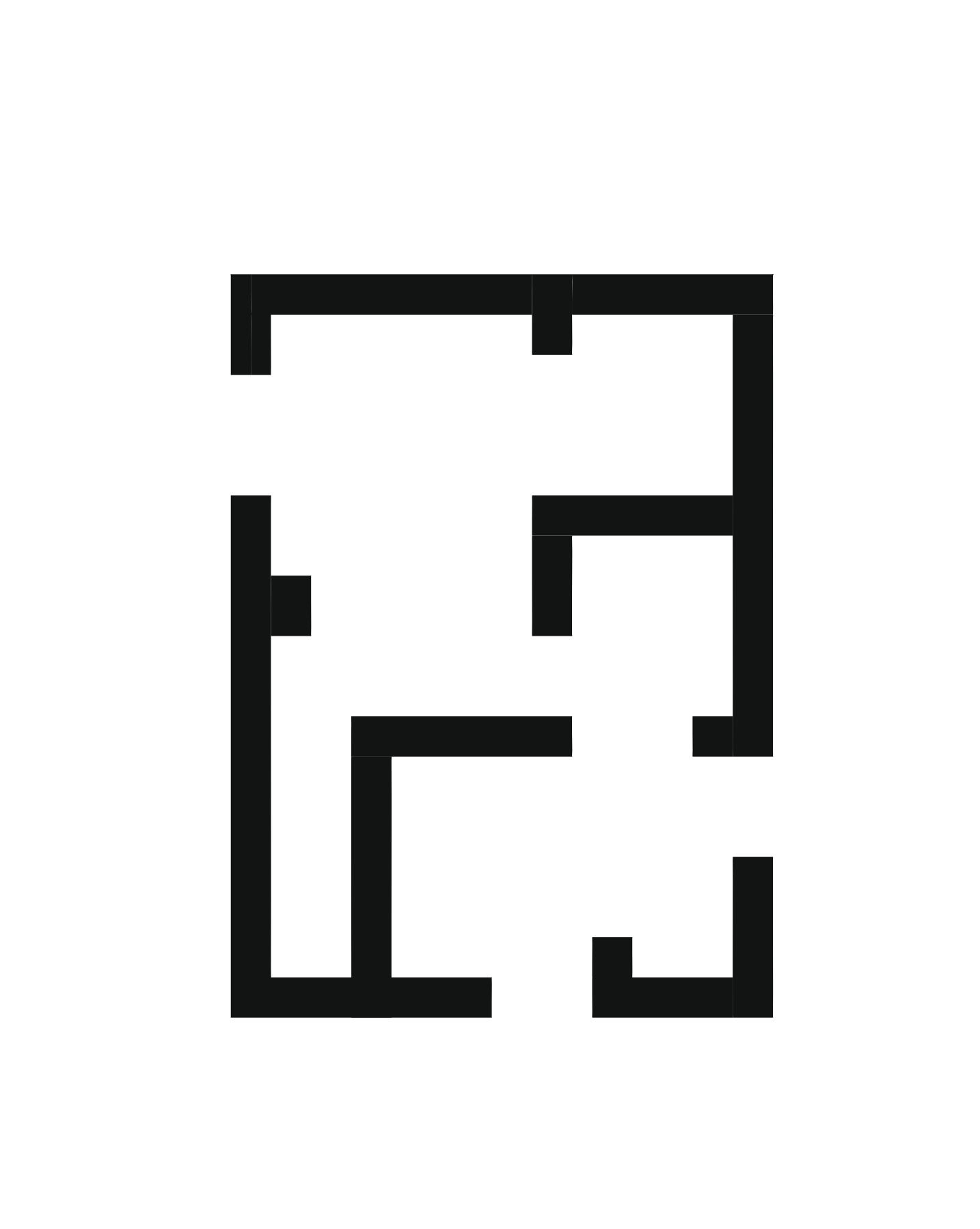
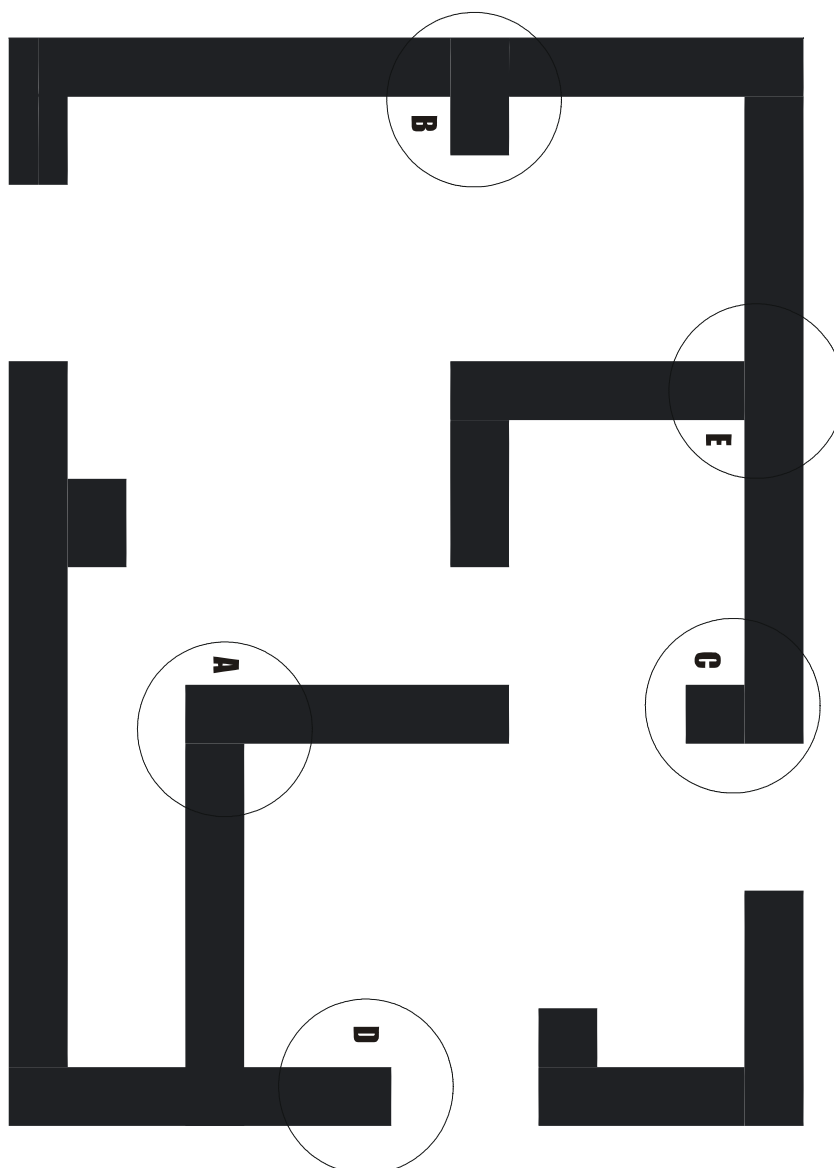


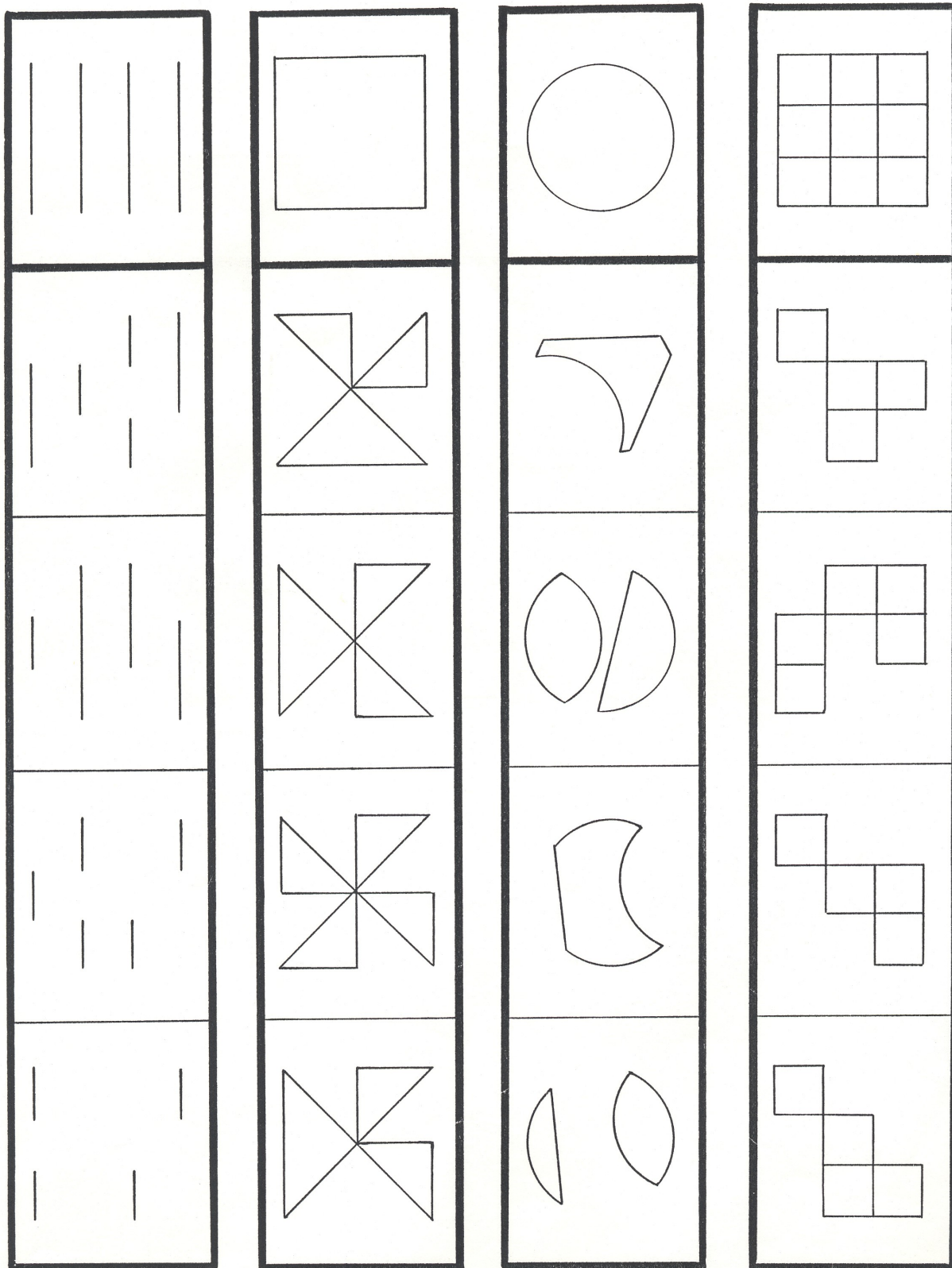
WORK IT OUT	Reconstruction "The walls"	18-11 Level 1 Exercise 1
Aims	<ul style="list-style-type: none"> - Practising reconstitution skills. - Practising noticing details. - Practising going from a plan view to a perspective view. 	
Applications (examples)	<p><u>In class</u>: anything involving going from the whole to details, as well as recognising the same thing from different view points and presentations: from an algebra problem to an equation, from reality to a drawing, from a plan of the school to the classroom and the staircase.</p> <p><u>At work</u>: using plans; being aware of details (for example in building, gardening, engineering).</p> <p><u>In everyday life and leisure</u>: anything to do with plans: assembling flat pack furniture, instruction booklets, DIY.</p>	
Materials	<p>Two sheets of paper with:</p> <ol style="list-style-type: none"> 1. The plan of the walls of a house; 2. Different configurations of walls. 	
Instructions	<p>On the first sheet, the students have to circle each place corresponding to a wall configuration given on the second sheet. They have to write the letter corresponding to the wall configuration in the circle.</p>	
Comments	<p>Some students may be discouraged by the plan of the walls of the house because it is too abstract for them. The teacher can help them to imagine looking at a house without a roof from a plane.</p>	
Variations (examples)	<ol style="list-style-type: none"> 1. As the exercise may seem difficult because of the perspective drawings, the teacher could ask the students to draw the details of the walls without perspective. This is easy when one has completed the exercise using the plan of the house. 2. This exercise could also be used in the context of "Learning about perspective and movements", 22 as a first exercise at level 1. 	
Individualisation	<p>Yes.</p>	
Answers	<p>Yes, as an example.</p>	

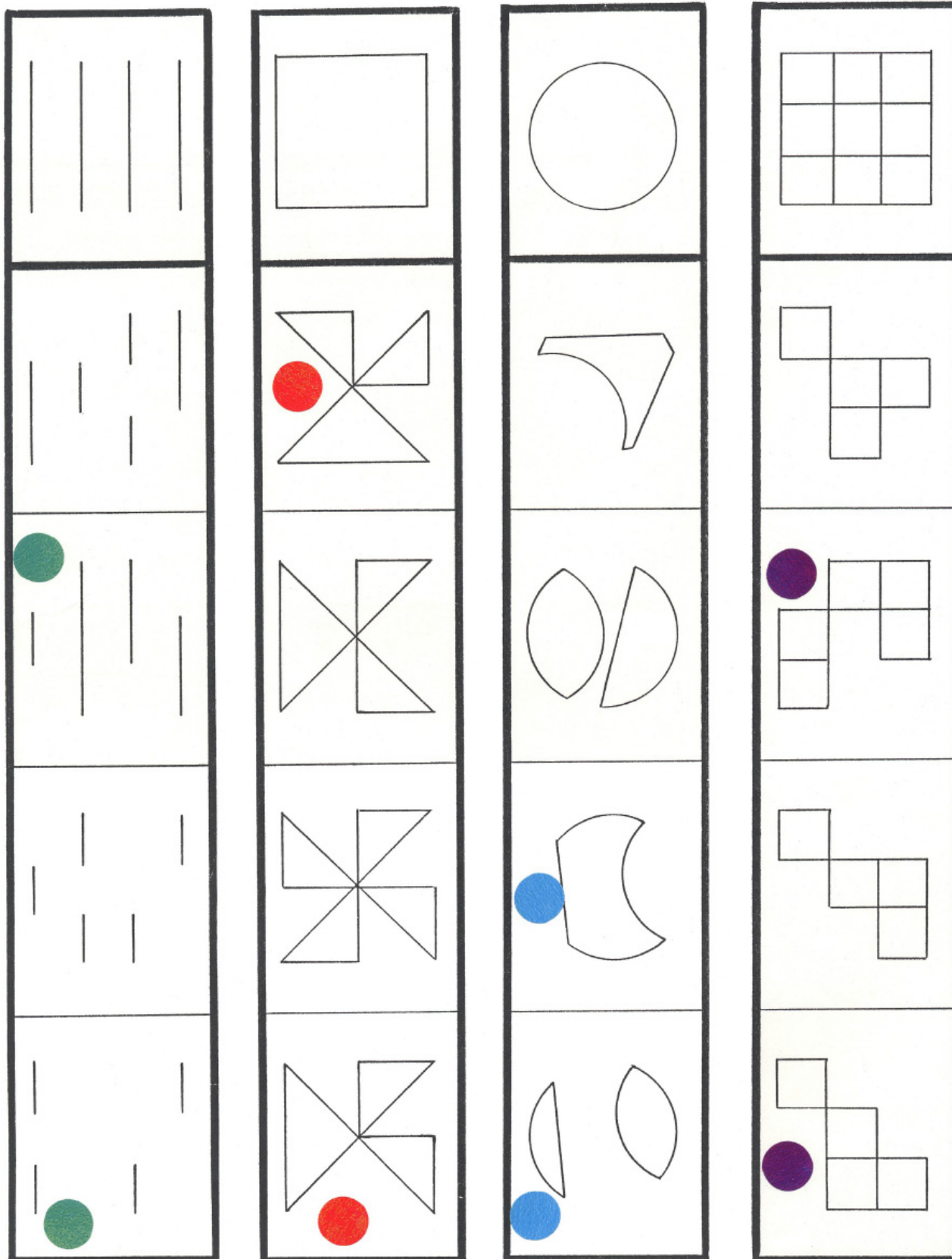




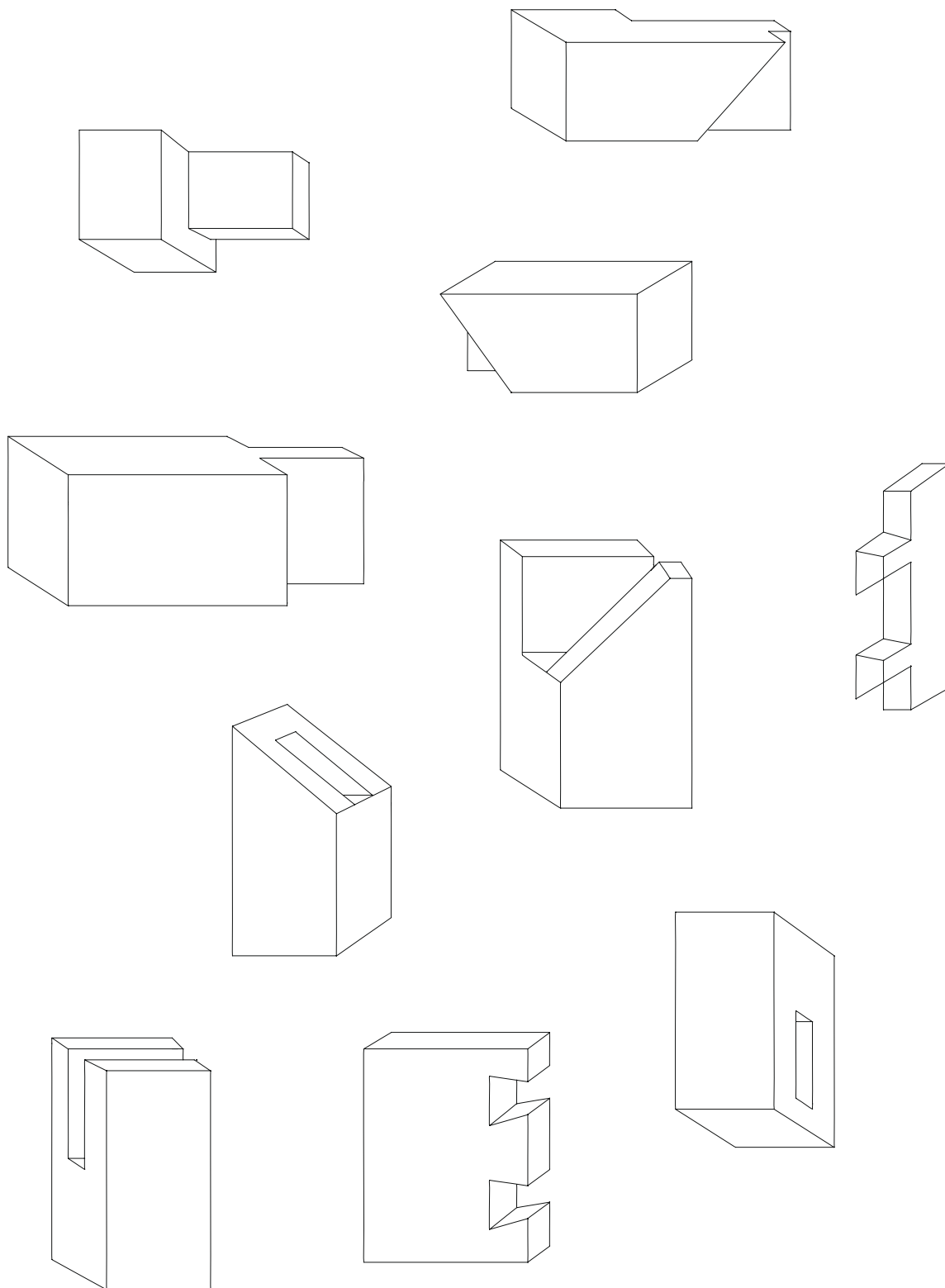
**WORK IT
OUT****Reconstruction
"Shapes"****18-12**
Level 1
Exercise 2

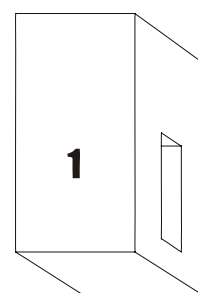
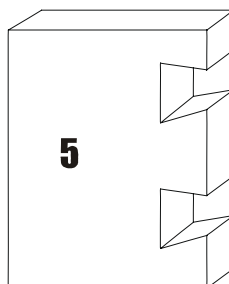
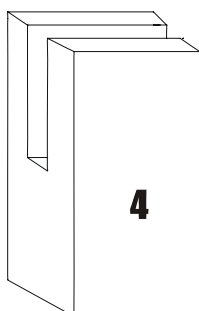
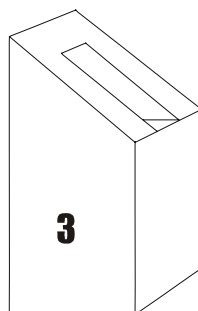
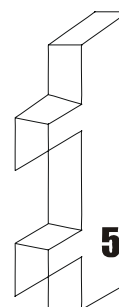
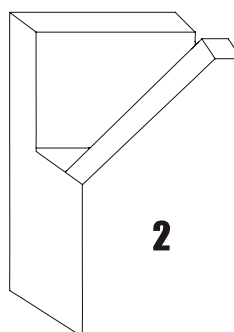
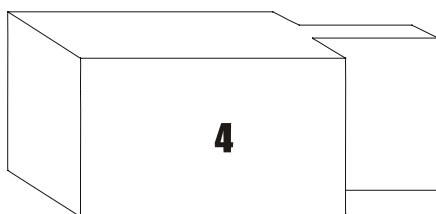
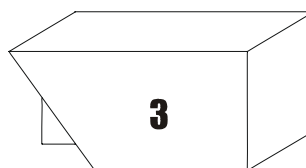
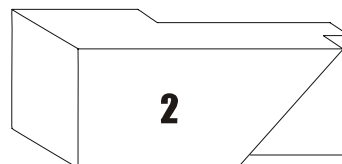
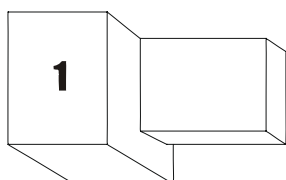
<i>Aims</i>	<ul style="list-style-type: none">- Practising visualising one shapes on top of another.- Practising comparing and combining.- Practising discriminating.- Practising finding bearings so as to construct a shape from its elements.
<i>Applications (examples)</i>	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...)</p> <p><u>At work</u>: any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry).</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting.</p>
<i>Materials</i>	A sheet of paper with 4 series of shapes. The first shape in each series is the complete one, to be built out of two of the four remaining shapes.
<i>Instructions</i>	The students have to select in each row the two shapes which make the first shape in the row, once they are put on top of each other.
<i>Comments</i>	<p>The students may be put off by the complexity of the four rows of shape, in which case the teacher could cut out each row and present them one by one. The teacher could also ask the group to discuss possible methods for reconstructing the first shape.</p> <p>The shapes could also be cut out to allow for demonstration of strategies and results during the group report.</p>
<i>Variations (examples)</i>	<ol style="list-style-type: none">1. The learners could explain to the group their strategy to solve a jigsaw puzzle, which gives the extra clue of colour.2. The teacher could ask the learners (alone or in pairs) to make a jigsaw puzzle made, for example, from four pieces only. These puzzles can of course be presented to the group, but what is interesting here is the reasoning and strategies behind the manufacture, including checking that the puzzle is functional.
<i>Individualisation</i>	Yes.
<i>Answers</i>	Yes.





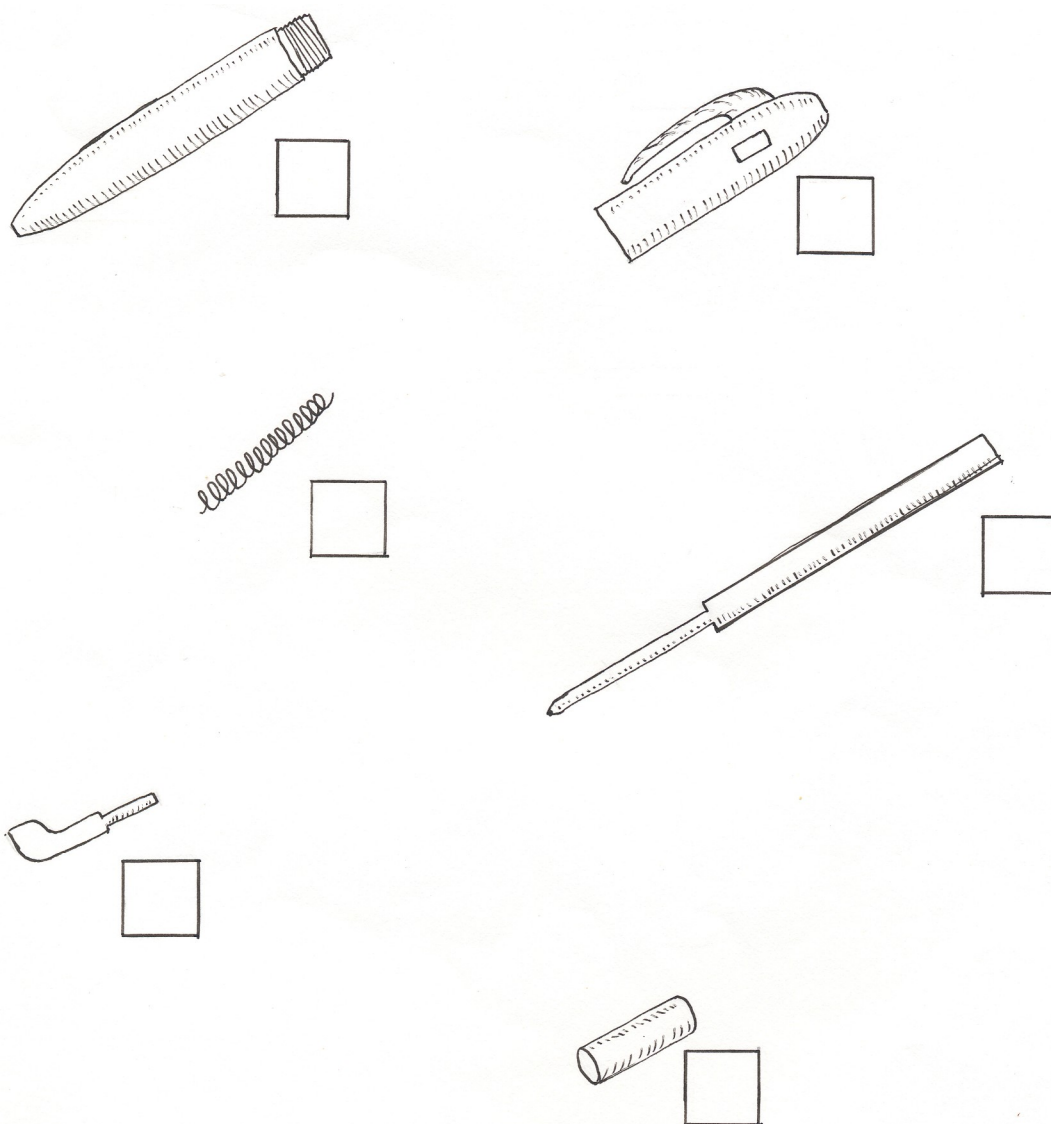
WORK IT OUT	Reconstruction "Wood blocks"	18-13 Level 1 Exercise 3
Aims	<ul style="list-style-type: none"> - Practising observing and comparing. - Practising reconstructing and associating. - Practising the visual manipulation of 3-D volumes. 	
Applications (examples)	<p><u>In class:</u> any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...)</p> <p><u>At work:</u> any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry).</p> <p><u>In everyday life and leisure:</u> any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting.</p>	
Materials	A sheet of paper with drawing of blocks of wood with parts that stick out or holes,	
Instructions	The students, using a code of their choice, have to pair the blocks that fit into each other to form the angle of a frame.	
Comments	The students can cut out the drawings to manipulate them if they wish. However, they will realise that with those 3-D objects manipulation is only useful to put the blocks the right way round and does not help when trying to fit the blocks together..	
Variations (examples)	<p>1. This exercise could also be used in the context of "Learning about perspective and movements", 22 as an exercise at level 1.</p> <p>2. The drawings in the exercise are reminiscent of the assembling instructions for some flat-pack furniture, with parts that fit inside others. The students could therefore bring some assembling instructions for flat-pack furniture and look for instances of parts fitting inside others.</p>	
Individualisation	Yes.	
Answers	Yes.	

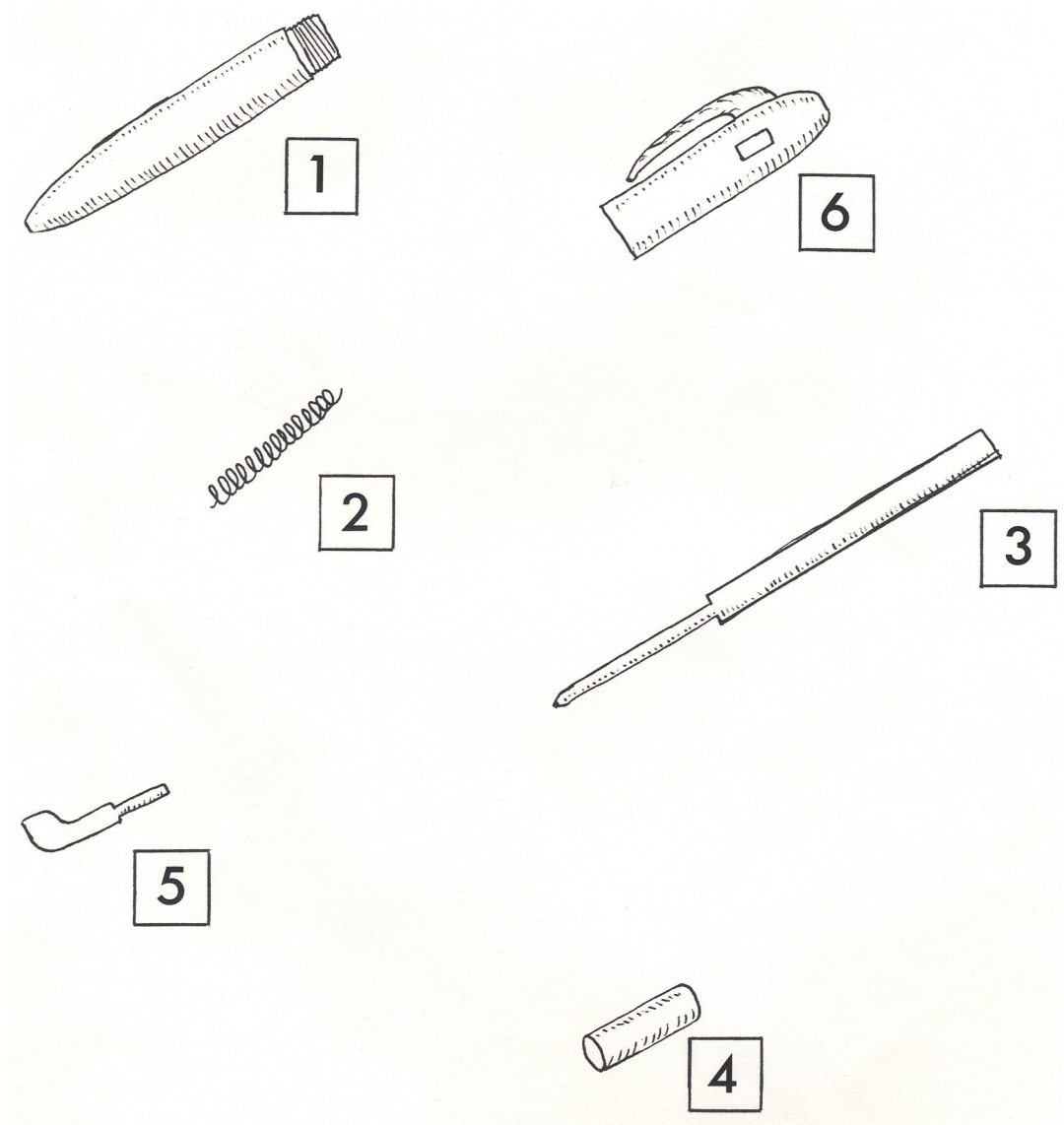




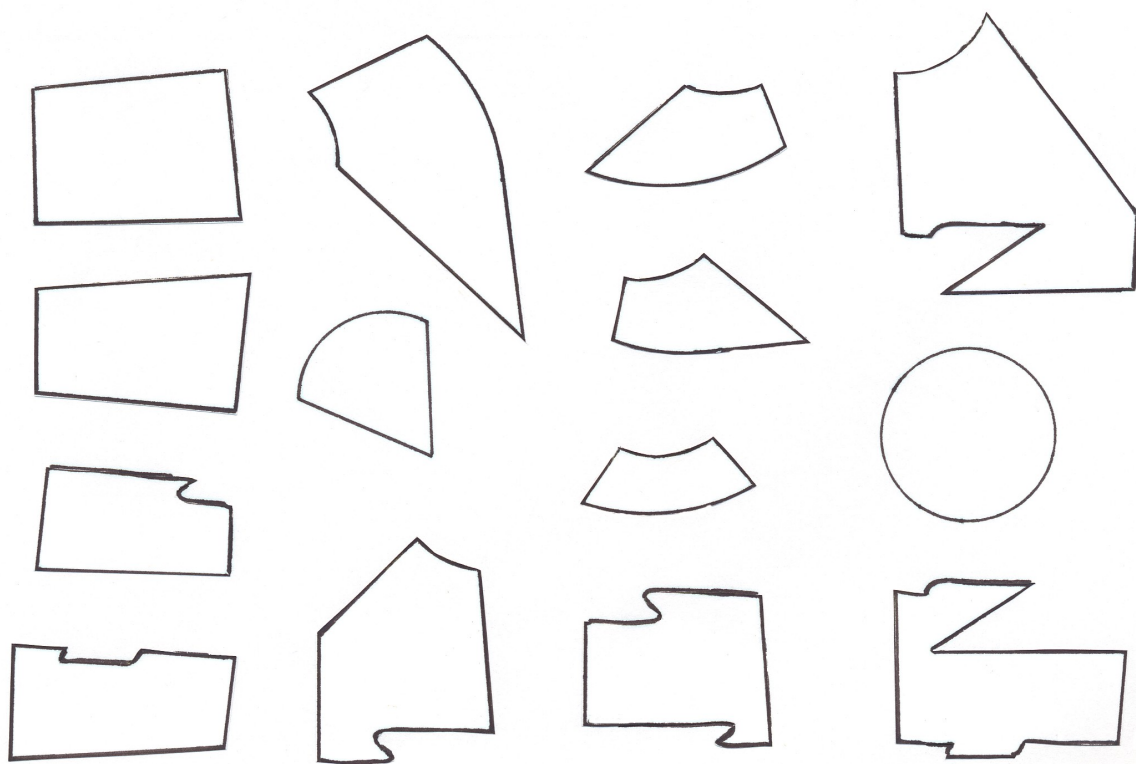
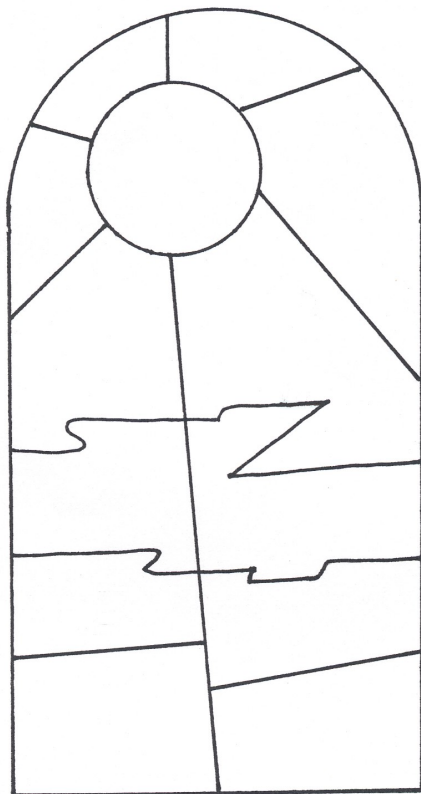
**WORK IT
OUT****Reconstruction**
"The pen"**18-21****Level 2**
Exercise 1

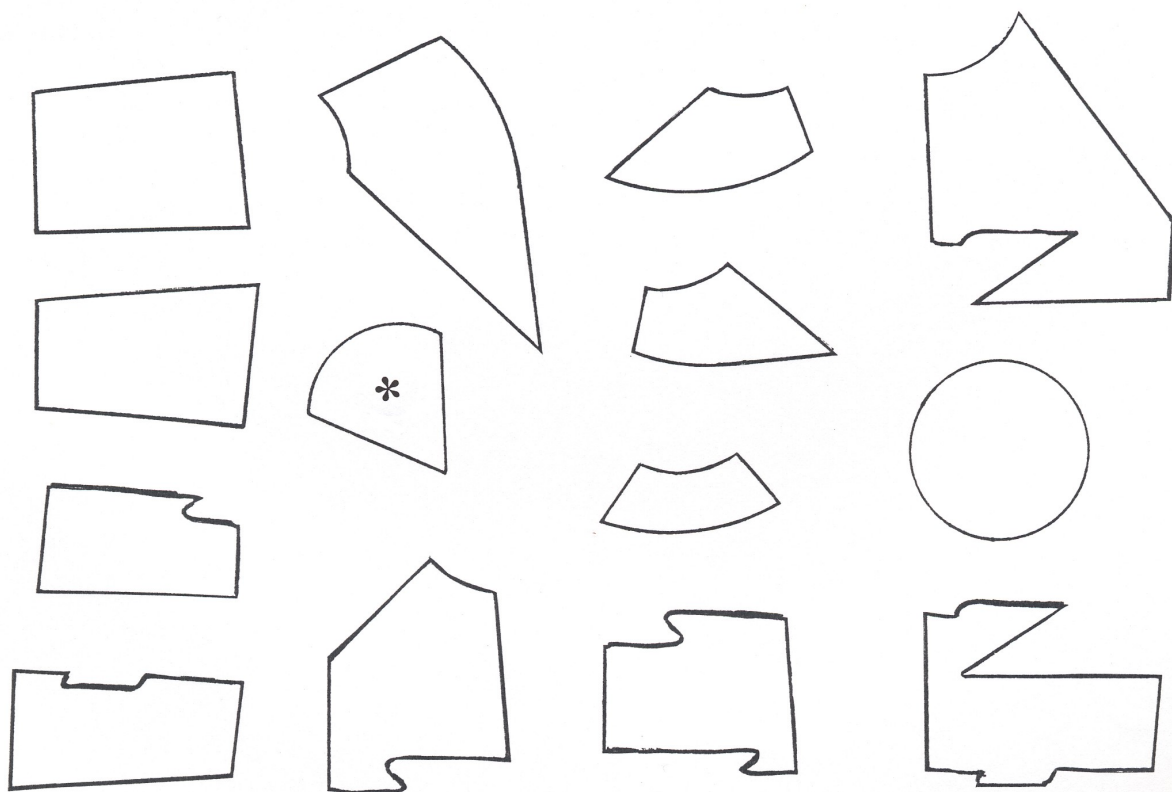
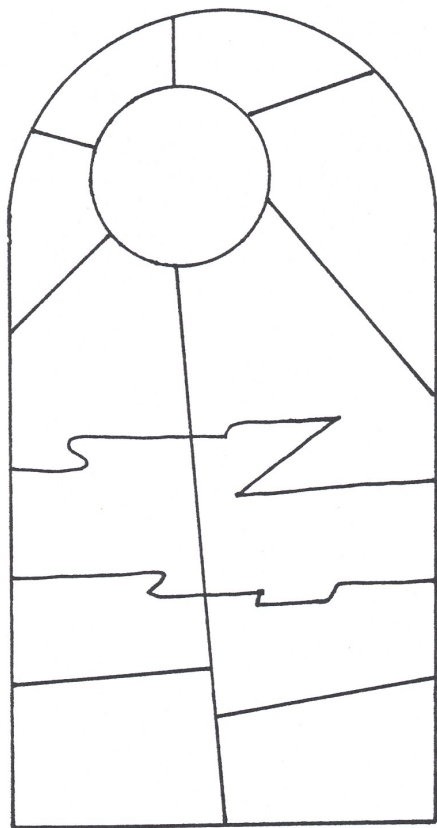
Aims	<ul style="list-style-type: none">- Practising observing and comparing.- Practising reconstructing and associating.- Practising the visual manipulation of drawn objects.- Practising reconstruction from concrete elements
Applications (examples)	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...)</p> <p><u>At work</u>: any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry). This exercise deals with a simple and light mechanism which can be an introduction to the assembly and disassembly of more complex tools.</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting.</p> <p>Also any activity involving understanding a set via its sub-sets (DIY and repairs requiring understanding of a mechanism).</p>
Materials	A sheet of paper with drawings of the parts of a dismantled ball point pen.
Instructions	The students have to number the parts according to the order in which they are used when reconstructing the pen.
Comments	The teacher could plan to bring a few pens for those who don't have one and would like to work manually before transferring their experience to the exercise.
Variations (examples)	The students could discuss the concept of the ball point pen itself, particularly the use of the spring. Why is it necessary, what does it do? The students could reconstruct a pen without a spring and draw conclusions,
Individualisation	Yes.
Answers	Yes, as an example.





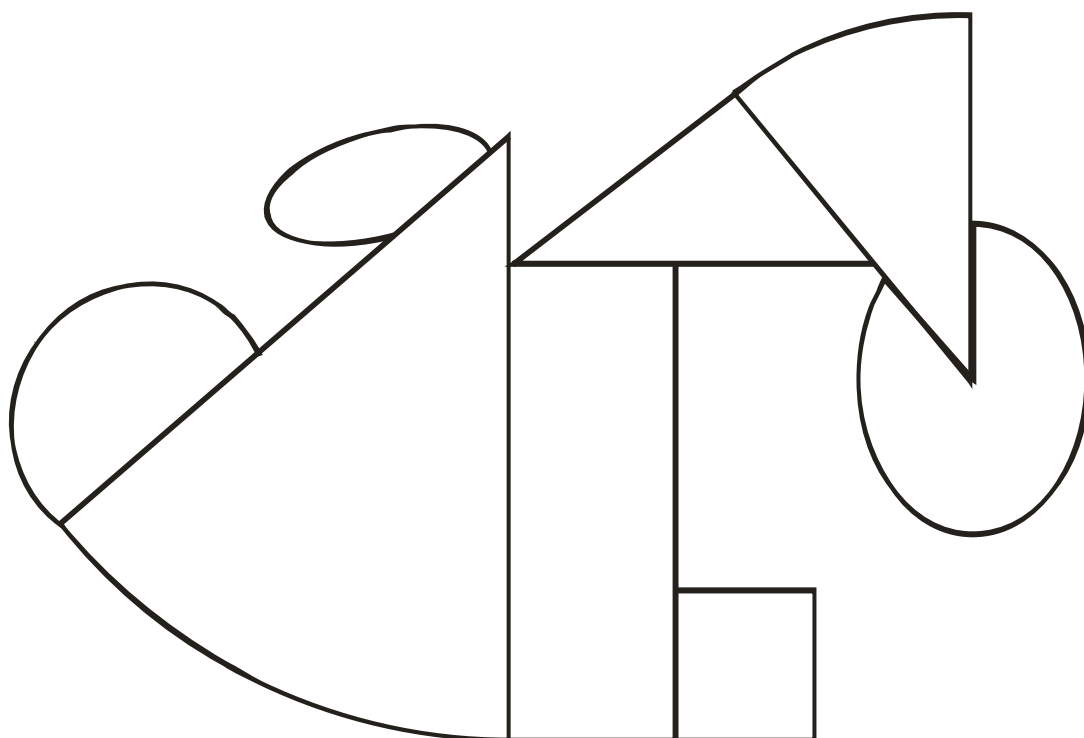
<i>WORK IT OUT</i>	Reconstruction "The stained glass window"	18-22 Level 2 Exercise 2
<i>Aims</i>	<ul style="list-style-type: none"> - Practising visualising one shapes on top of another. - Practising comparing and combining. - Practising discriminating. - Practising finding bearings so as to construct a shape from its elements. 	
<i>Applications (examples)</i>	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...)</p> <p><u>At work</u>: any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry). Also packing jobs. <u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting.</p>	
<i>Materials</i>	A sheet of paper with drawings of a stained glass window and of pieces of glass.	
<i>Instructions</i>	The learners have to find out which of the pieces of glass cannot be fitted to make the window above.	
<i>Comments</i>	The students may not know what a stained glass window is. Those that know could explain to the rest of the group.	
<i>Variations (examples)</i>	<p>1. The teacher could ask the group if anyone knows what patchwork is and could explain it to the group.</p> <p>2. The teacher could ask the students to make, alone or in pairs, a jigsaw puzzle of a stained glass window or other objects consisting of, for instance, six pieces. These puzzles can of course be presented to the group, but what is interesting here is the reasoning and strategies behind the manufacture, including checking that the puzzle is functional.</p>	
<i>Individualisation</i>	Yes.	
<i>Answers</i>	Yes.	



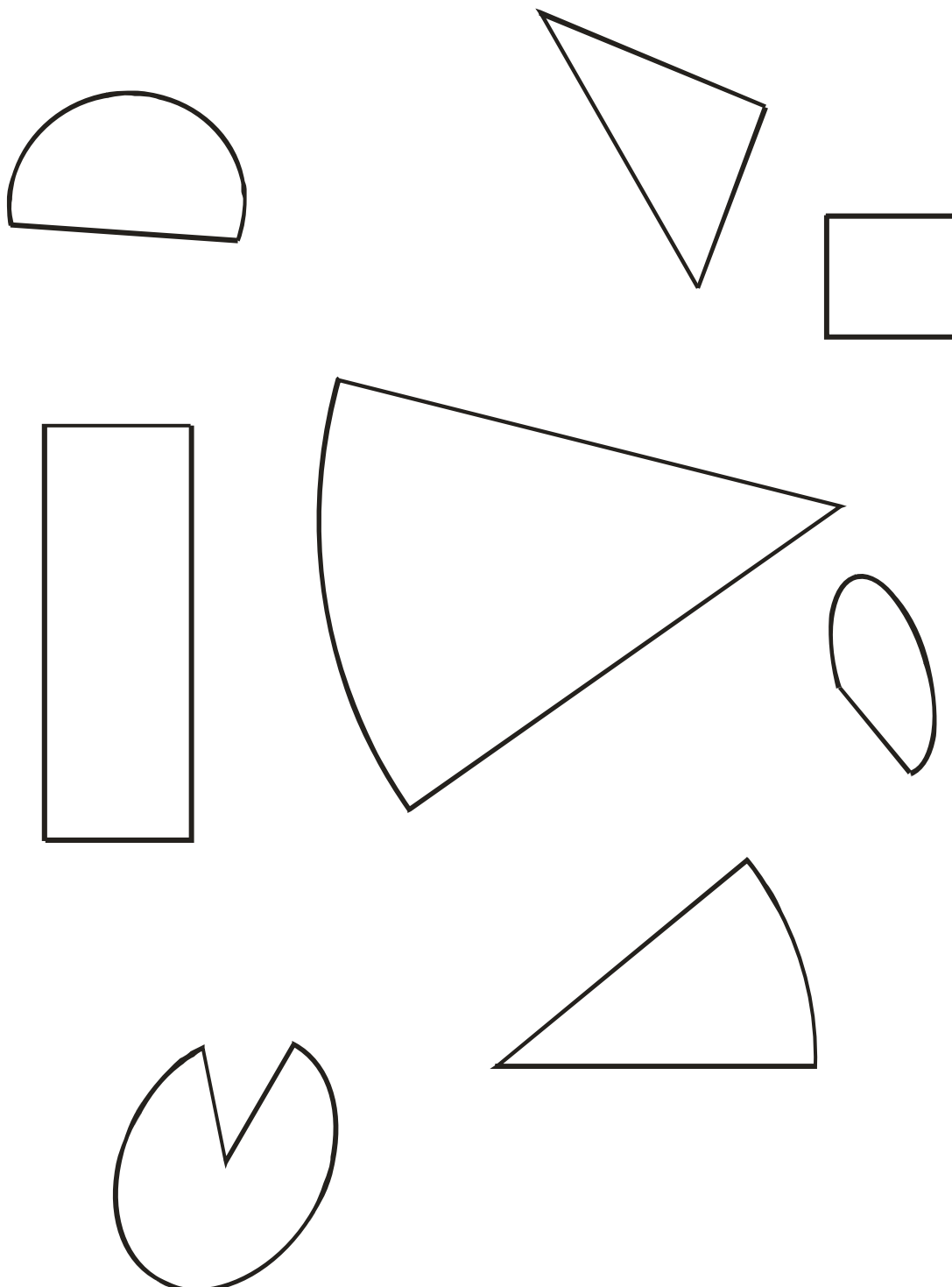


**WORK IT
OUT****Reconstruction
"Abstract art"****18-23****Level 2
Exercise 3**

<i>Aims</i>	Practising reconstructing an abstract shape, with or without manipulation.
<i>Applications (examples)</i>	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...) Also algebra and fractions.</p> <p><u>At work</u>: any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry). Also packing jobs, especially packing of large or fragile parts and all unusual or new assembly work, creating patterns, forms and temporary structures to facilitate building.</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting. Collages. Making supports for glueing an object back together.</p>
<i>Materials</i>	A sheet of paper with an abstract shape made of some geometric shapes. A sheet of paper with some geometric shapes to cut out
<i>Instructions</i>	The students have to cut out the geometric shapes and arrange them in such a way that they reconstruct the abstract shape on the exercise sheet.
<i>Comments</i>	The teacher could ask the students to reconstruct the abstract shape without manipulation. The exercise, then, does not involve cutting out the geometric shapes and is more difficult.
<i>Variations (examples)</i>	The teacher could ask the students to create an identifiable object or animal with the cut out geometric shapes. Students could work in pairs. When the students have created new shapes, they are listed and the group tries to reconstruct each of them. There are two possible approaches: the shapes are briefly shown to the group or they are not shown and the group, having been told what the shape represents, have to imagine what it looks like and try to recreate it.
<i>Individualisation</i>	Yes.
<i>Answers</i>	The abstract shape on the worksheet functions as the answer.

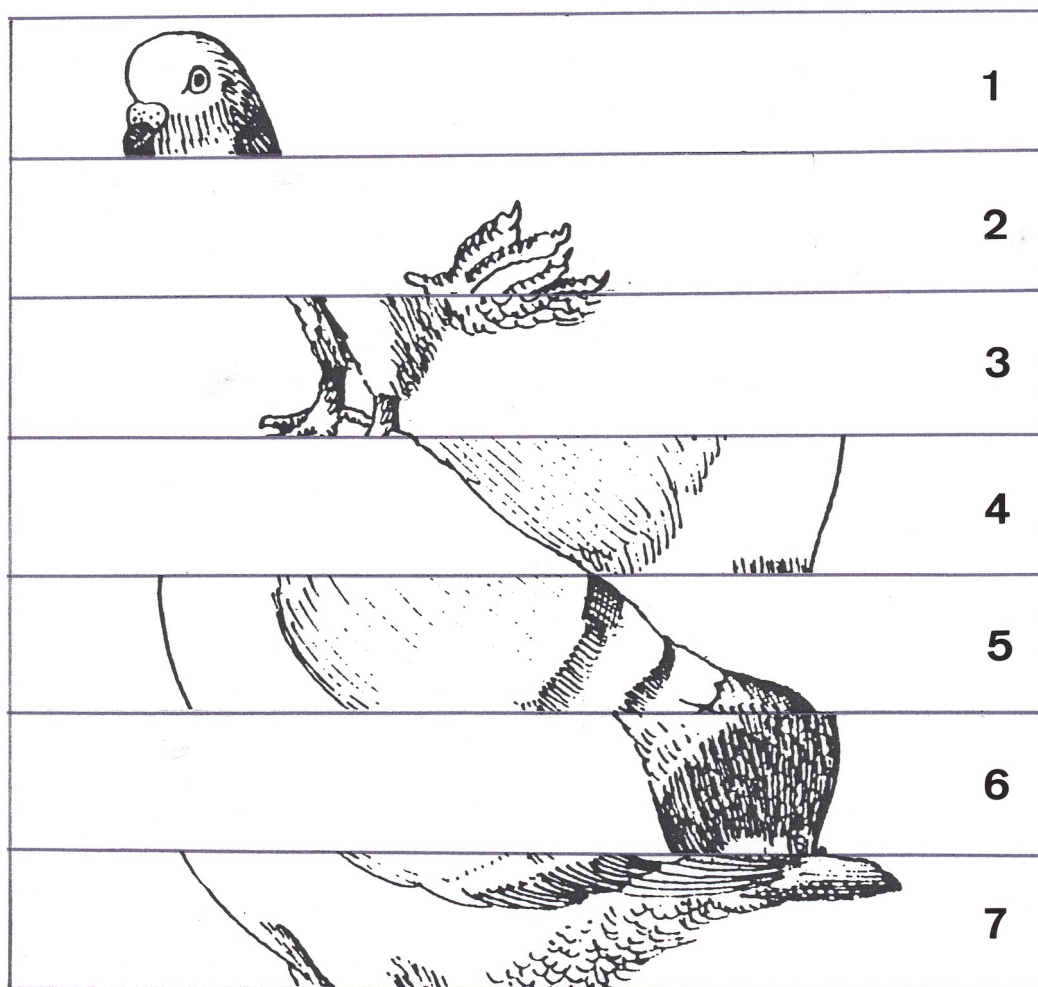


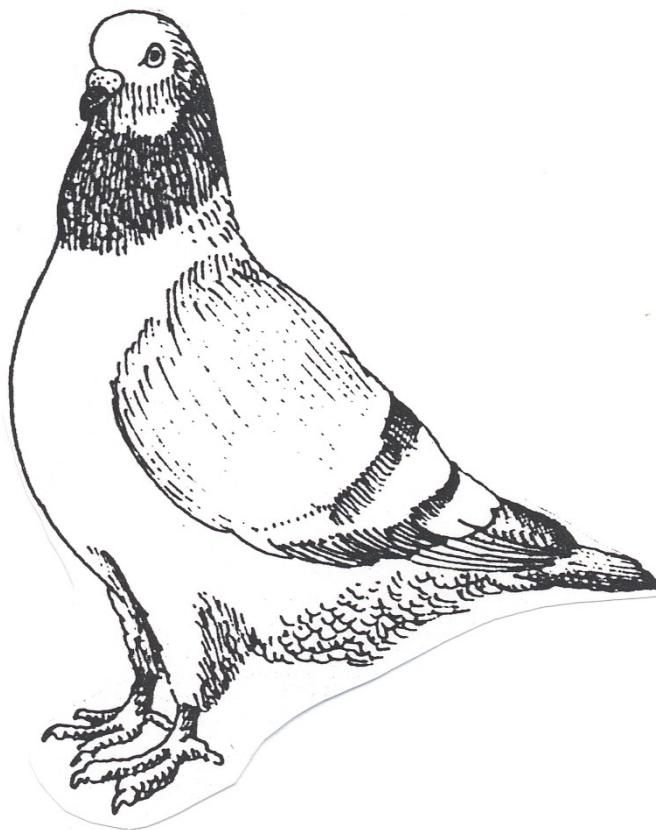
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**WORK IT
OUT****Reconstruction**
"The pigeon"**18-31****Level 3**
Exercise 1

Aims	<ul style="list-style-type: none">- Practising comparing and combining.- Practising discriminating.- Practising finding bearings so as to construct a shape from its elements.
Applications (examples)	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...) Also algebra and fractions.</p> <p><u>At work</u>: any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry). Also packing jobs, especially packing of large or fragile parts and all unusual or new assembly work, creating patterns, forms and temporary structures to facilitate building,</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting. Collages. Making supports for glueing an object back together.</p>
Materials	A sheet of paper with a drawing which has been cut into strips and mixed up.
Instructions	The learners have to reconstruct the drawing and write, in order and starting from the top, the number of each strip in the reconstructed drawing.
Comments	<p>The main difficulty in this exercise is the inversion of three of the strips (strips 2, 4 and 6). If need be, the teacher can suggest to those who are stuck to turn the page upside down, if they haven't thought of it.</p> <p>Two other possibilities are to cut out the strips in order to manipulate them or to give the students the picture on the answers sheet, without the numbers of the strips. However, this reduces the level of difficulty of the exercise to level 2, not 3.</p>
Variations (examples)	<ol style="list-style-type: none">1. The teacher could ask the learners if they think that the exercise would have been simpler, or more difficult, if the strips had been vertical ones. Everyone will express their opinion and justify it to the group. Then, this new exercise could be attempted, to check which of the hypothesis was right.2. The teacher could ask the students to cut a picture or a photo into strips at home and to present it to the group at the next session, when the group will attempt to put the strips in order.
Individualisation	Yes.
Answers	Yes.

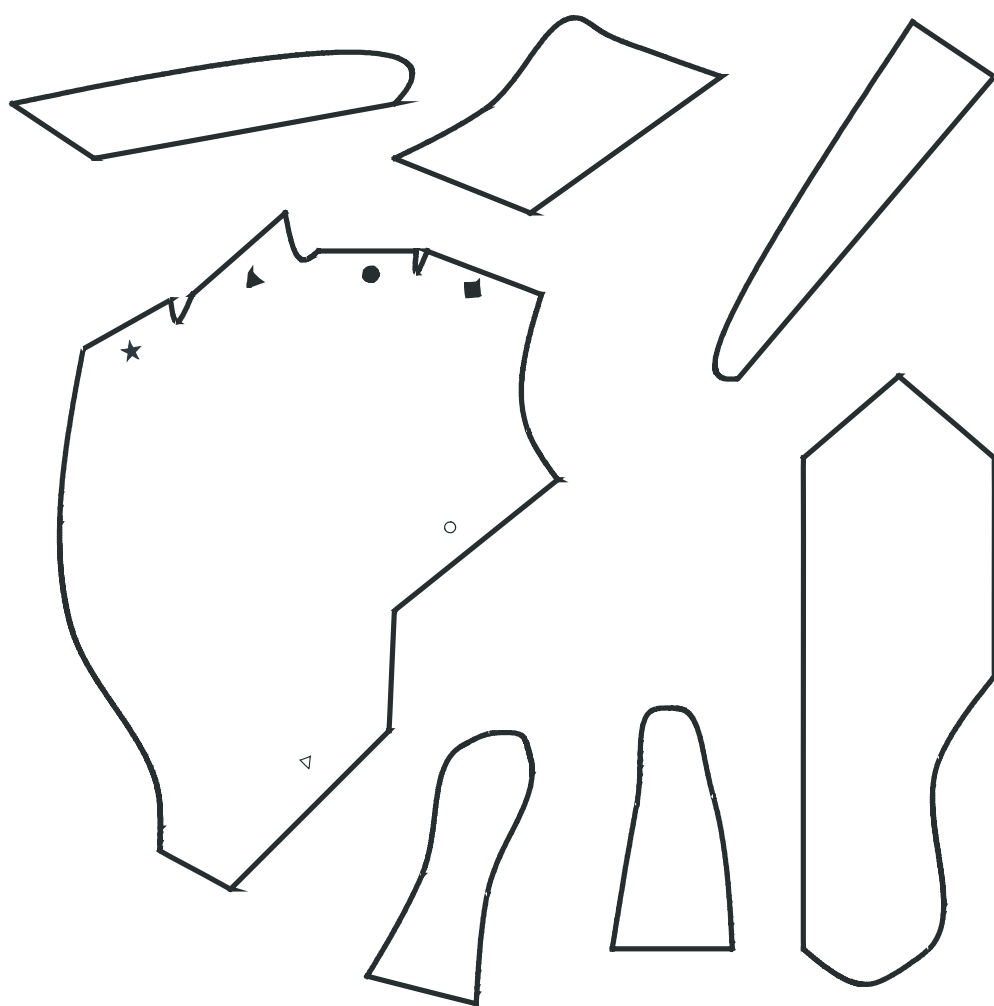


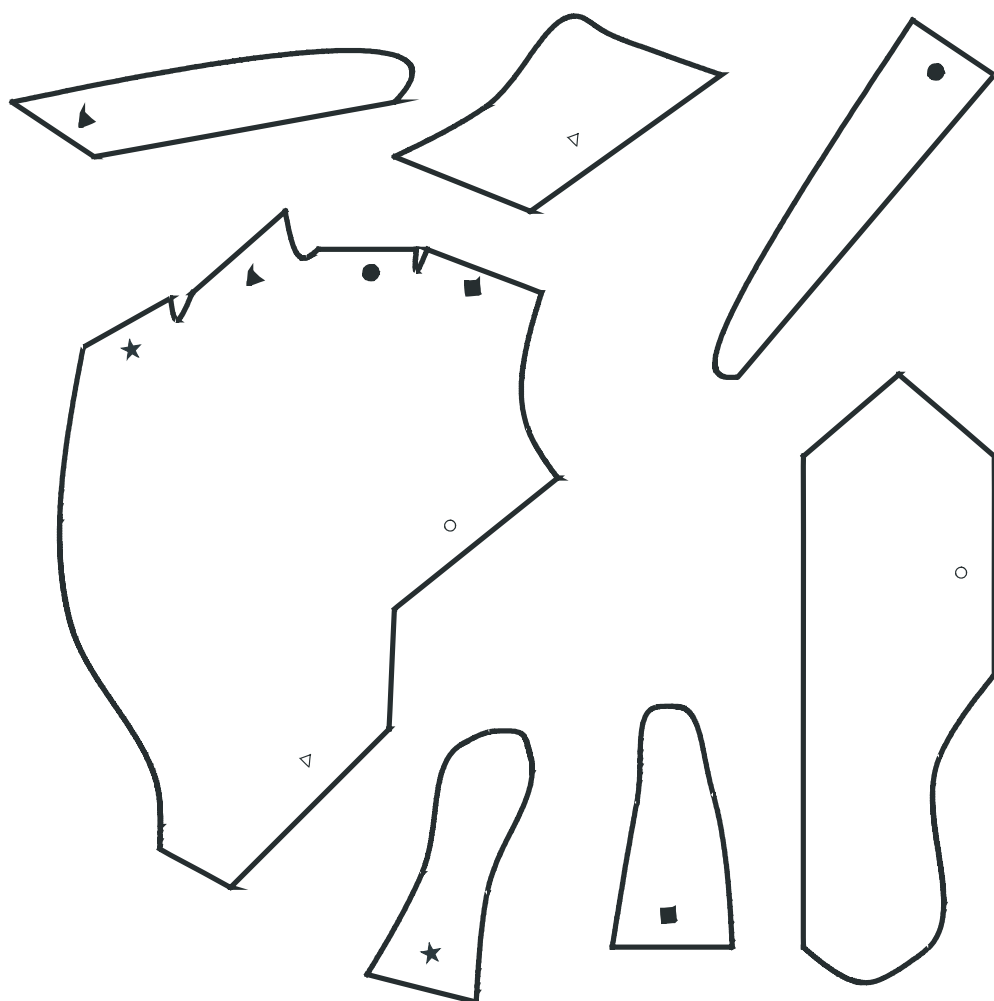


1
6
4
5
7
3
2

**WORK IT
OUT****Reconstruction**
"The thing"**18-32****Level 3**
Exercise 2

Aims	<ul style="list-style-type: none">– Practising reconstructing a shape.– Practising visualising the right place for a part, using a fixed point.
Applications (examples)	<p><u>In class:</u> any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...) Also algebra and fractions.</p> <p><u>At work:</u> any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry). Also packing jobs, especially packing of large or fragile parts and all unusual or new assembly work, creating patterns, forms and temporary structures to facilitate building,</p> <p><u>In everyday life and leisure:</u> any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting. Collages. Making supports for glueing an object back together.</p>
Materials	An exercise sheet with different smaller shapes cut from a larger central one.
Instructions	The students have to draw the symbol corresponding to the cut on each smaller shape, along the cut edge. They will then try to guess what the object is, once it is put back together.
Comments	The exercise is at level 3 and should preferably be done without cutting out the shapes, though this could be done at the end, to check.
Variations (examples)	<ol style="list-style-type: none">1. The students could cut a piece of paper with scissors into six pieces of different shape and size. The puzzle thus made could be exchanged with one made by another student and reconstructed.2. The teacher could ask the students to reconstruct a piece of clothing from a pattern like those found in women's magazines.
Individualisation	Yes.
Answers	Yes.

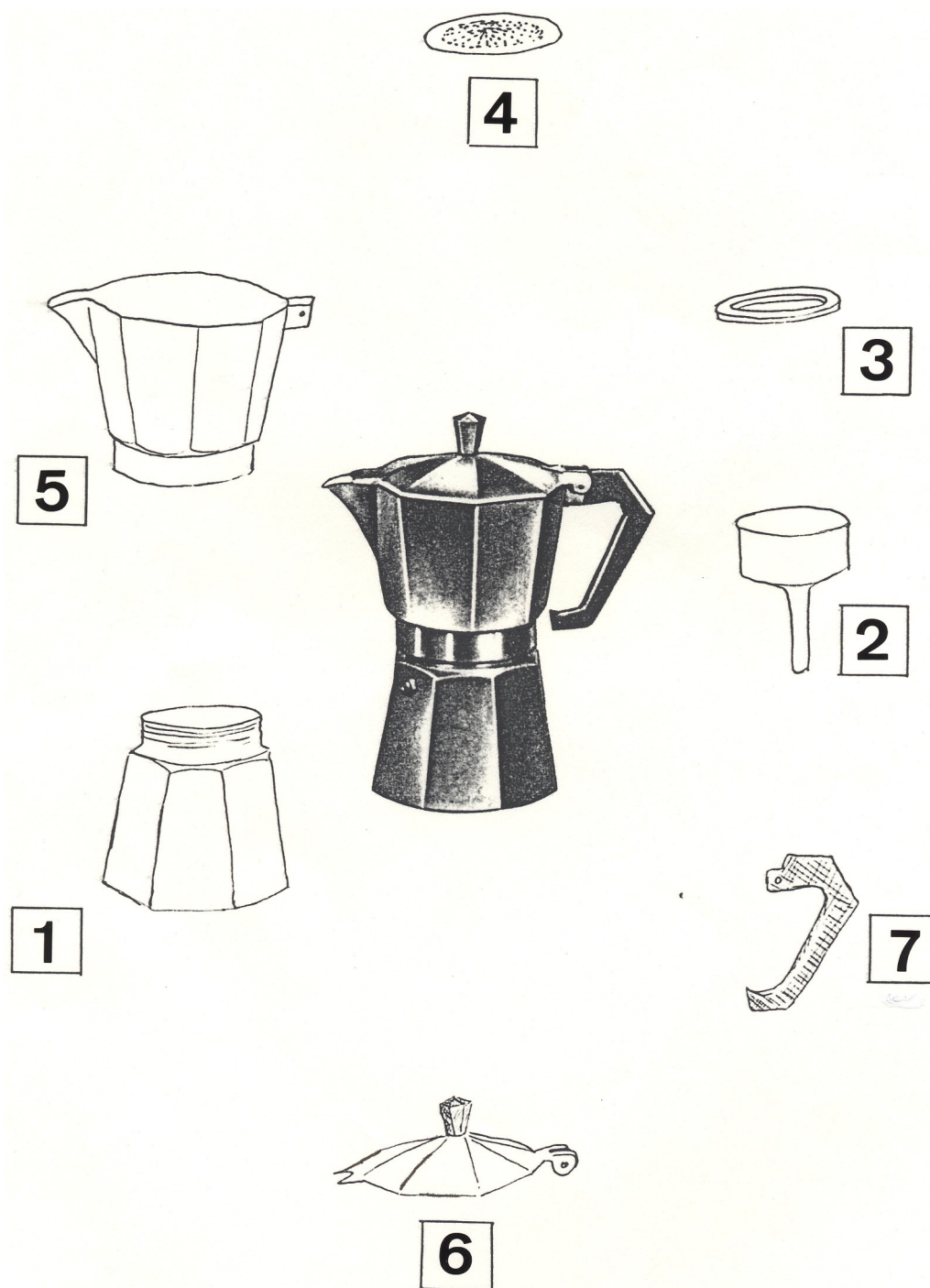




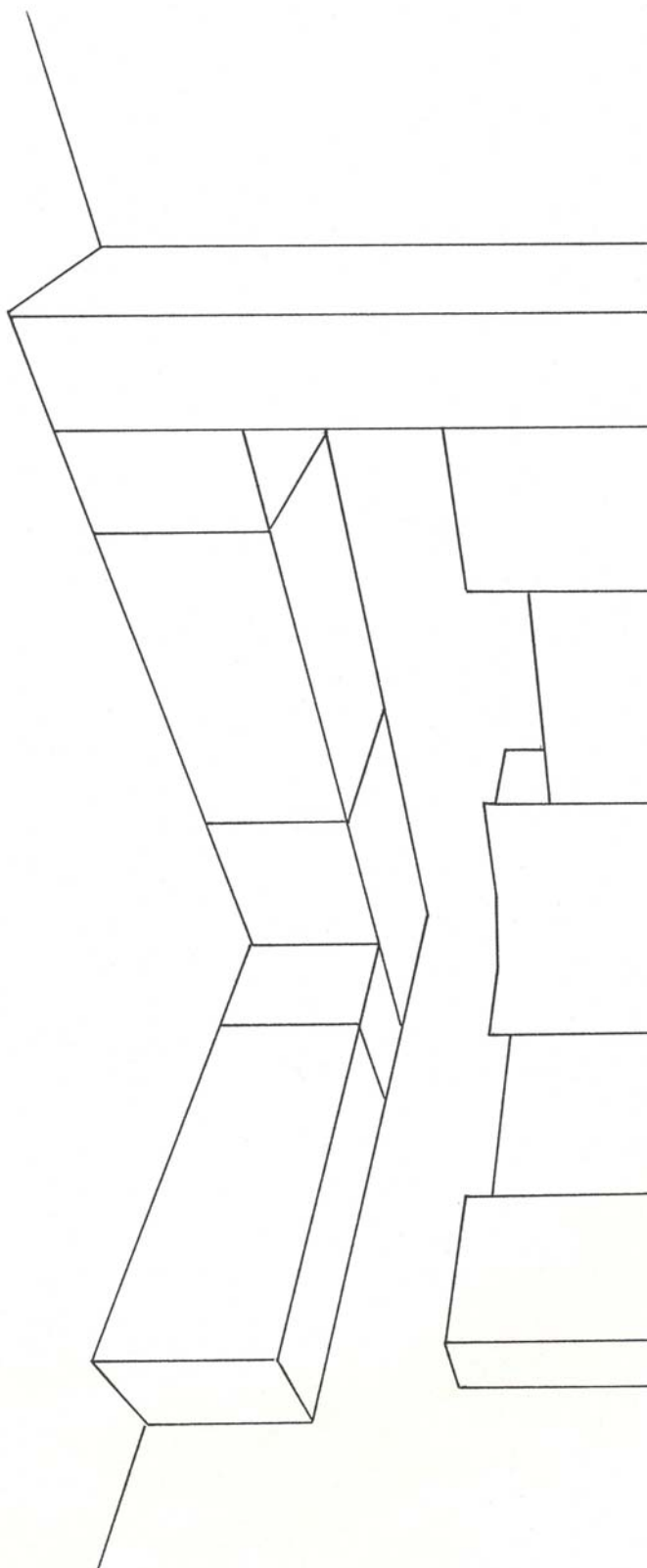
**WORK IT
OUT****Reconstruction**
"The Italian coffee pot"**18-33****Level 3**
Exercise 2

<i>Aims</i>	<ul style="list-style-type: none">- Practising comparing and combining.-Practising discriminating.-Practising finding bearings so as to construct a shape from its elements.
<i>Applications (examples)</i>	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...) Also algebra and fractions.</p> <p><u>At work</u>: any job including construction, for example joinery and assembling (there are numerous jobs requiring this skills in the manufacturing industry). Also packing jobs, especially packing of large or fragile parts and all unusual or new assembly work, creating patterns, forms and temporary structures to facilitate building,</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting. Collages. Making supports for glueing an object back together.</p>
<i>Materials</i>	A sheet of paper with drawings of an Italian coffee pot and the parts of which it is made.
<i>Instructions</i>	The students have to number the parts according to the order in which they are used when reconstructing the coffee pot.
<i>Comments</i>	Some students may never have seen an Italian coffee pot. The teacher must therefore explain that The water is put in the bottom part and the ground coffee in the part on the right of the sheet shaped like a funnel. When the water boils, it goes through the coffee to the top part of the pot.
<i>Variations (examples)</i>	Once the paper exercise is over, the teacher could give the students a real Italian coffee pot to be put together and taken apart. The session may close with the making of a real cup of coffee!
<i>Individualisation</i>	Yes.
<i>Answers</i>	Yes, as an example. The order could be different. .

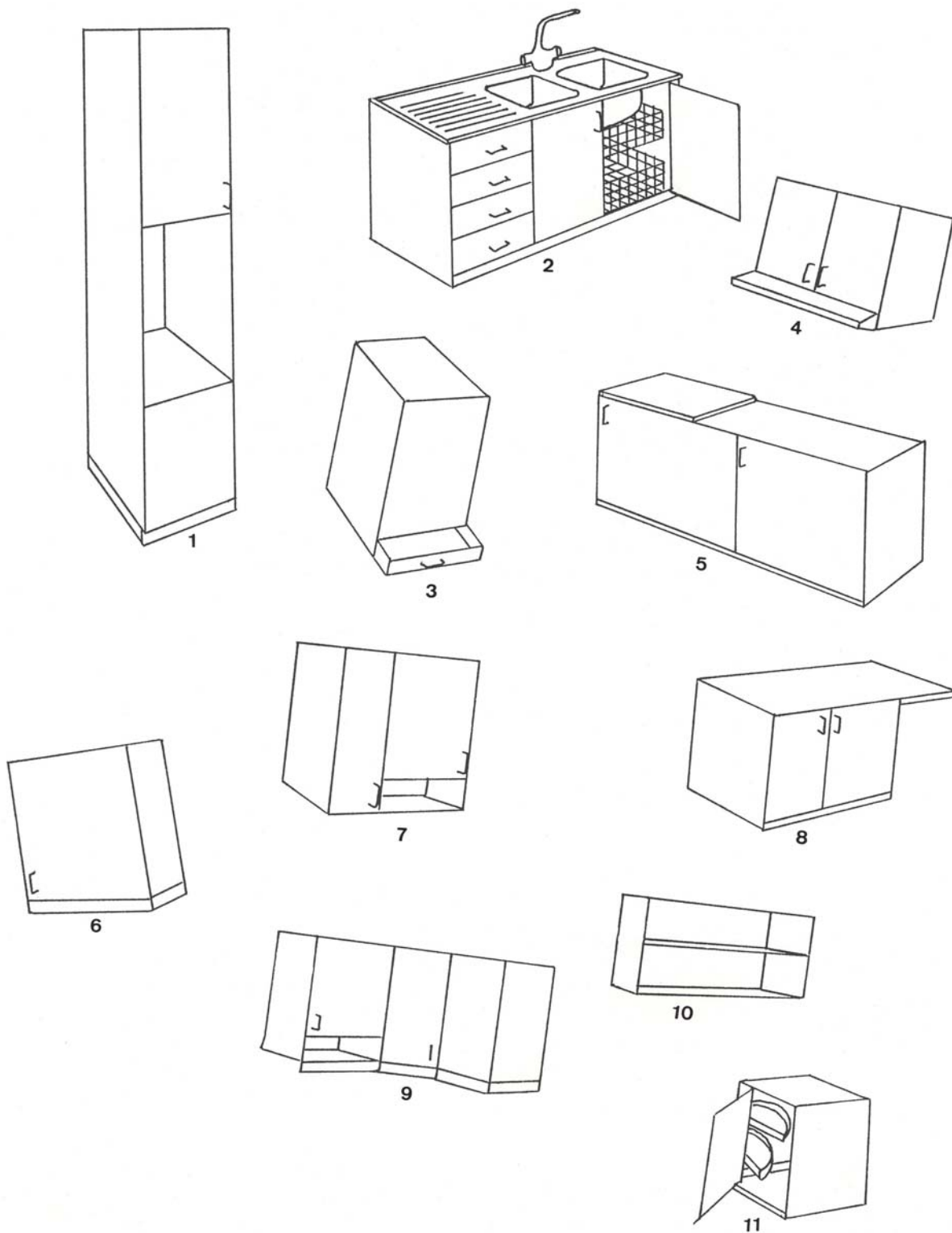


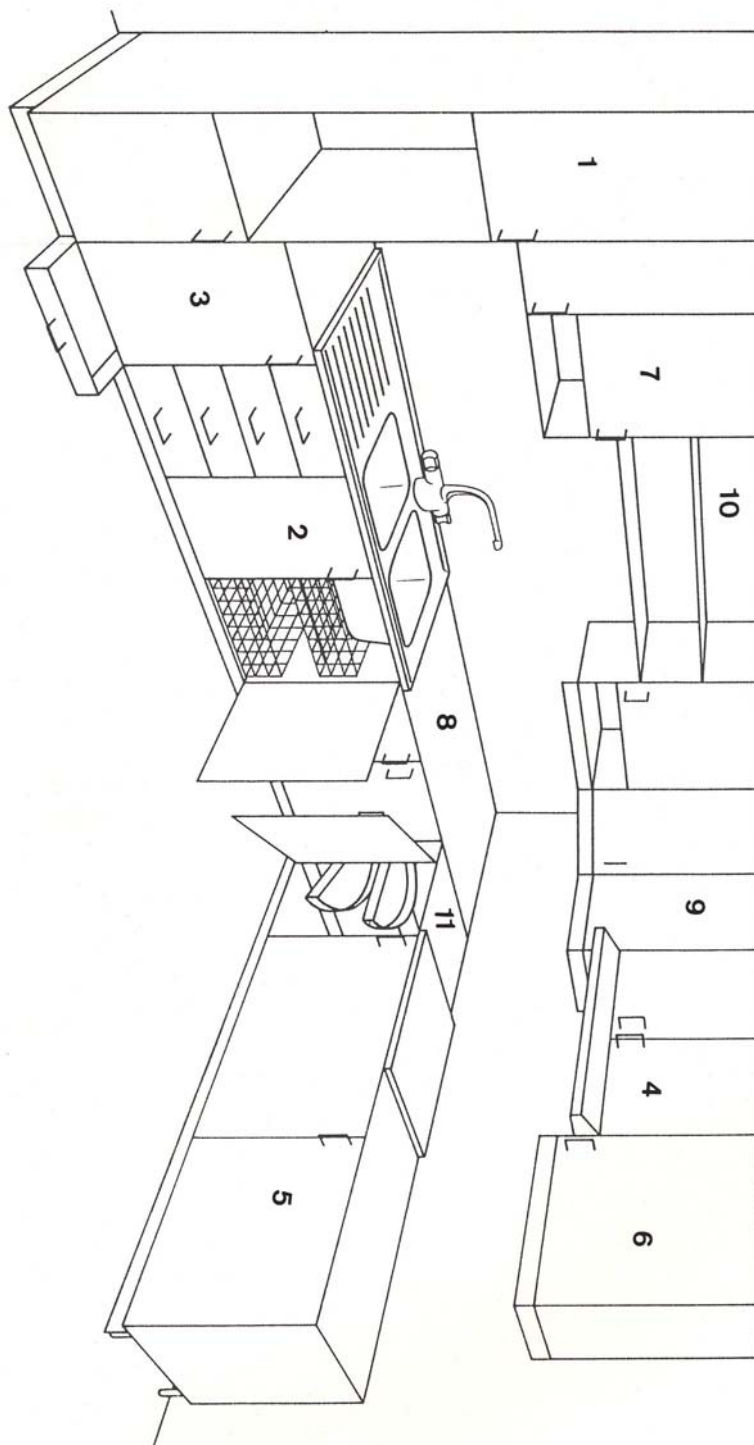


Aims	<ul style="list-style-type: none">- Practising comparing and combining.- Practising discriminating between similar shapes- Practising looking for fixed points to help fill a given space- Getting used to go from a volume/3D image to a plan.
Applications (examples)	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...)</p> <p><u>At work</u>: any job including (re)construction, for example joining or assembling parts, models, prototypes (there are numerous jobs requiring this skills in the manufacturing industry). Also packing and stocking jobs.</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting. This exercise itself is part of everyday activities.</p>
Materials	A first sheet of paper with 3-D drawings of kitchen furniture. A second sheet of paper with the plan for a kitchen.
Instructions	The learners have to write the numbers attached to each piece of furniture at the most appropriate place on the plan.
Comments	The height of the handles on the cupboards is a good clue as to where they should be placed.
Variations (examples)	<ol style="list-style-type: none">1. The teacher can ask the students what they think of this particular kitchen. They could agree criteria for its evaluation: practicality, comfort, beauty, use of space etc. After this, the students could think of pieces of furniture, electrical equipment or utensils that could be fitted (how?) along the wall facing the sink (dishwasher, washing machine, microwave oven and its supporting furniture, tumble dryer, toaster, blender, kettle etc.2. The teacher could ask the students to draw the plan of their own kitchen and discuss ideas to improve it, while keeping the same surface area.
Individualisation	Yes.
Answers	Yes.



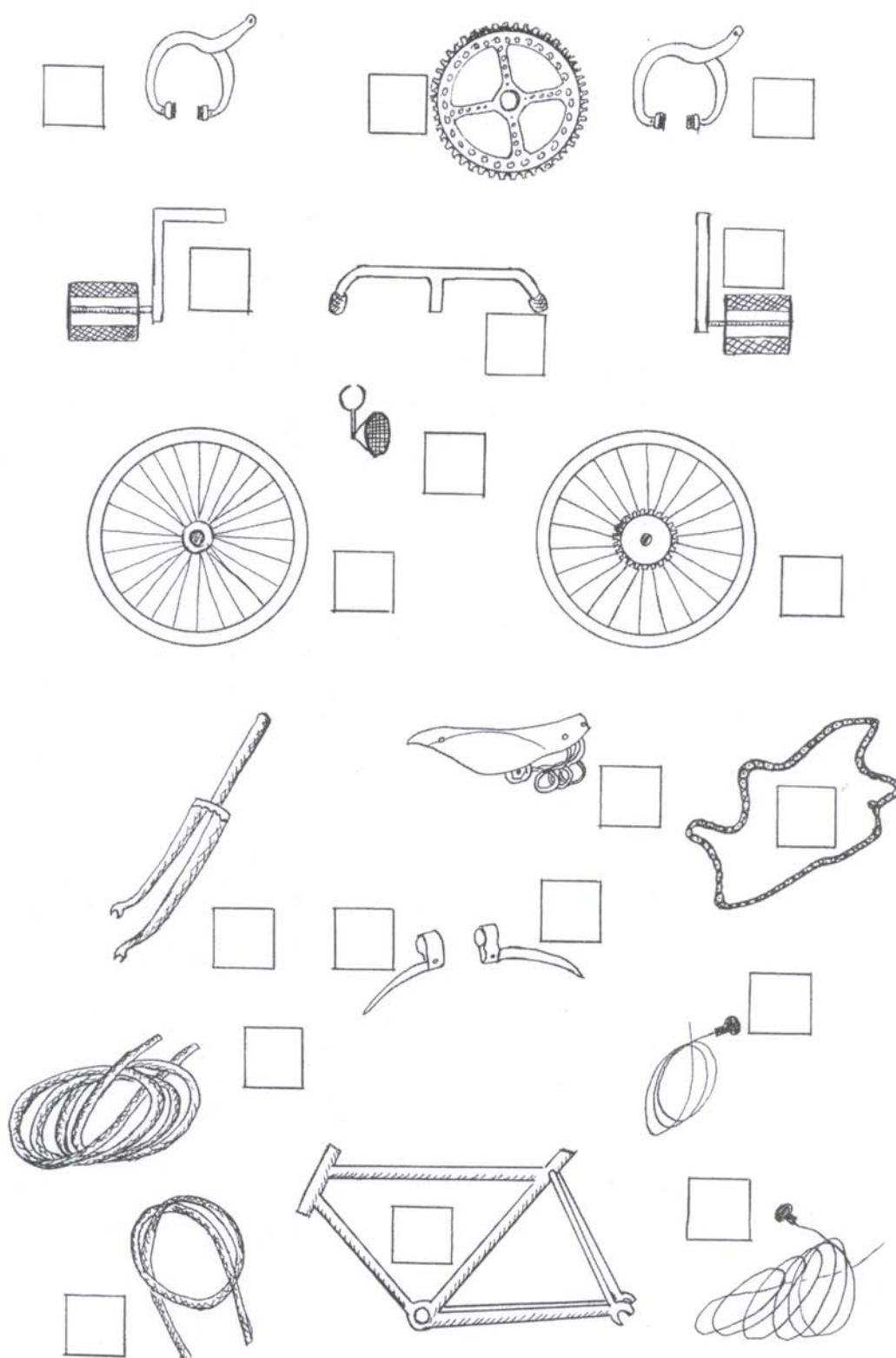
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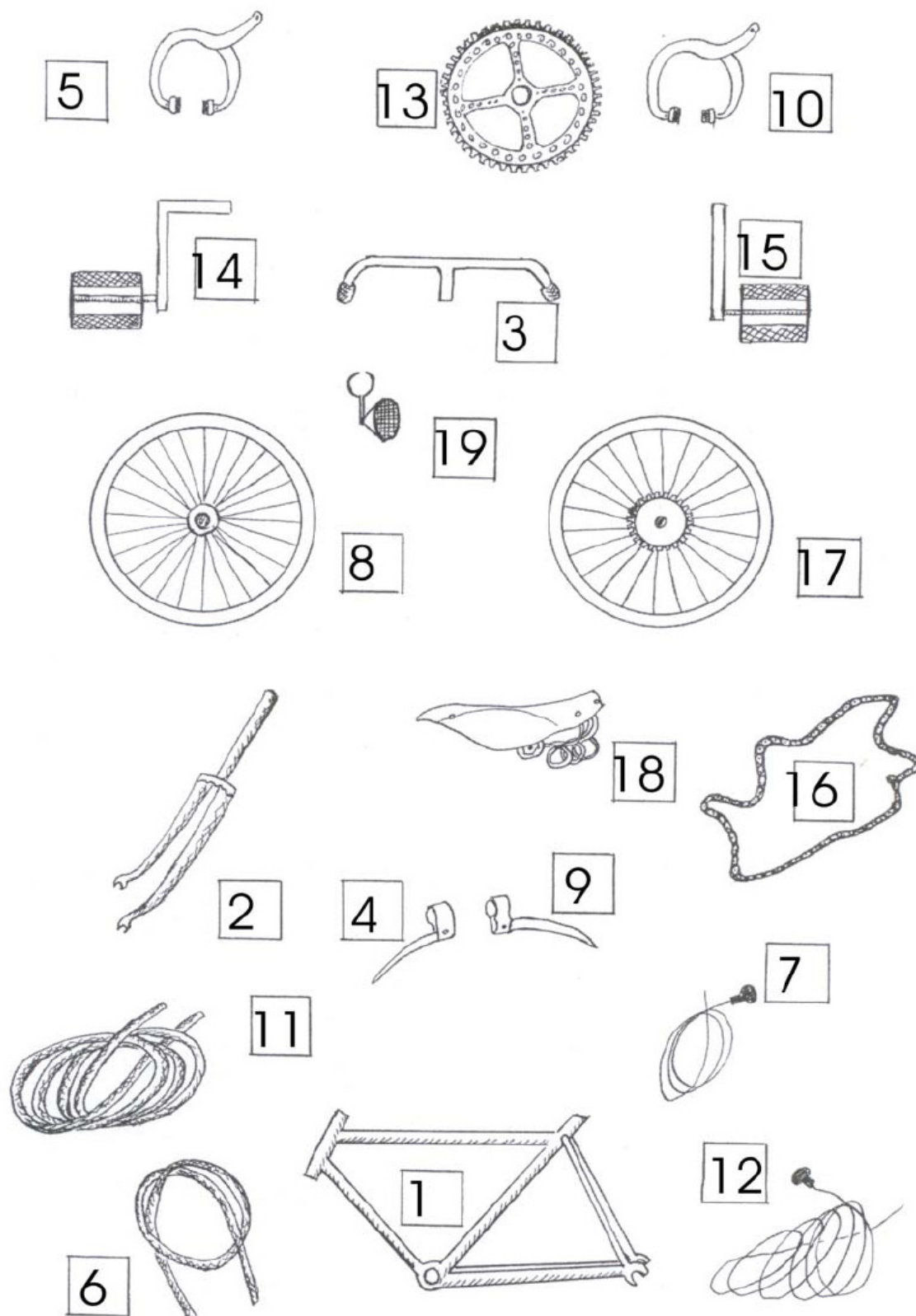




**WORK IT
OUT****Reconstruction**
"Bits of bike"**18-42****Level 4**
Exercise 1

Aims	<ul style="list-style-type: none">- Practising comparing and combining.-Practising discriminating.-Practising finding bearings so as to construct a shape from its elements.
Applications (examples)	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...). It also is of relevance to three training areas: 1.organising one's work, having a method to do so; 2. panning logically; 3. Having clear, well understood goals.</p> <p><u>At work</u>: any job including (re)construction, for example joining or assembling parts, models, prototypes (there are numerous jobs requiring this skills in the manufacturing industry). Also packing and stocking jobs.</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture or knitting.</p>
Materials	A sheet of paper with drawings of the parts of a bicycle.
Instructions	The students have to number the parts according to the order in which they are used when reconstructing the bicycle.
Comments	This is a difficult exercise, especially for those who have never cycled. I is necessary to explain the purpose of each part and how they work, especially the brakes.
Variations (examples)	<ol style="list-style-type: none">1. The teacher could ask the students to describe in details how they (re)built part of a car engine, a piece of furniture, a power tool or other pieces of electrical equipment.2. The teacher could ask the students to draw the bicycle that is on the exercise sheet, once it has been put together again.
Individualisation	Yes.
Answers	Yes.





WORK IT OUT	Reconstruction "Family portraits"	18-43 Level 4 Exercise 3
Aims	<ul style="list-style-type: none"> - Practising devising a strategy to organise data. - Practising logical deduction. - Practising reporting data in writing. 	
Applications (examples)	<p><u>In class</u>: any mental activity involving constructing something from component parts (geometry, engineering drawing, technology for a visual reconstruction; the same reasoning and analysis can be applied in the area of grammar: elements of a sentence, tenses of regular verbs, prefixes and suffixes...). It also is of relevance to three training areas: 1. organising one's work, having a method to do so; 2. planning logically; 3. Having clear, well understood goals.</p> <p><u>At work</u>: any job involving the gathering of standards, regulations or instructions, including health and safety instructions and devising action plan based on them.</p> <p><u>In everyday life and leisure</u>: any activity involving the construction of something from its component parts, for example building flat-pack furniture, knitting or drawing a family tree. Also preparing a journey or a family event while taking everyone into consideration.</p>	
Materials	A sheet of paper with 27 pieces of data.	
Instructions	Using the data given on the exercise sheet, the students have to build the family tree for a family of 13 people. The family consists of three generations and the students have to find out everyone's name and age and, in the case of the prents, their occupation,	
Comments	Some students may reject exercises based on the family (those with family problems, for instance). In that case, the teacher could plan to use another similar exercise with those students (18-41 or 18-42) and the reports can take place within two different groups.	
Variations (examples)	While taking into account the comment above, it is also true that many students enjoy exercises based on the family. Those students could therefore draw their own family tree.	
Individualisation	Yes.	
Answers	Yes.	

DATA

1. Alex's grand-father is 5 years older than his wife.
2. June is married to Paul Faber.
3. Martin's uncle is an IT technician
4. Alex is an only child.
5. The two girls are 10 and 12 years old.
6. The garage manager's brother is called Peter.
7. June's sister-in-law is 29 years old.
8. Luke's father is a garage manager.
9. The father of the only child is called Faber.
10. Dennis' wife is called Betty and she is 62.
11. The secretary is called Christine.
12. The youngest child is 8.
13. Martin's paternal grand-father is called Dennis.
14. Peter's wife is a secretary.
15. The father of the large family is called Paul.
16. Luke is 15.
17. Peter is 36.
18. June's nephew is called Alex.
19. Martin's maternal grand-father is called George Brown.
20. Dennis Faber's daughter-in-law is a hairdresser.
21. Julie is the sister of Luke, Sophie and Martin.
22. There are four children in the large family.
23. Sophie is the younger daughter.
24. One of the grand-father is 68 and so is his wife.
25. George's wife is called Margaret.
26. Luke's cousin is 5 years younger than him.
27. Paul Faber is 42 and his wife is 3 years younger than him.

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