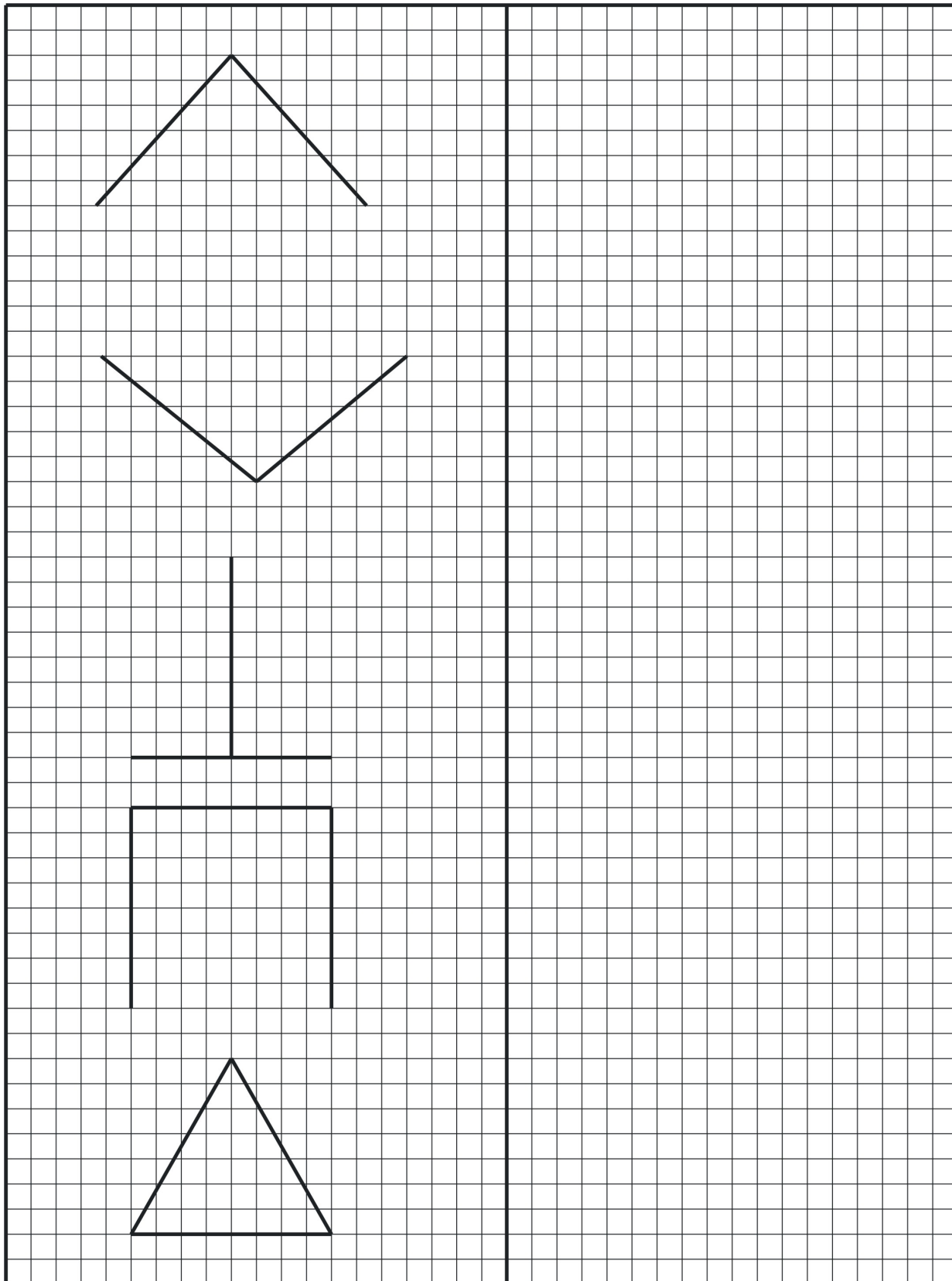
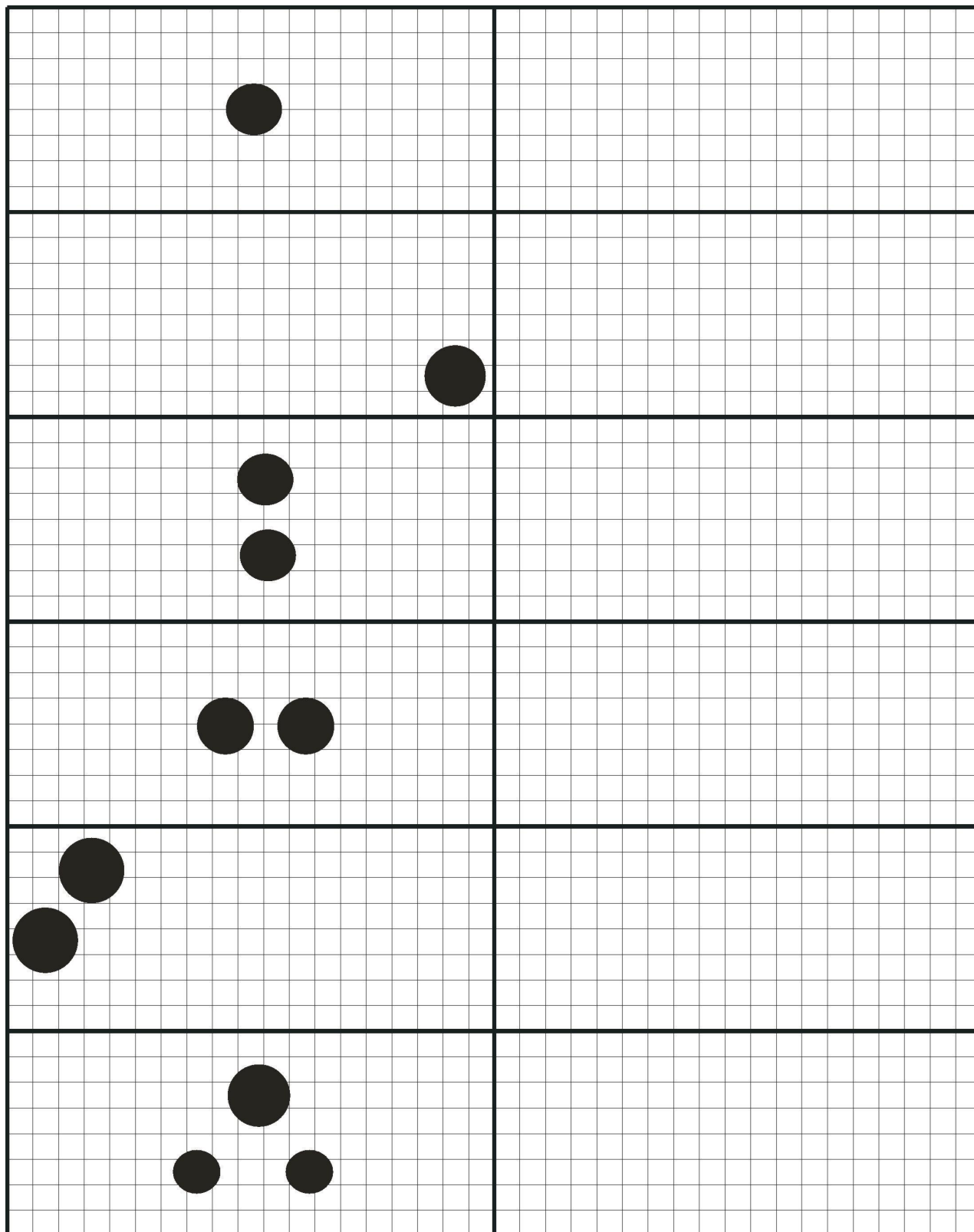
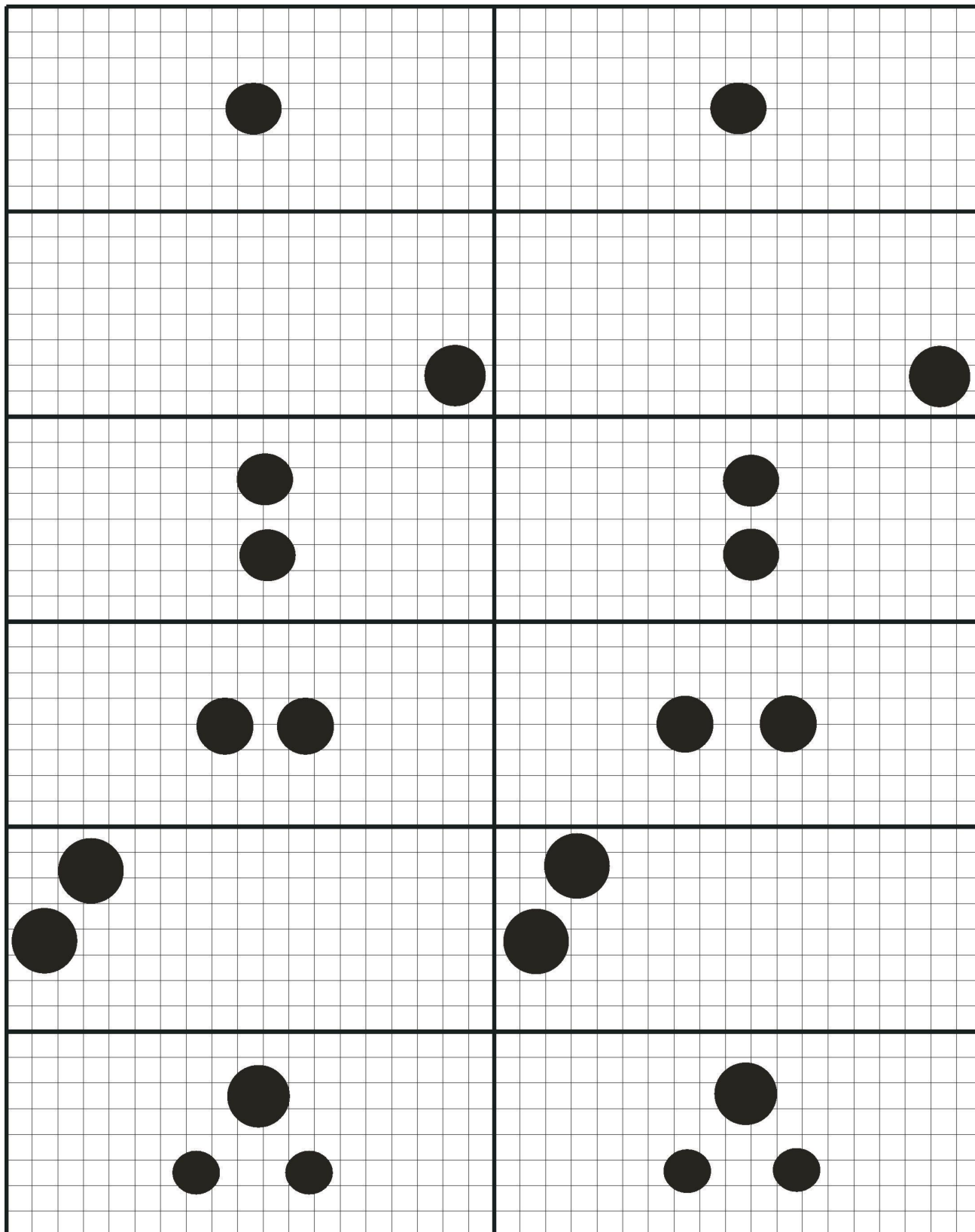


WORK IT OUT	Locate - Manipulate “Shapes”	4-11 Level 1 Exercise 1
Aims	<ul style="list-style-type: none"> - Observe, find centre points, and reproduce a simple drawing with reference points on a squared page. - Practise tracing graphs “from left to right”. - Reproduce a pattern as precisely as possible. - Use squared paper or documents to find reference points and place a form or shape in the required space. 	
Applications (examples)	<p><u>In class</u>: any exercise consisting in reproducing a simple symmetrical shape in the same proportions as the pattern, using the principles of symmetry, for example in geometry exercises, technology, or industrial drawing...</p> <p><u>At work</u>: any task consisting in using reference points and keeping to the information or instructions; any task that uses squares to report information or results. Understand different graphs.</p> <p><u>In everyday life and for leisure</u>: use reference points, particularly those shown on squares. Better understand a graph, such as those found in newspapers; use the grid references on a street map. Use the symmetry of a given pattern when making decorative objects or crafts, making clothes, knitwear or crochet, making made-to-measure furniture, etc., particularly for cutting out clothes when the pattern only gives one side of the body (front / back, left / right) and in sewing or model-making when you have to put one piece on top of the other to assemble, sew or adapt to size...</p>	
Materials	<p>A page with squares, on which there are simple geometric style drawings in the left-hand squares, and nothing in the right-hand squares.</p> <p>Twenty or so matches (or small wooden or plastic sticks) for each pupil.</p> <p>A few rolls of sticky tape to fix the matches.</p>	
Instructions	<p>Using the matches supplied, the pupils try to reproduce, in the right hand column, all the shapes drawn on the left. Their positioning should be identical to the example shown. The matches can be stuck on with the sticky tape.</p>	
Comments	<p>It is interesting to compare how the pupils choose to stick their matches. It can also be suggested that the tape be as invisible as possible.</p>	
Variations (examples)	<p>The pupils can also use the matches, the sticky tape and a photocopy of the squared paper to create other shapes (or to write their initials). They can cut the matches if they wish, in which case several pairs of scissors should be provided for the group.</p>	
Individualisation	<p>Yes.</p>	
Answers	<p>No, the pattern gives the answer.</p>	

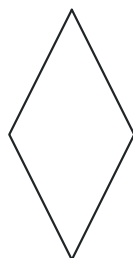
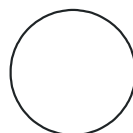
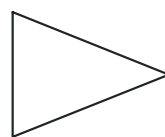
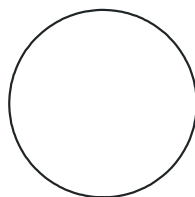
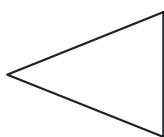
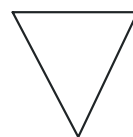
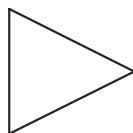
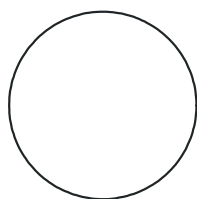
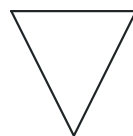
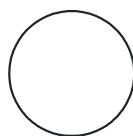


WORK IT OUT	Locate - Manipulate “Pastilles”	4-12 Level 1 Exercise 2
Aims	<ul style="list-style-type: none"> - Observe, and select according to the required size. - Handle and identify the space to be used. - Find a centre or off-centre point using the squares provided. - Find references with the squares on the page to use a given space. - Beginning notions of symmetry around a given point (rotation), around an axis (mirror effect) or sliding. - Beginning the notion of imprecise limits. 	
Applications (examples)	<p><u>In class</u>: any exercise consisting in reproduction a simple shape symmetrically, keeping the proportions of the model, using the principles of symmetry, for example in geometry exercises, in technology, in industrial drawing, etc.</p> <p><u>At work</u>: any task consisting in using reference points and keeping to certain information or restrictions; any task consisting in using squares to mark information or results. Understand graphs, such as those found in workshops, describing increased production or rates of defective parts, etc.</p> <p><u>In everyday life and for leisure</u>: situate yourself approximately in a system of precise reference points: in gardening, for example (placing plants in a flower bed) or in cooking preparations (setting out food decoratively) or better still, seat people around a table for a meal.</p>	
Materials	<p>A sheet of squared paper with, on the left-hand side, circles placed in certain precise places on the squares, and the right-hand side left blank.</p> <p>A set of large and small stickers (like those found in the model) for each pupil.</p>	
Task	<p>The pupils will stick the same pastilles (or stickers) in the squares on the right as those in the squares on the left, keeping exactly to the same dimensions and places.</p>	
Comments	<p>The pupils can look for a simple way of assessing the precision of their work compared to the pattern. The teacher will suggest that they work in twos with their two worksheets. The method in question is for them to look at their work placed over the model on the page of another pupil, up against the light.</p>	
Variations (examples)	<p>The teacher can suggest that the pupils invert the layout of each pattern. It then becomes interesting to compare the ways in which each pupil interprets the inversion, as it can be taken lengthways or widthways for the second and fourth squares. The pupils should notice that for the other squares, the shapes are centred and therefore cannot be inverted.</p>	
Individualisation	<p>Yes.</p>	
Answers	<p>Yes.</p>	

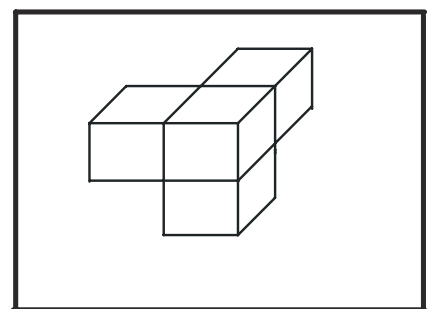
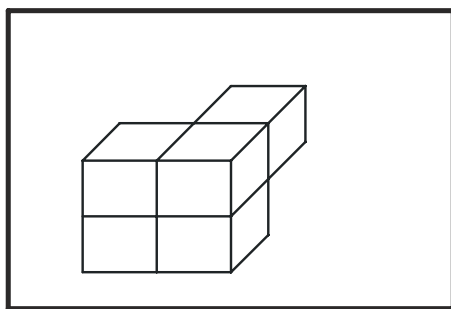
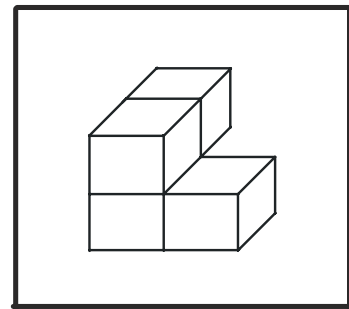
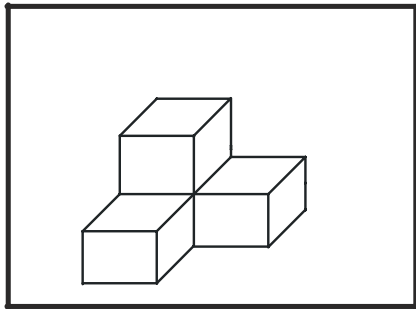
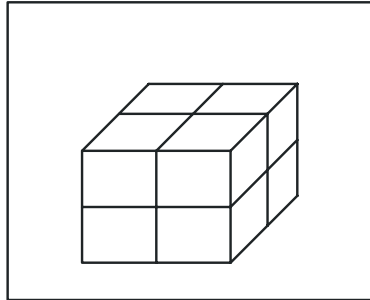


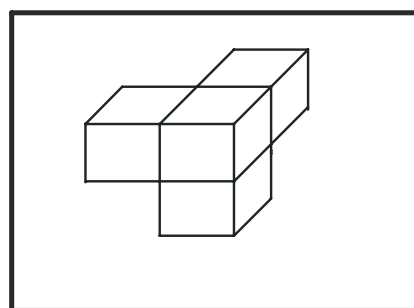
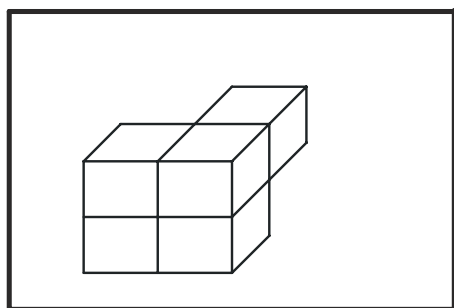
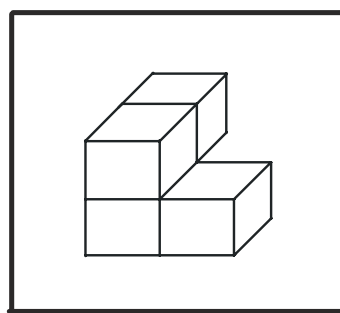
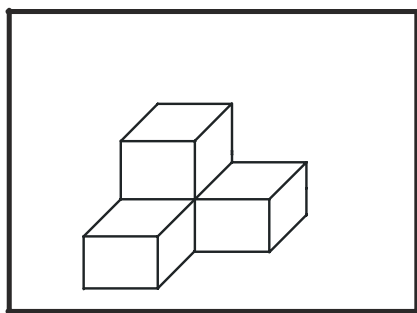
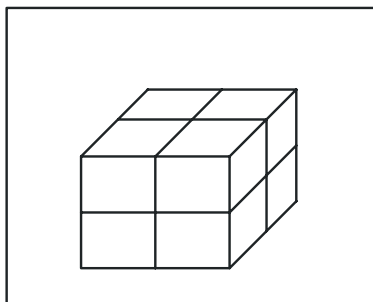


WORK IT OUT	Locate - Manipulate “Shapes”	4-13 Level 1 Exercise 3
Aims	<ul style="list-style-type: none"> - Practise differentiating shapes by their form and position. - Work on notions of left/right and row/column. - Obey instructions given orally. 	
Applications (examples)	<p><u>In class</u>: any exercise consisting in recognising a simple shape and being able to identify a shape by its position in a space or in relation to other shapes.</p> <p><u>At work</u>: introduction to geometry plane, to move on from imitation to the beginnings of autonomy. Any activity requiring oral instructions to be understood quickly, possibly even by telephone.</p> <p><u>In everyday life and for leisure</u>: find it easier to follow instructions given orally (by the supplier of a machine, a delivery man, a repairman, etc.).</p>	
Materials	<p>A page with simple geometric shapes.</p> <p>A set of coloured stickers for each pupil.</p>	
Task	<p>The teacher will state the exact position where the pupils have to stick the stickers, for example:</p> <ul style="list-style-type: none"> - place a red sticker in the square in the second row - place a blue sticker under the triangle pointing towards the left - etc. 	
Comments	<p>If the pupils find it difficult to identify the shapes by their names, the teacher can specify exactly where the shape is in the row. For example: place a green sticker just above the third shape in the second row.</p> <p>The teacher can also help the pupils to learn the names of the various shapes shown, but only after having done the exercise as suggested above, so as not to mix problems of comprehension and location. The exercise can then be done again using the names of the shapes.</p>	
Variations (examples)	<p>The teacher can suggest that the pupils take part in explaining the task by taking turns to think of and describe a place and sticker colour for the group. The teacher will then write down what was said in order to read what was asked for when pooling the pupils' answers.</p>	
Individualisation	<p>Yes.</p>	
Answers	<p>No.</p>	

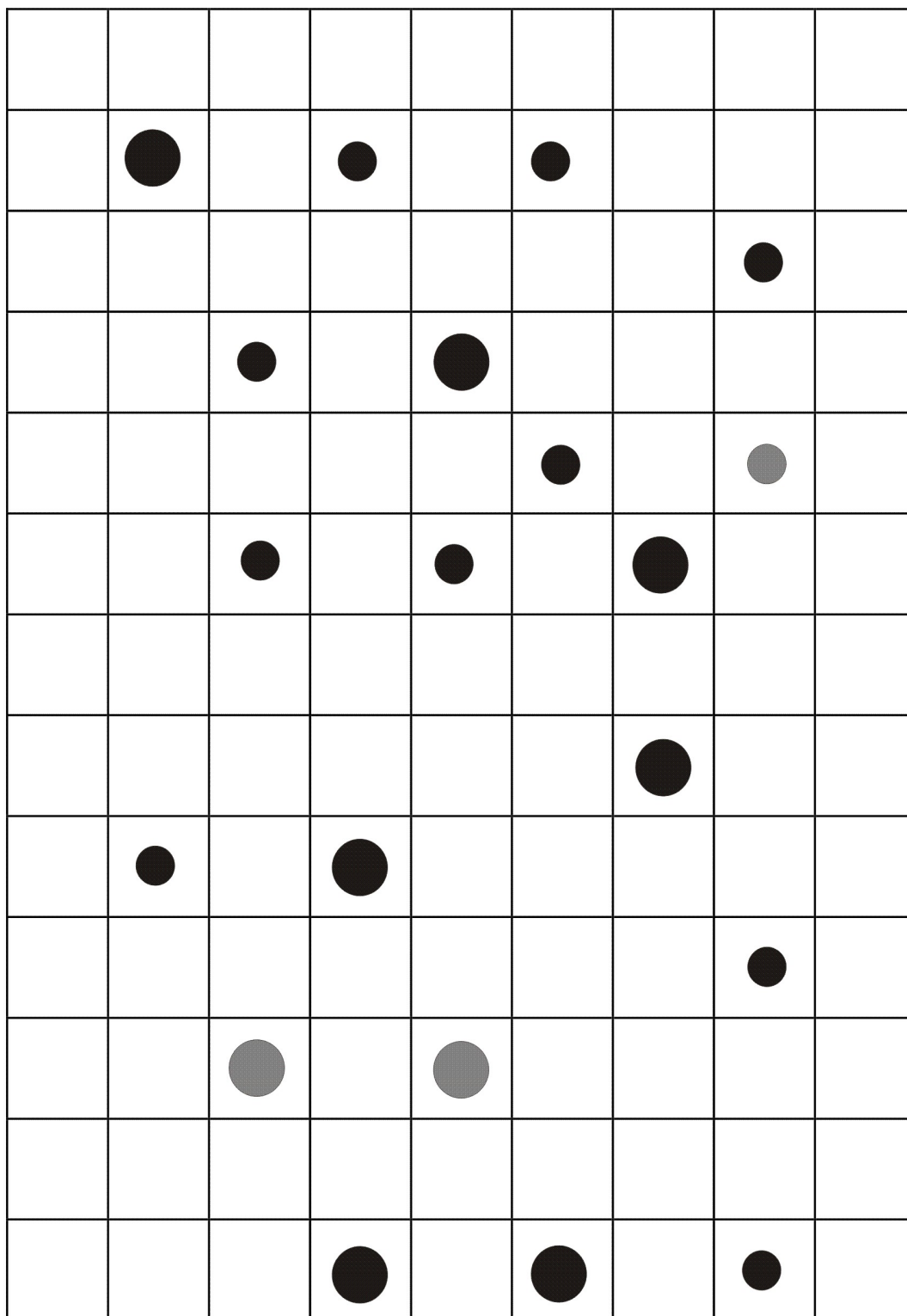


Aims	<ul style="list-style-type: none">- Do mental operations.- Recognise geometric shapes.- Compare.- Reconstruct.
Applications (examples)	<p><u>In class</u>: any exercise consisting in recognising a simple shape and being able to identify a shape by the place it occupies in a space or in relation to others. Initiation in solid geometry, angles and complementary shapes in plane geometry.</p> <p><u>At work</u>: any job in packing and packaging, warehousing (putting merchandise on shelves), assembly of any kind.</p> <p><u>In everyday life and for leisure</u>: arranging storage space (cupboards and kitchen), loading the car before going on holiday, particularly for using the space between the seats, or underneath... Putting foodstuffs in the refrigerator, putting purchases in bags at the supermarket, etc.</p>
Materials	A page with: <ul style="list-style-type: none">- a geometric shape at the top of the page- 4 parts that might belong to this geometric shape.
Task	The pupils have to find the two parts which, when fitted one into the other, form the complete geometric shape shown at the top of the page.
Comments	When the results are pooled, the pupils can explain how they proceeded. The explanations for this type of exercise are not easy to formulate. The teacher will therefore encourage the pupils to find ways of explaining to make themselves understood as well as possible (using pictures, comparison, etc.).
Variations (examples)	The teacher can suggest that the pupils work out and then try and draw the part that would complete each of the two figures that were not chosen.
Individualisation	Yes.
Answers	Yes.





<i>Aims</i>	<ul style="list-style-type: none">- Practice in centring.- Find your bearings.- Be able to follow oral instructions.
<i>Applications (examples)</i>	<p><u>In class</u>: any exercise consisting in recognising a simple shape identifying a shape by its position in a space, in relation to others. Any situation consisting in receiving and implementing detailed instructions.</p> <p><u>At work</u>: any task consisting in completing (a table, a form) or taking up a task that has already been started.</p> <p><u>In everyday life and for leisure</u>: talk on the telephone about a project or a diagram. Greater ease in following instructions given orally (by the supplier of a machine, a deliveryman, or a repairman, etc.).</p>
<i>Materials</i>	<p>A page with squares in which there are black or grey circles of two different sizes and some squares left blank.</p> <p>One set of stickers of the same size for each pupil.</p>
<i>Task</i>	<p>The teacher asks the pupils to stick stickers of one colour depending on the circles on the page and to centre them as well as possible in the squares. For example:</p> <p>Stick a red sticker between two striped circles.</p>
<i>Comments</i>	<p>Instead of stickers, the pupils can draw shapes specified by the teacher (for example: draw a triangle between two small black circles, etc.)</p> <p>Make sure they know the vocabulary that will be used in the instructions for the collage, such as black circles, grey circles, small circles, large circles.</p>
<i>Variations (examples)</i>	<p>The teacher can suggest to the pupils that each one takes turns to give an instruction giving the place to stick the sticker and the colour to be used. The teacher will have to note down what is said, to be able to reread it during the pooling of the results.</p>
<i>Individualisation</i>	Yes.
<i>Answers</i>	No.



WORK IT OUT		Locate - Manipulate “Countdown”	4-23 Level 2 Exercise 3
Aims	<ul style="list-style-type: none"> - Practise locating with notions of “left/right” and “top/bottom”. - Beginning reading a double entry table. - Identification of the letters of the alphabet and numbers. 		
Applications (examples)	<p><u>In class</u>: receive and implement instructions, learn to recognise numbers and letters and the way they are written. Learn precision. Pass from the stage where one is <i>shown</i> a task to the stage where one is <i>asked</i> to accomplish a task.</p> <p><u>At work</u>: receive and implement instructions, learn to recognise numbers and letters and the way they are written. Learn precision. Pass from the stage where one is <i>shown</i> a task to the stage where one is <i>asked</i> to accomplish a task.</p> <p><u>In everyday life and for leisure</u>: start to enjoy board games using grids, numbers or letters. Read a double entry table, such as a train timetable. Any needlework requiring the copying of a pattern.</p>		
Materials	<ul style="list-style-type: none"> - A page with blank squares: 5 horizontal and 7 vertical. - A sheet of letters to trace (capitals and then perhaps small letters) and/or a sheet of numbers to trace for each pupil. 		
Task	<p>The teacher asks the pupils to trace a letter or a number in a certain square identified by its position on the right or left, and at the top or bottom.</p> <p>For those pupils who do not know the names of the letters or numbers, the teacher, will write them on the board as he says them.</p> <p>The exercise can be done:</p> <ol style="list-style-type: none"> 1. with capital letters (easier to trace) 2. with small letters 3. with numbers <p>NB The teacher will make sure not to mix the small or capital letters in the same exercise, nor letters and numbers, for the pupils with literacy problems.</p>		
Comments	<p>For the many people who confuse their left and right, it is advisable not to mix the two in the same exercise, but to give only the right, for example, then only the left the next time the same (type of) exercise is done one or two weeks later.</p> <p>The pupils who have no problems with the alphabet and numbers can write what is asked by hand, rather than trace the letters and numbers.</p>		
Variations (examples)	<p>The teacher can suggest that the pupils take turns to give a letter or a number and to explain where it must be traced. The teacher will have to write down what is said in order to reread it during the pooling of results.</p>		
Individualisation	Yes.		
Answers	No.		

WORK IT OUT	Locate - Manipulate “Layout”	4-31 Level 3 Exercise 1
Aims	<ul style="list-style-type: none"> - Manipulate. - Recognise geometric shapes. - Compare. - Reconstruct. - Locate different elements in a model and reproduce the model. - Check that the work is in accordance with a model. 	
Applications (examples)	<p><u>In class</u>: any exercise consisting in recognising a simple shape and being able to identify a shape by the place it occupies in a space or in relation to others. Initiation in solid geometry, angles and complementary shapes in plane geometry.</p> <p><u>At work</u>: any job in packing and packaging, warehousing (storage), assembly of all sorts.</p> <p><u>In everyday life and for leisure</u>: arranging storage space (cupboards and kitchen), loading the car before going on holiday, particularly for using the space between the seats, or underneath... Putting foodstuffs in the refrigerator, putting purchases in bags at the supermarket, etc.</p>	
Materials	<ul style="list-style-type: none"> - A page on which is shown a layout for a magazine article, with the different boxes. - A blank page to do the work. - A pencil, a rubber and a ruler for each pupil, and the teacher can perhaps have to hand a stock of tubes of glue, scissors and blank paper or cardboard. 	
Task	<p>The pupils must reconstruct on a blank page the layout of the magazine article exactly as it is shown in the model. The written indications must also be reported. Those pupils have difficulty writing can shade the part that corresponds to the writing on their page.</p>	
Comments	<p>The pupils can find any way that they find efficient to reproduce the model as exactly as possible, for example by cutting out on one page the blocks corresponding to the different boxes and placing them on the blank page, then sticking them in place.</p> <p>To check the exactness of the work, the two pages can be placed one on top of the other in front of a light source (a checking method that the pupils are encouraged to find for themselves).</p>	
Variations (examples)	<p>The teacher can suggest that the pupils think of another layout using the same boxes. Similarly, one variation can be in the types of character used (size, type, bold, italics, etc.) and the layout of a page from a newspaper or magazine can be commented on with all the information collected on the arrangement of the blocks and characters.</p>	
Individualisation	Yes.	
Answers	No, the model gives the answer.	

Title of the article

Title of the column

Photo of the monkey in the tree

*Photo of the monkey
with the man*

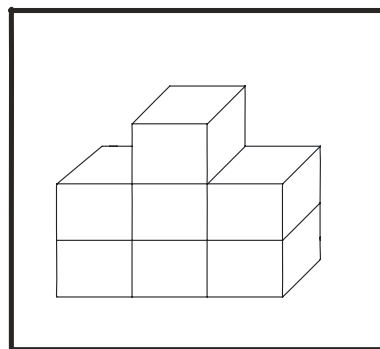
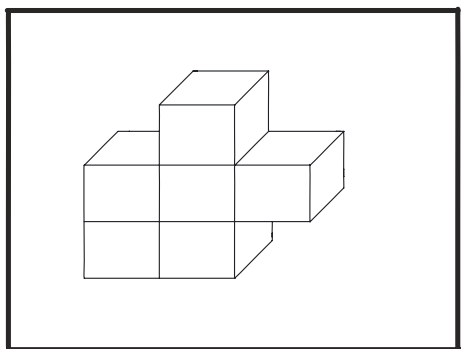
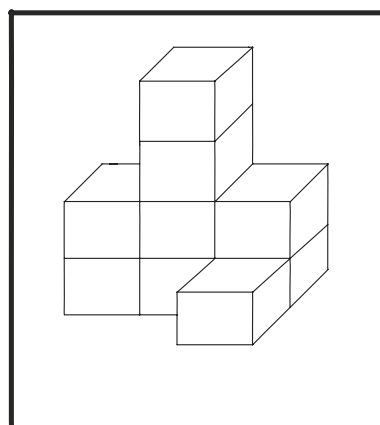
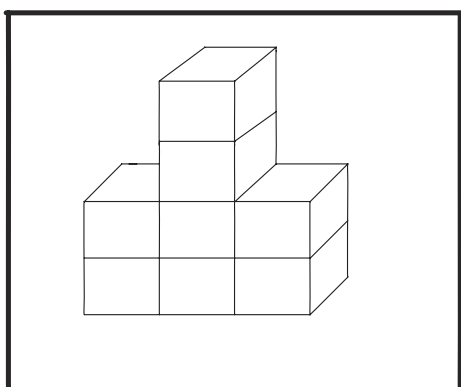
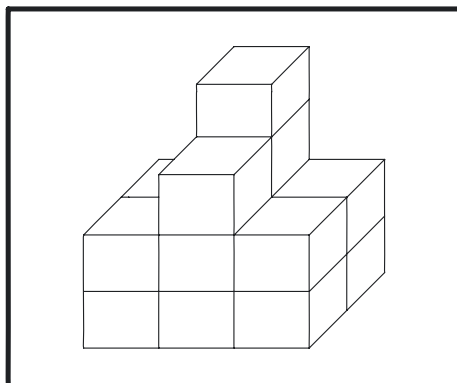
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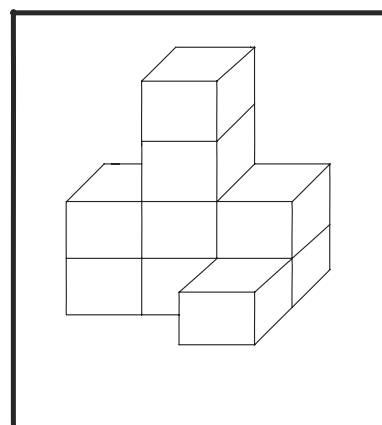
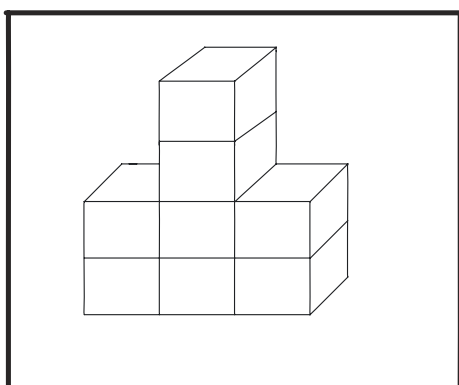
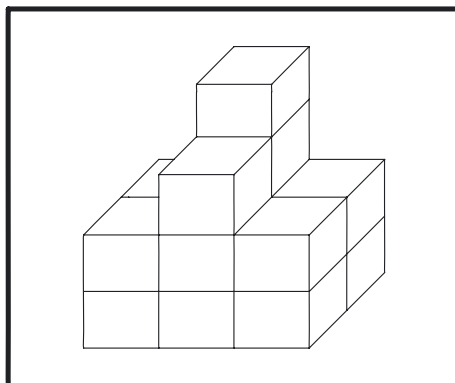
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Photo of the monkey alone

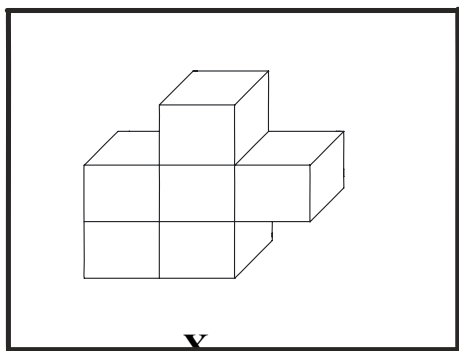
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WORK IT OUT	Locate - Manipulate “Fitting cubes together”	4-32 Level 3 Exercise 2
Aims	<ul style="list-style-type: none"> - Mental manipulation. - Recognise geometric shapes. - Compare. - Reconstruct. 	
Applications (examples)	<p><u>In class</u>: any exercise consisting in recognising a simple shape and being able to identify a shape by the place it occupies in a space or in relation to others. Initiation in solid geometry, angles and complementary shapes in plane geometry.</p> <p><u>At work</u>: any job in packing and packaging, warehousing (storage), assembly of all sorts.</p> <p><u>In everyday life and for leisure</u>: arranging storage space (cupboards and kitchen), loading the car before going on holiday, particularly for using the space between the seats, or underneath... Putting foodstuffs in the refrigerator, putting purchases in bags at the supermarket, etc.</p>	
Materials	<p>A page with:</p> <ul style="list-style-type: none"> - a geometric shape at the top of the page - 4 parts that might belong to this geometric shape. 	
Task	<p>The pupils have to find the two parts which, when fitted one into the other, form the complete geometric shape shown at the top of the page.</p>	
Comments	<p>When the results are pooled, the pupils can explain how they proceeded. The explanations for this type of exercise are not easy to formulate. The teacher will therefore encourage the pupils to find ways of explaining to make themselves understood as well as possible (using pictures, comparison, etc.).</p> <p>If the exercise seems too difficult, it is advisable to do the similar exercise in level 2 first: code 4-21.</p>	
Variations (examples)	<p>The teacher can suggest that the pupils work out and then try and draw the part that would complete each of the two figures that were not chosen.</p>	
Individualisation	<p>Yes.</p>	
Answers	<p>Yes.</p>	

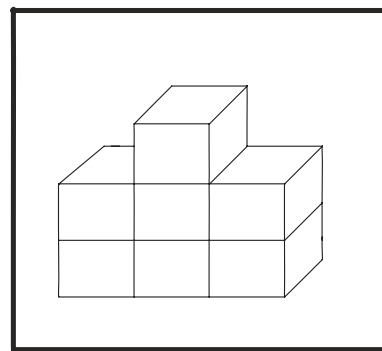




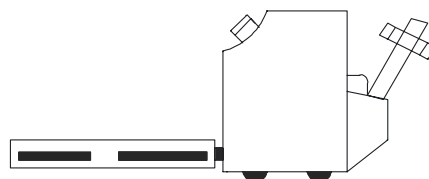
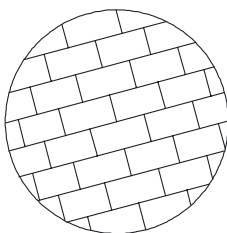
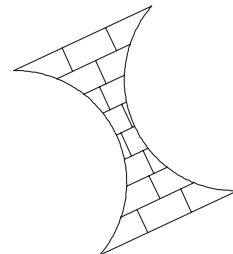
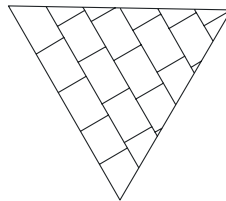
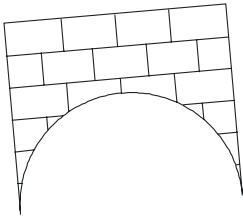
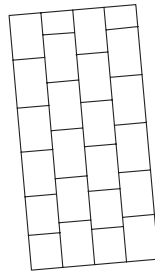
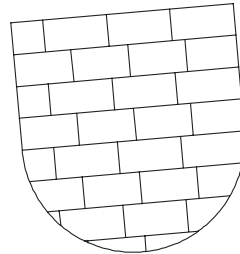
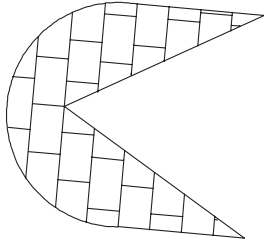
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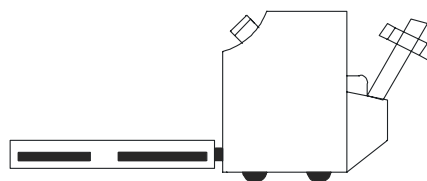
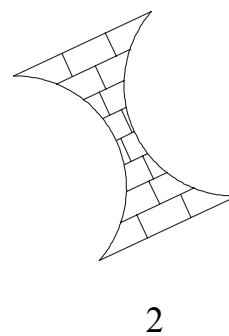
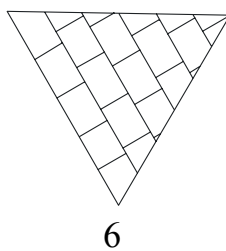
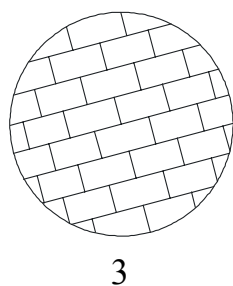
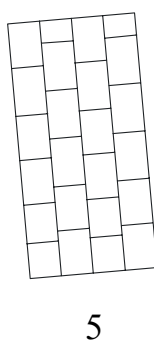
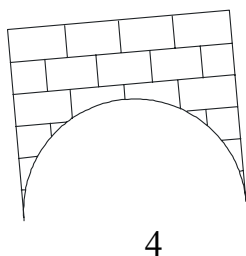
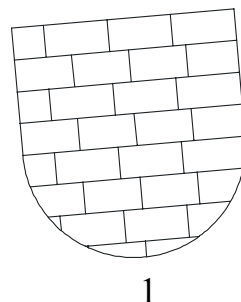
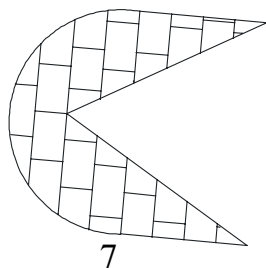


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<div> <div>WORK IT OUT</div> <div> Locate - Manipulate “Load up!” </div> <div> 4-33 Level 3 Exercise 3 </div> </div>	
Aims	<ul style="list-style-type: none"> - Mental manipulation. - Recognise geometric shapes. - Compare. - Reconstruct - Combine.
Applications (examples)	<p><u>In class</u>: understand the wording of a problem and, sometimes, its ambiguities. Know that, unlike what most people think, the value of a sum is not independent from the order of its terms. Beginning mechanics, and also methodology: in this exercise there are open choices (placing the rounded forms and the flat ones) and a narrower choice (the triangle).</p> <p><u>At work</u>: Loading and stowing jobs, but also understanding mechanical movement (rotation, sliding, blocking). Organisation, safety. Looking for different possibilities of arranging to answer any other possible criteria.</p> <p><u>In everyday life and for leisure</u>: any activity concerning storage, loading or stowage. Cookery procedures in which a certain order has to be respected.</p>
Materials	A page with drawings of different shapes and an electric pallet truck.
Task	The pupils will write numbers from 1 to 7 under the different shapes in the order in which they could be placed one on top of the other on the pallet truck without collapsing.
Comments	<ul style="list-style-type: none"> - Although the drawings do not show it, it is supposed that the different shapes are in perspective and have a certain volume; they are, for example, parts of buildings. However, nothing of this is specified, and the pupils can just as well imagine that they are flat boards used as props in a theatre, for example. The teacher will decide if the group should first agree on what the drawings represent or if he will leave them to interpret the shapes. - The tray of the pallet truck is intentionally a little short for the rectangular load. The pupils can therefore think about problems of safety. - What would be a good way to check the solution(s)? (The pupils can cut out the shapes and pile them on the pallet truck like a sort of puzzle.)
Variations (examples)	How would it be possible to place the shapes on the pallet truck if they were flat theatre props, with no volume?
Individualisation	Yes.
Answers	Yes, but several solutions are possible.

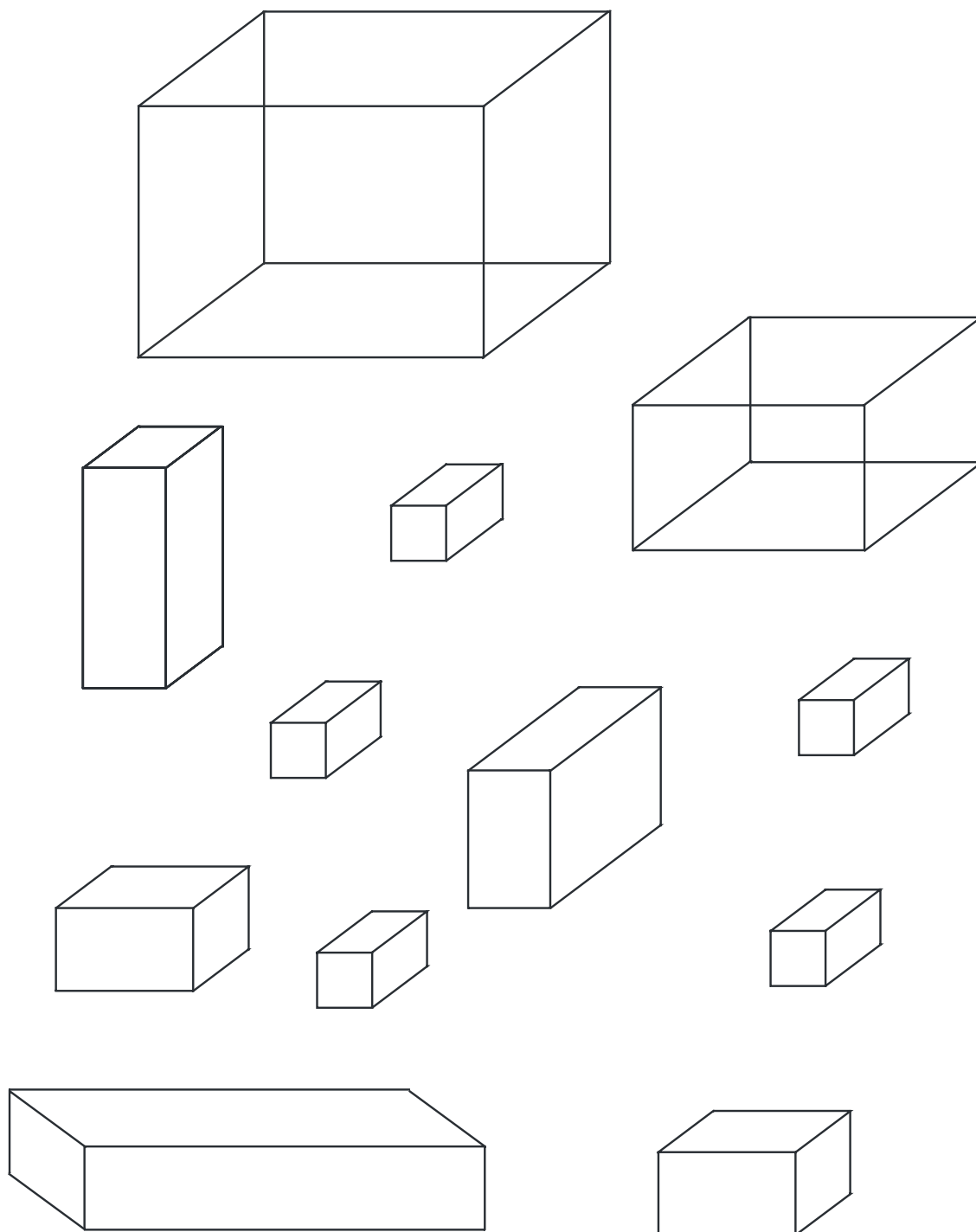




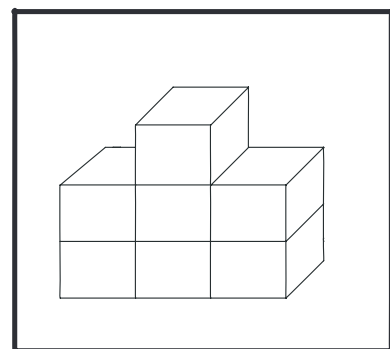
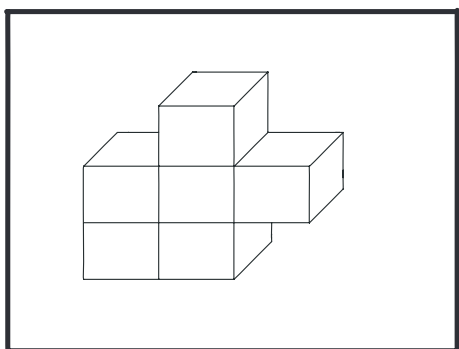
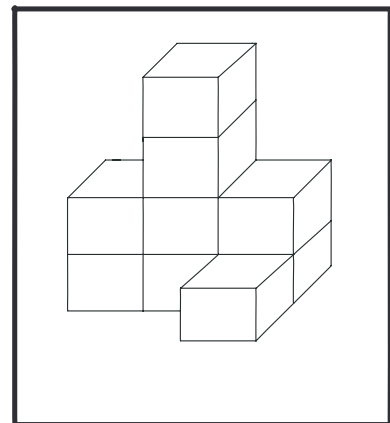
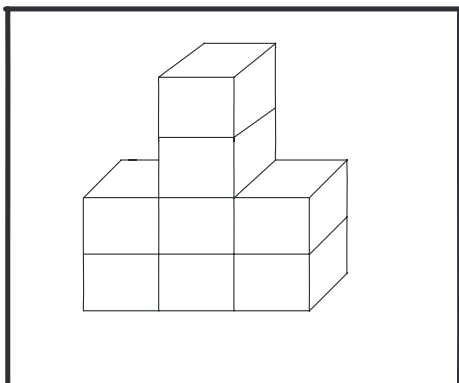
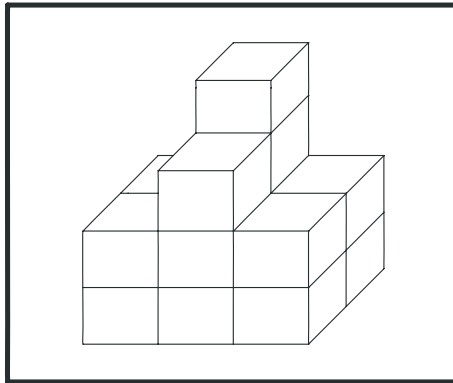
WORK IT OUT	Locate - Manipulate “Washing up!”	4-41 Level 4 Exercise 1
Aims	<ul style="list-style-type: none"> - Mental manipulation. - Recognise geometric shapes. - Compare. - Combine. - Take into account the shape, the volume and the material of the objects shown. - Learn about the movement of fluids (air and water). 	
Applications (examples)	<p><u>In class</u>: see that, unlike what people think, a sum is not independent of the elements which go to make it up. Preparation for arithmetic (using concrete examples). Civic education: thoughts on fragility.</p> <p><u>At work</u>: anything concerning storage or packaging, with an additional criterion of fragility/solidity, of utensils, but also of one's hands.</p> <p><u>In everyday life and for leisure</u>: anything concerning storage, to which could be added:</p> <ul style="list-style-type: none"> - a criterion of fragility/solidity, of utensils, but also of one's hands, when one tries to feel for a knife, a fork or a broken glass. - a criterion concerning the movement of fluid: air, when filling the sink (to avoid the saucepan floating, for example, or water, when emptying the sink, so that the utensils can empty without leaving pools). - Also taking into account the operation that follows on naturally, (washing up) requiring setting out the utensils vertically, like books on a shelf. 	
Materials	A page showing different kitchen utensils, and a sink. The drawings are shown in proportion to each other and in perspective.	
Task	<p>The pupils must write numbers under the utensils used for the meal to indicate in which order they would pile them up in the sink while waiting to wash them. Number 1 indicates the object placed first in the sink. All the objects are considered breakable except the cutlery, the ladle, the saucepan with its lid, and colander.</p> <p>All the objects must be placed in the sink so as to avoid any risk of breakage, or of the pile collapsing.</p> <p>It could be supposed that water could then be run into the sink so that some or all of the objects can be left to soak.</p>	
Comments	The exercise can give rise to a discussion about the fragility of some materials and objects shown.	
Variations (examples)	The pupils can replace some of the objects shown by other utensils, and do the exercise again with the new objects.	
Individualisation	Yes.	
Answers	No, several solutions are possible.	

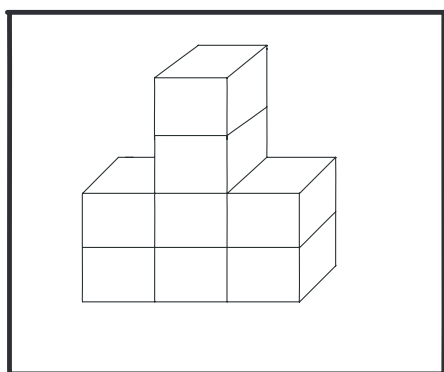
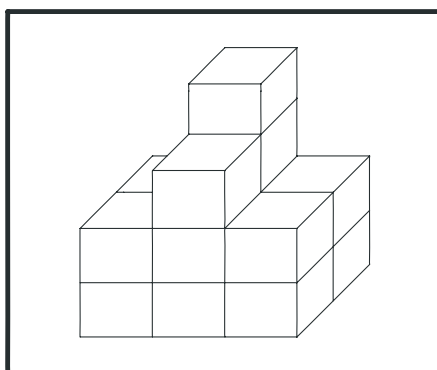


<i>Aims</i>	<ul style="list-style-type: none">- Mental manipulation.- Compare.- Begin notions of perspective, rotation and inclusion.- Begin to make estimates.- Practise finding working methods.
<i>Applications (examples)</i>	<p><u>In class</u>: any job consisting in adding, or manipulating notions of volume and area, sets and subsets, even tree diagrams.</p> <p><u>At work</u>: storage and stowage (of vehicles for example), loading (for example filling a tray for a waiter in a café). Any task that implies making a choice between different hypotheses.</p> <p><u>In everyday life and for leisure</u>: load a tray to lay or clear the table, fill the boot of a car, put food in the fridge; store things in the cellar, attic and cupboards.</p>
<i>Materials</i>	A page showing 9 pieces of wood and two large boxes drawn to the same scale, in perspective.
<i>Task</i>	The pupils must put as many pieces of wood as possible into the boxes, given that both boxes are empty.
<i>Comments</i>	The pupils can of course use a ruler to help them.
<i>Variations (examples)</i>	The criterion “as many pieces of wood as possible” can be replaced by “the biggest pieces of wood”.
<i>Individualisation</i>	Yes.
<i>Answers</i>	No, there are too much possibilities.

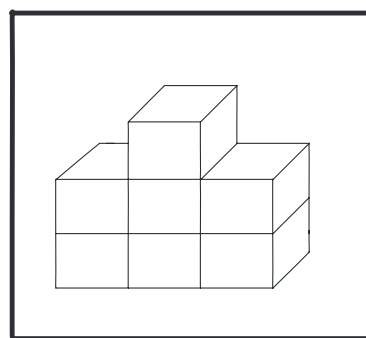
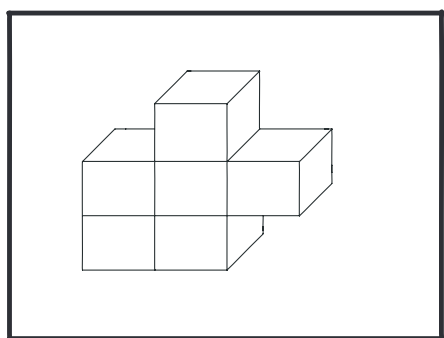
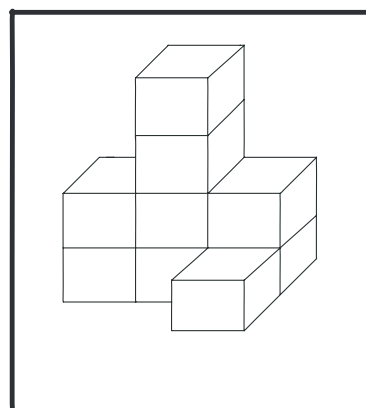


WORK IT OUT	Locate - Manipulate “Reconstructing cubes”	4-43 Level 4 Exercise 3
Aims	<ul style="list-style-type: none"> - Mental manipulation. - Recognise geometric shapes. - Begin notions of perspective. - Compare. - Reconstruct. 	
Applications (examples)	<p><u>In class</u>: any exercise consisting in recognising a simple shape and being able to identify a shape by the place it occupies in a space or in relation to others. Initiation in solid geometry, angles and complementary shapes in plane geometry.</p> <p><u>At work</u>: any job in packing and packaging, warehousing (putting merchandise on shelves), assembly of any kind.</p> <p><u>In everyday life and for leisure</u>: arranging storage space (cupboards and kitchen), loading the car before going on holiday, particularly for using the space between the seats, or underneath... Putting foodstuffs in the refrigerator, putting purchases in bags at the supermarket, etc.</p>	
Materials	<p>A page with:</p> <ul style="list-style-type: none"> - a geometric shape at the top of the page - 4 parts that might belong to this geometric shape. 	
Task	The pupils have to find the two parts which, when fitted one into the other, form the complete geometric shape shown at the top of the page.	
Comments	<p>When the results are pooled, the pupils can explain how they proceeded. The explanations for this type of exercise are not easy to formulate. The teacher will therefore encourage the pupils to find ways of explaining to make themselves understood as well as possible (using pictures, comparison, etc.).</p> <p>If the exercise seems too difficult, it is advisable to do the similar exercise in level 2 first: code 4-21.</p>	
Variations (examples)	The teacher can suggest that the pupils work out and then try and draw the part that would complete each of the two figures that were not chosen.	
Individualisation	Yes.	
Answers	Yes.	





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