WORK IT OUT	**Locate - Manipulate** **"Washing up!"**	**4-41** **Level 4** **Exercise 1**

Aims	- 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)	In class: 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. At work: anything concerning storage or packaging, with an additional criterion of fragility/solidity, of utensils, but also of one's hands. In everyday life and for leisure: anything concerning storage, to which could be added: - 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	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. All the objects must be placed in the sink so as to avoid any risk of breakage, or of the pile collapsing. 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.
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.

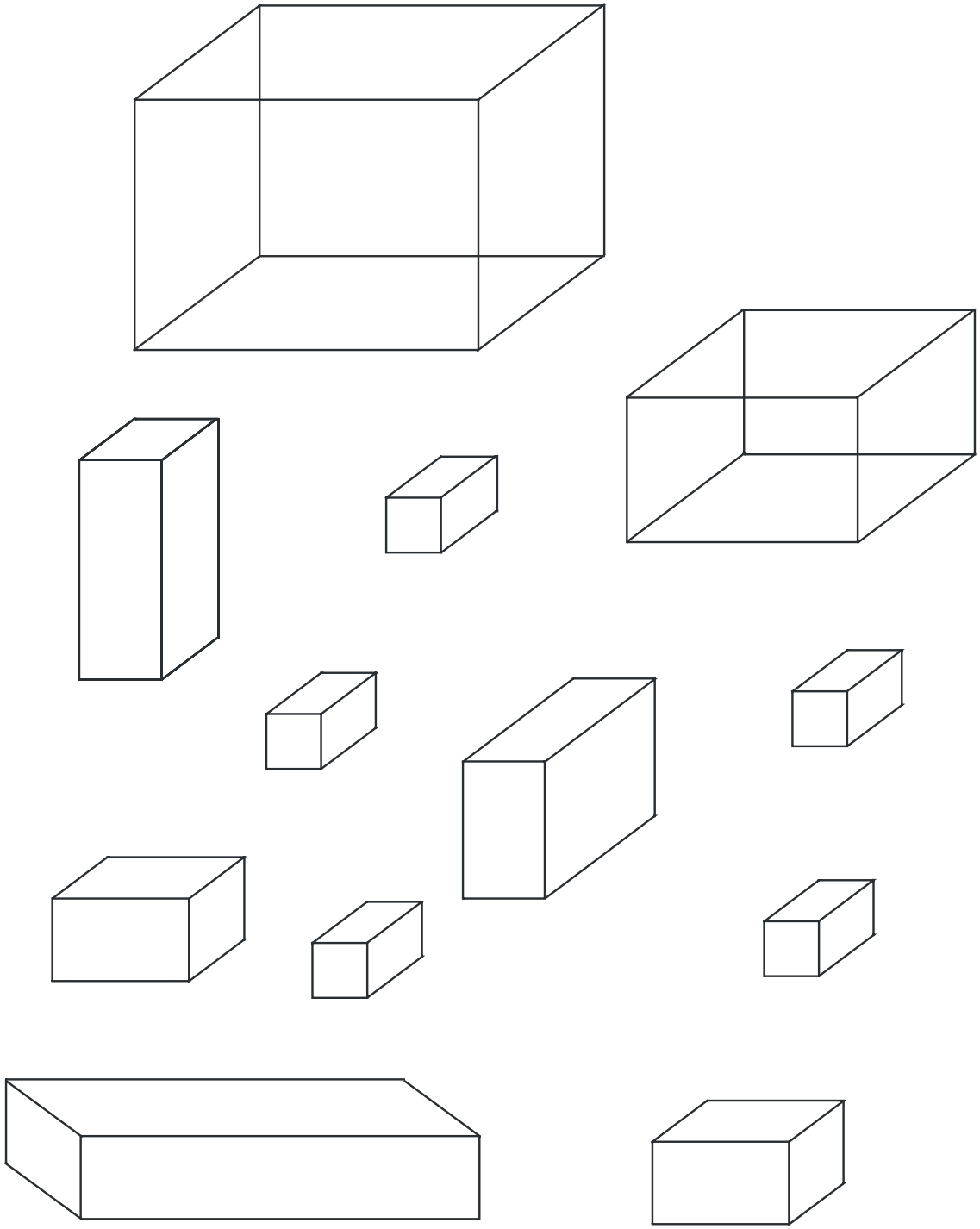
WORK IT OUT	**Locate - Manipulate** **"Washing up!"**	**4-41**

WORK IT OUT	**Locate - Manipulate** **"Pieces of wood"**	**4-42** **Level 4** **Exercise 2**

Aims	- Mental manipulation. - Compare. - Begin notions of perspective, rotation and inclusion. - Begin to make estimates. - Practise finding working methods.
Applications (examples)	In class: any job consisting in adding, or manipulating notions of volume and area, sets and subsets, even tree diagrams. At work: 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. In everyday life and for leisure: 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.
Materials	A page showing 9 pieces of wood and two large boxes drawn to the same scale, in perspective.
Task	The pupils must put as many pieces of wood as possible into the boxes, given that both boxes are empty.
Comments	The pupils can of course use a ruler to help them.
Variations (examples)	The criterion "as many pieces of wood as possible" can be replaced by "the biggest pieces of wood ".
Individualisation	Yes.
Answers	No, there are too much possibilities.

Locate - Manipulate

« Pieces of wood »

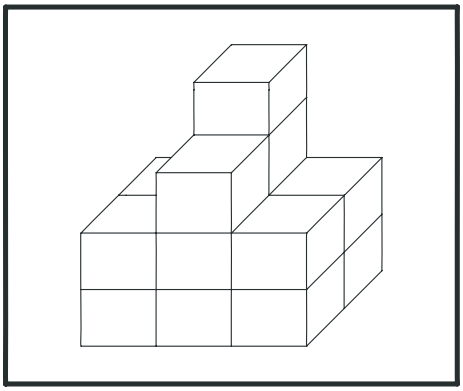


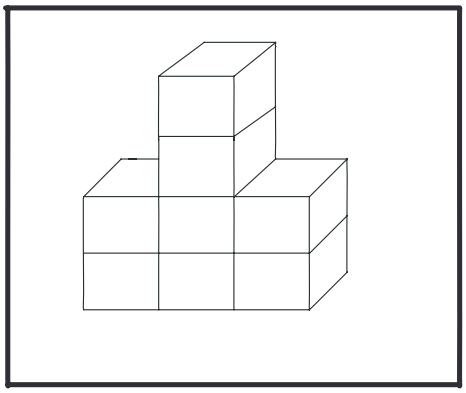
WORK IT OUT	**Locate - Manipulate** **"Reconstructing cubes"**	**4-43** **Level 4** **Exercise 3**

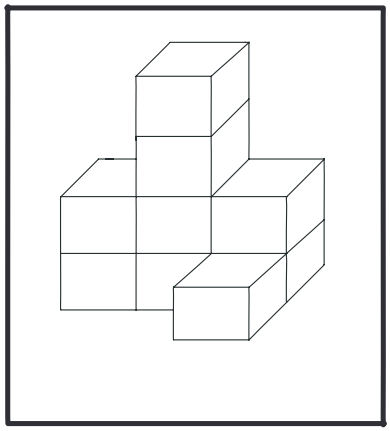
Aims	- Mental manipulation. - Recognise geometric shapes. - Begin notions of perspective. - Compare. - Reconstruct.
Applications (examples)	In class: any exercise consisting in recognising a simple shape and being able to identify a shape by the place it occupies in a space or in relation to others. Initiation in solid geometry, angles and complementary shapes in plane geometry. At work: any job in packing and packaging, warehousing (putting merchandise on shelves), assembly of any kind. In everyday life and for leisure: 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.
Materials	A page with: - 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.). If the exercise seems too difficult, it is advisable to do the similar exercise in level 2 first: code 4-21.
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.

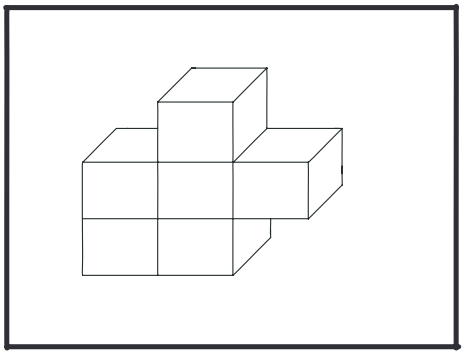
Locate - Manipulate

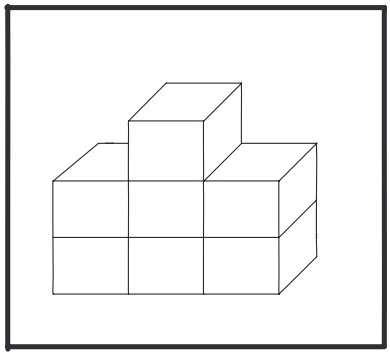
"Reconstructing cubes"

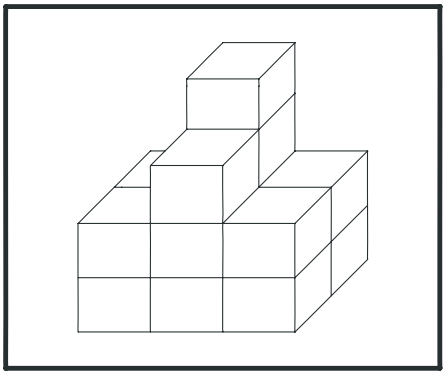


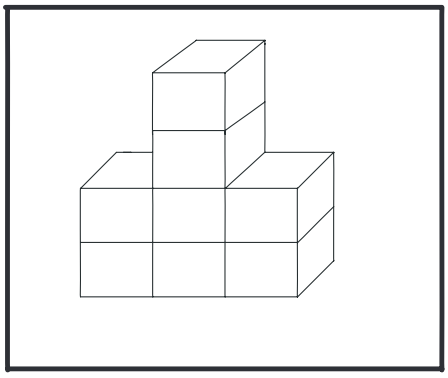












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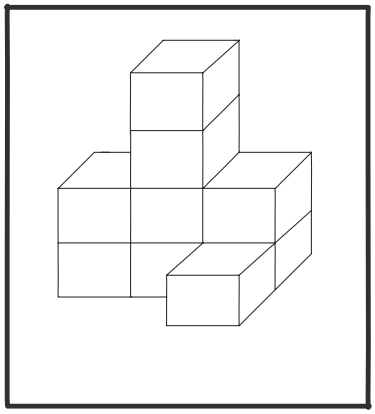

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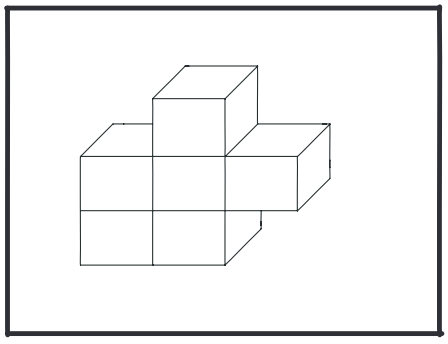

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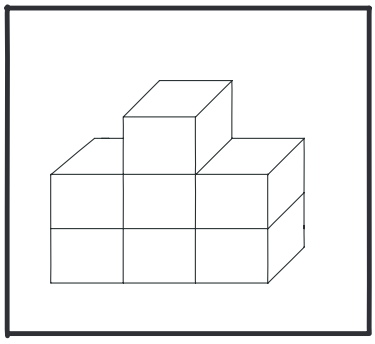

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