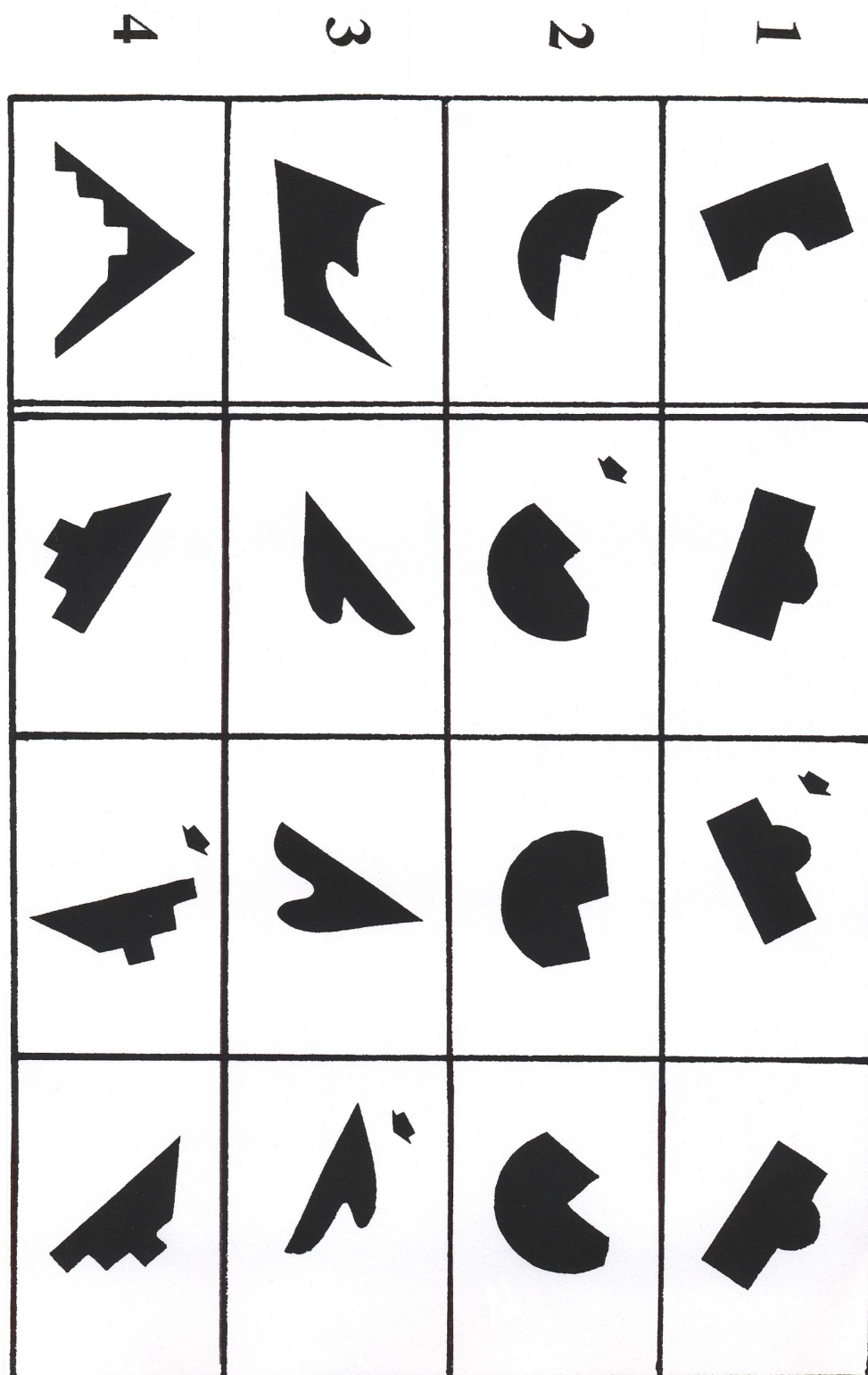
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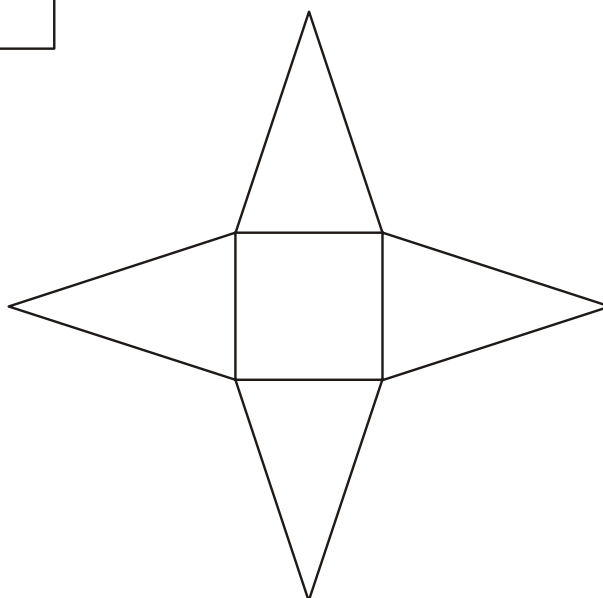
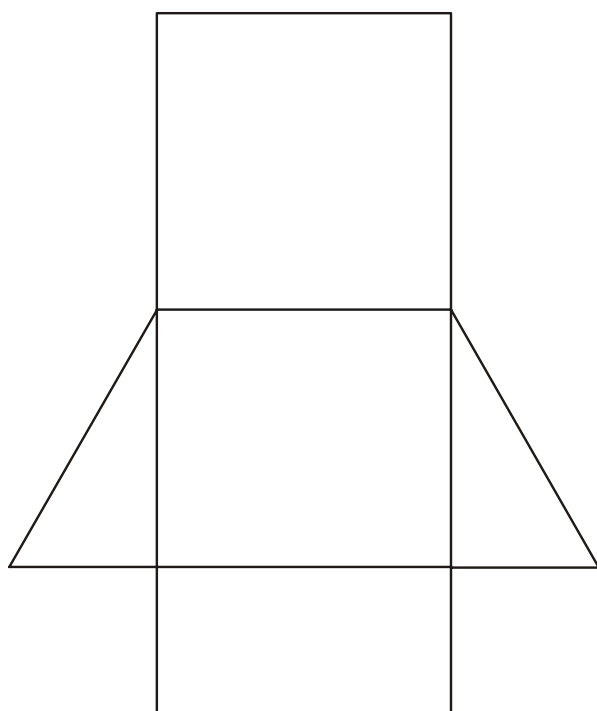
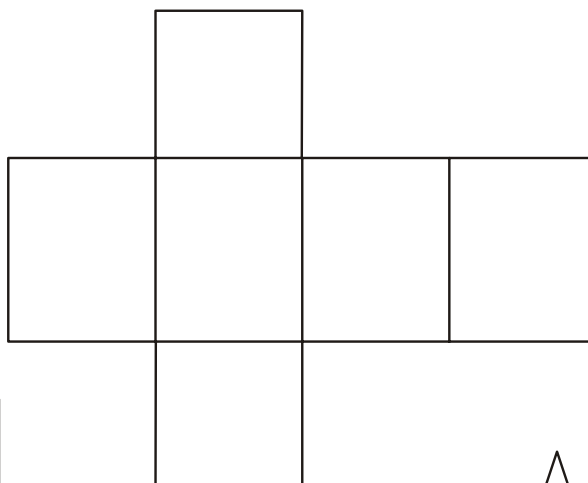
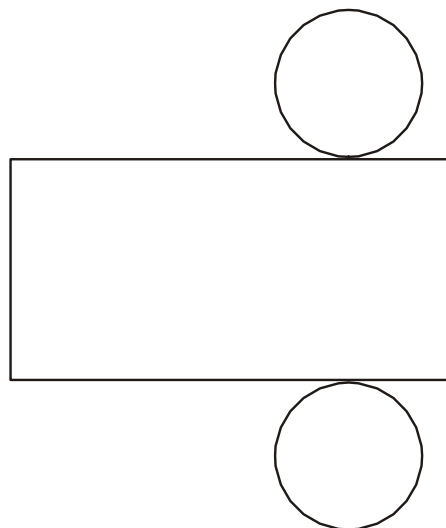
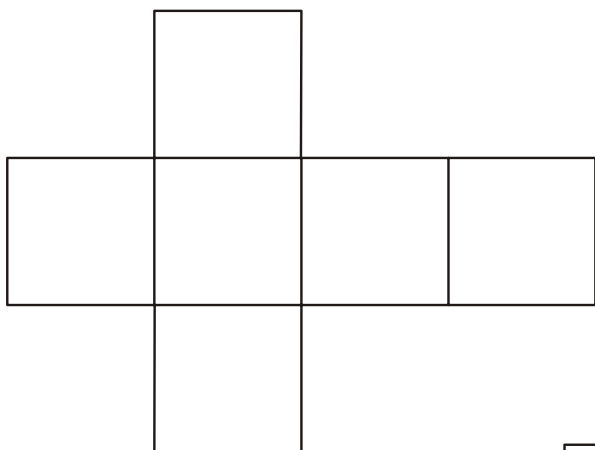


WORK IT OUT	Recognise shapes “Complements”	2-32 Level 3 Exercise 2
Aims	Associate complementary abstract forms using comparison and rotation.	
Applications (examples)	<p><u>In class</u>: any mental operation consisting in identifying shapes and looking for characteristics in order to complete a representation, a diagram, a drawing or graphics (in technology, for example).</p> <p><u>At work</u>: any mental operation consisting in identifying shapes and looking for characteristics with a view to fitting together, assembling or packaging parts (assembly lines or packaging units, especially).</p> <p><u>In everyday life and for leisure</u>: any mental operation consisting in identifying shapes and looking for characteristics in order to put together furniture in kits or kitchen equipment (food processors with different parts, for example).</p>	
Materials	<p>A page with:</p> <ul style="list-style-type: none"> - 4 abstract shapes on the left, - other abstract shapes on the right likely to fit into the shapes on the left. 	
Instructions	For each of the four lines, the pupils have to find the shape from those on the right which seems to fit exactly into the shape on the left.	
Remarks	<p>-The pupils could be asked to look for one or more infallible ways of checking their answers (cutting out, checking against the light, for example).</p> <p>-As for all the exercises in this tool, when the solutions are being pooled, the pupils should explain their methods in as much detail as possible and show the group the signs and characteristics which led them to their solutions.</p>	
Variation(s) (examples)	This type of exercise encourages creativity. Each pupil could think of a shape, draw it, then draw 2 or 3 other shapes, only one of which would complete the first. The exercises thus obtained could be photocopied and given to the group, who would look for the answers following the teaching method inherent to this tool. The exercises could then be included, thus enriching <i>WORK IT OUT</i> .	
Individualisation	Yes.	
Answers	Yes.	

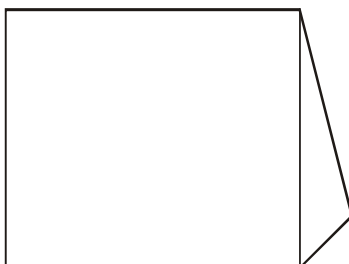
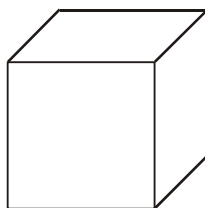
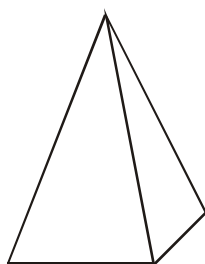
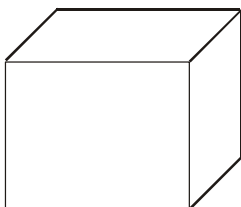


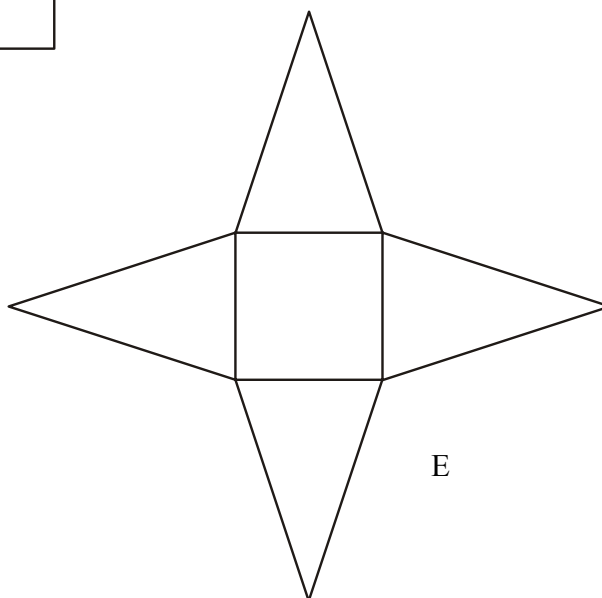
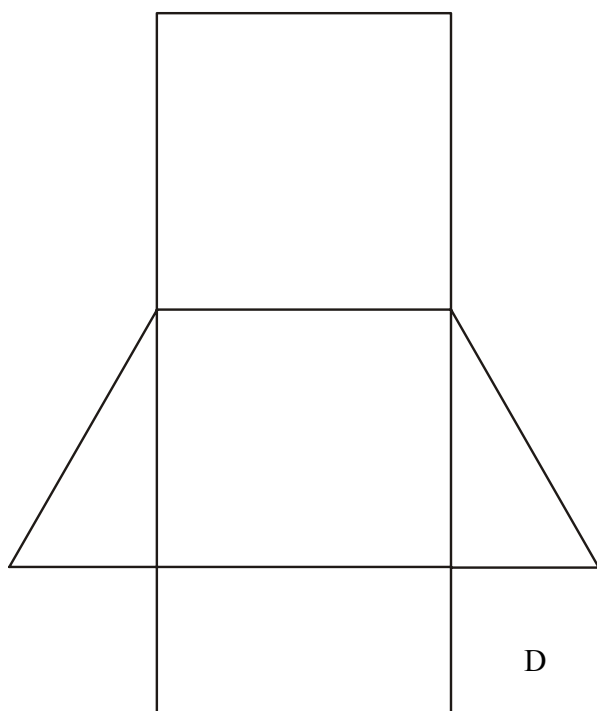
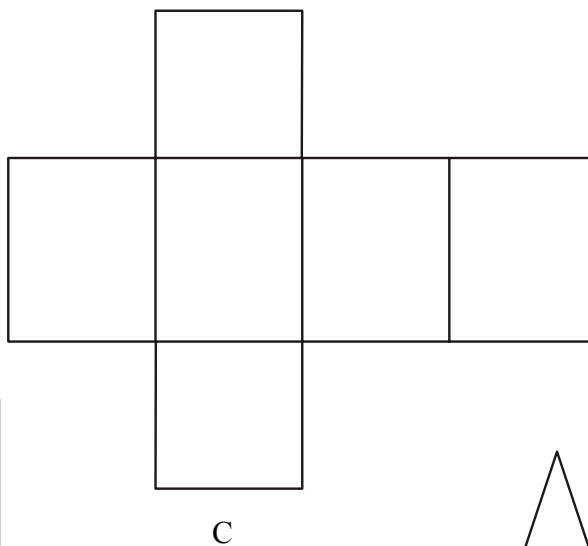
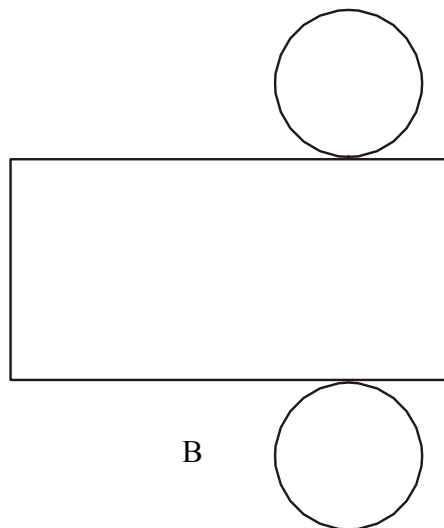
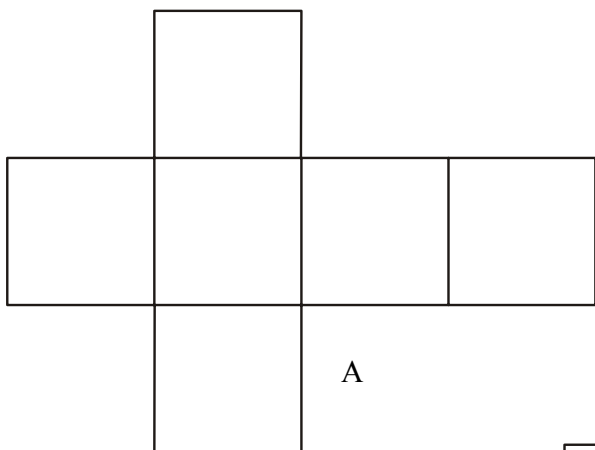


WORK IT OUT	Recognise shapes “Folding and unfolding”	2-33 Level 3 Exercise 3
Aims	<ul style="list-style-type: none"> - Go from volume to plane. - Recognise a shape in perspective. - Reconstruct a shape in your mind. - Manipulate using stickers to copy a pattern. 	
Applications (examples)	<p><u>In class</u>: in geometry, studying opened-out shapes, like the right-angle parallelepiped. In handiwork, making objects out of paper or cardboard, models, etc.</p> <p><u>At work</u>: assembling cardboard boxes for packaging, making up objects or boxes from flat, cutting out clothes from patterns, etc.</p> <p><u>In everyday life and for leisure</u>: making decorations out of paper or cardboard, making models, cutting out clothes from patterns, etc.</p>	
Materials	<p>One page with 5 geometric figures shown in volume form.</p> <p>A second page with the same figures shown in their ‘unfolded’ or opened-out form. This page can be photocopied on an A3 sheet, giving one to each pupil.</p> <p>A pair of scissors for each pupil.</p> <p>A set of stickers.</p> <p>Adhesive tape.</p>	
Instructions	<p>The pupils have to find their own individual code to match each opened-out form to its corresponding geometric figure. They will check one of the figures. To do this, the teacher should have an A3 photocopy of the second sheet for each pupil. The pupils are then asked to cut out one figure of their choice, and fold it to obtain the geometric figure chosen.</p>	
Remarks	<p>To obtain the shape in volume, the pupils can use what is available (stickers or adhesive tape) to stick the sides together. Some may think to add an extra edge while cutting out, so that the finished shape is correctly stuck together.</p>	
Variation(s) (examples)	<ol style="list-style-type: none"> 1. The teacher draws an opened-out shape on the board other than those already shown (e.g. a cone, a six-sided prism, etc.). The pupils reproduce the figure on a blank piece of paper, in the size they choose but keeping more or less the same proportions. They then cut out the figure and try to fold it to obtain the shape intended by the teacher. They can of course readjust the proportions by redrawing or cutting out again. The teacher can also give indications of size, to avoid too much difficulty in reproducing the proportions. 2. The teacher can draw a shape in volume (e.g. a glass, vase or jug) and ask the pupils to draw the shape as they would imagine it opened out, then to cut out the drawing and fold it to recreate the object in paper. 3. The teacher can get the group to work together, pooling all their ideas and suggestions, to make up a model of a famous monument (for example the Eiffel Tower, Big Ben, etc.). 	
Individualisation	Yes.	
Answers	Yes.	

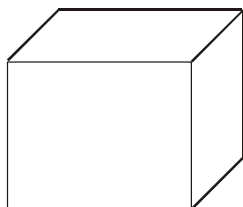


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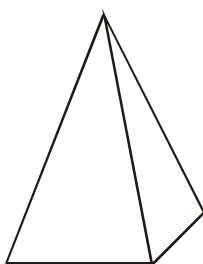




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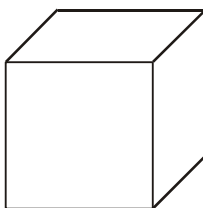
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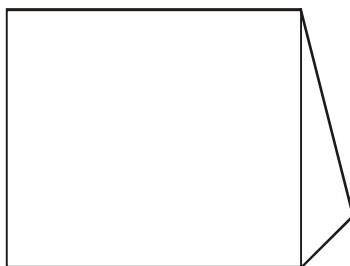
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