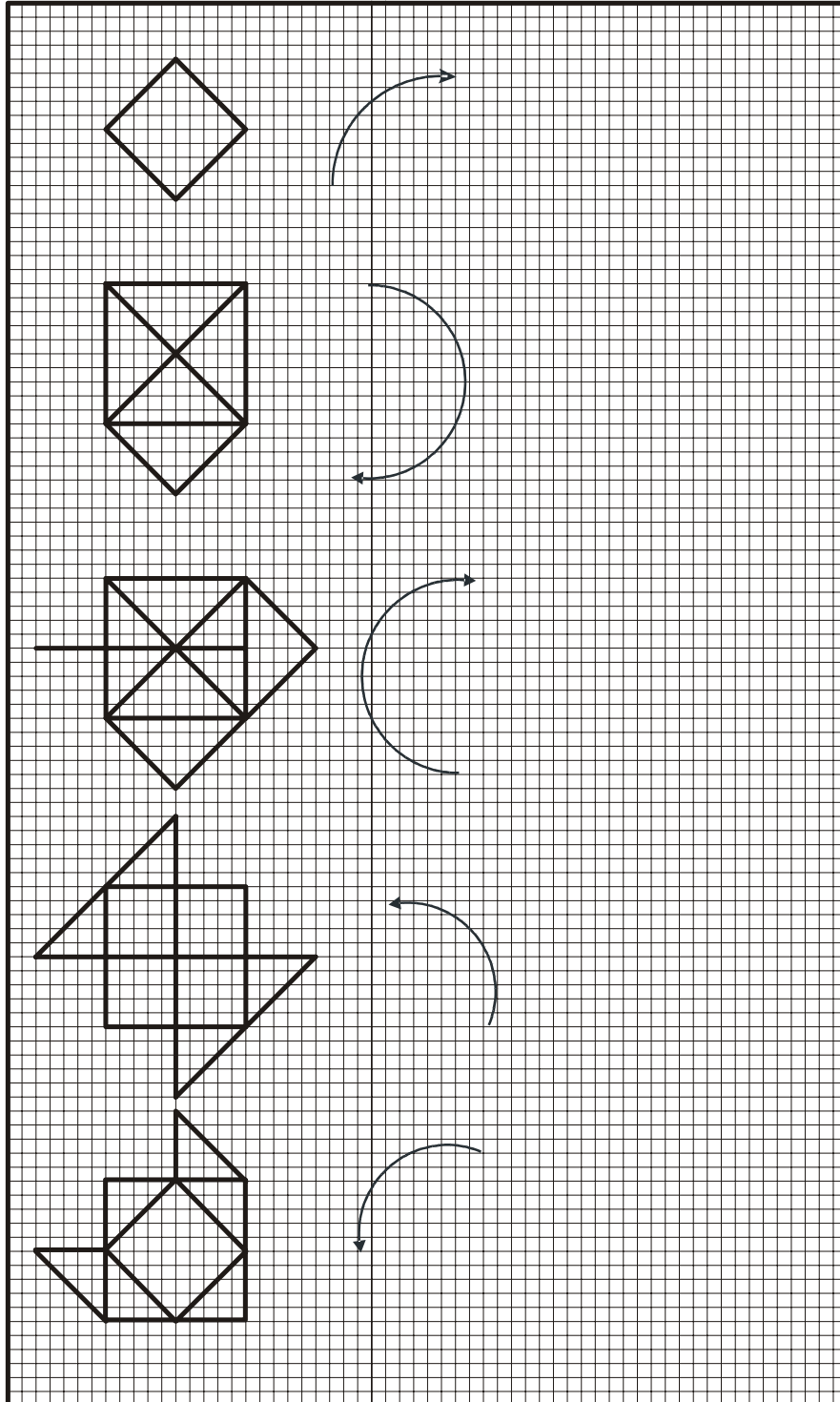
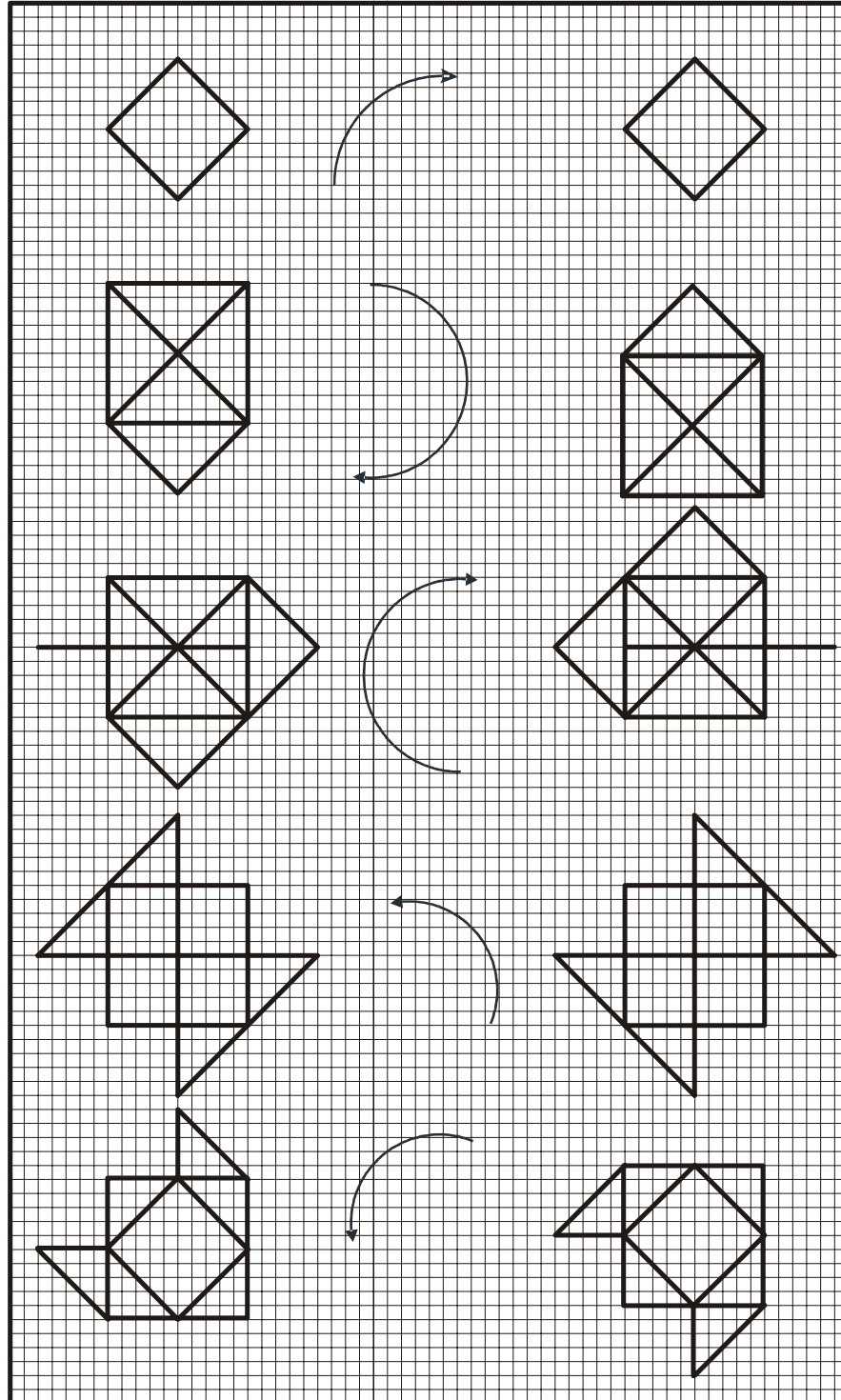


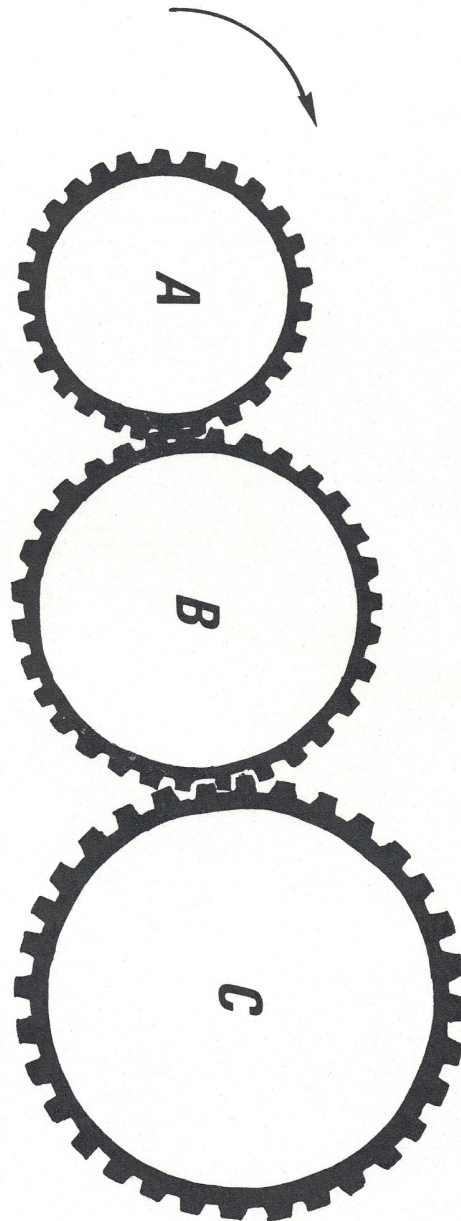
<b><i>Aims</i></b>	<ul style="list-style-type: none"><li>- Acquire a sense of rotation.</li><li>- Find yourself in your environment.</li><li>- Reproduce a shape exactly by moving it around.</li></ul>
<b><i>Applications (examples)</i></b>	<p><u>In class</u>: solid geometry, introduction to negative values and algebra (for the last shape, a three-quarter turn to the right equals a quarter turn to the left).</p> <p><u>At work</u>: training in repairs and maintenance, reading maps, identifying a part from whatever angle it appears, in a picture or in reality.</p> <p><u>In everyday life and for leisure</u>: introduction to origami (which is in itself a very good tool for logical thinking - different stages of completion to be identified, a progression to work out, missing steps to fill in, etc.). Using models before moving furniture in a house or flat.</p>
<b><i>Materials</i></b>	A page showing: <ul style="list-style-type: none"><li>. 5 shapes to reproduce</li><li>. 5 arrows indicating a half, quarter or three-quarter turn to be done</li><li>. 5 blank squares</li></ul>
<b><i>Instructions</i></b>	The pupils have to reproduce the shapes on the left as precisely as possible in the space on the right, making them rotate by a quarter, a half or a three-quarter turn, according to the arrows.
<b><i>Comments</i></b>	The exercise as it is requires a lot of time to reproduce all the shapes given. If the teacher does not have enough time, or is worried that the pupils will get bored, he can ask them to choose three shapes to reproduce from those given. The pupils can use any means to reproduce the shapes exactly with the required rotation. For example, they might decide to cut out their page and turn the original shape around.
<b><i>Variations (examples)</i></b>	<p>The teacher can ask the pupils to reproduce an object placed in front of them by rotating them by a quarter or a half turn.</p> <p>The pupils can choose a shape from those given and give oral indications for the rotation and direction (a half turn to the right, a quarter turn to the left, etc.). At a certain moment, a pupil will be asked to indicate the rotation and the direction so that the shape regains its original position on the exercise sheet.</p>
<b><i>Individualisation</i></b>	Yes.
<b><i>Answers</i></b>	Yes.



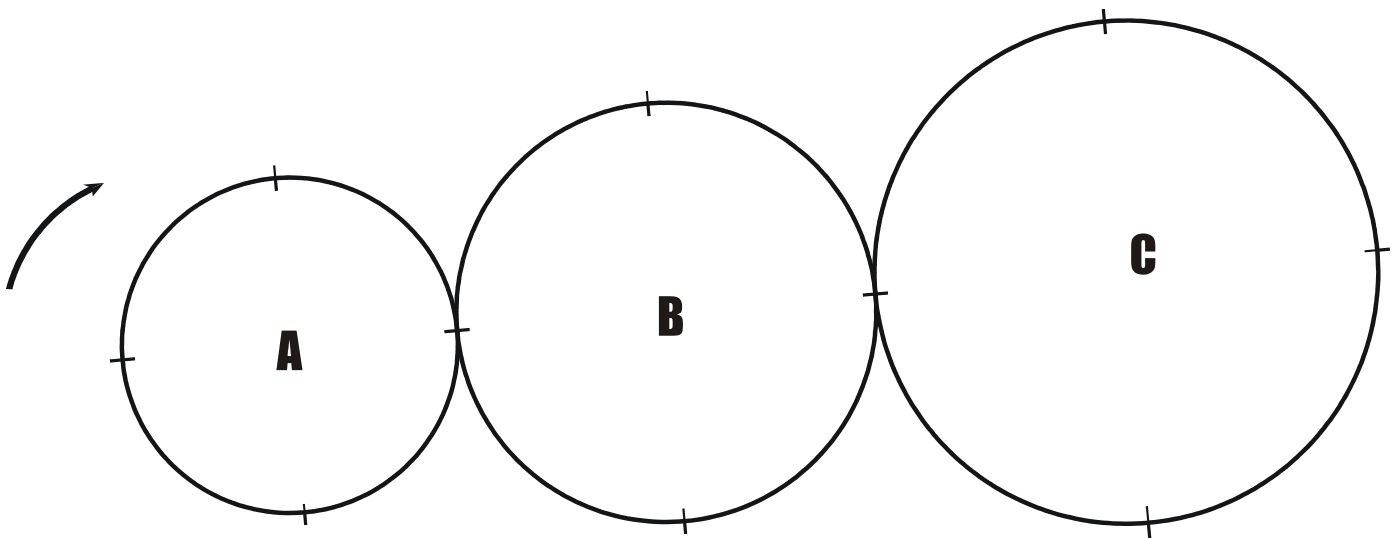


<b><i>Aims</i></b>	<ul style="list-style-type: none"><li>- Work out the direction and the amplitude of a rotation.</li><li>- Develop the sense of wider observation of a complex whole.</li><li>- Develop the ability to estimate size.</li></ul>
<b><i>Applications (examples)</i></b>	<p><u>In class</u>: in geometry, study the link (the wherefore of 3.1415926 etc.) between diameter and circumference.</p> <p><u>At work</u>: understand certain mechanisms, and also any job to do with gearing, or automatic systems. Any task involving the action of one element on another, of one machine on another, of a succession in a chain.</p> <p><u>In everyday life and for leisure</u>: any DIY or handy work where one element has an action on another.</p>
<b><i>Materials</i></b>	<ul style="list-style-type: none"><li>- A page showing 3 circles of different sizes (<math>r = 2</math> cm, 2.5 cm and 3 cm): there are two models available: the one with the marks enables the pupils to do the exercise more easily.</li><li>- An exercise sheet with a series of closed questions.</li></ul>
<b><i>Instructions</i></b>	The pupils must answer the questions on the exercise sheet by ticking the square which they think corresponds to the right answer.
<b><i>Comments</i></b>	The teacher can first give out the page without the marks and, if the pupils find it too difficult, give them the page with the marks.
<b><i>Variations (examples)</i></b>	The answer to the second question can lead to extensions such as: if the diameter of wheel B is twice as big as that of the drawing, will it turn more quickly or less quickly than wheel B in the drawing? Same question if the diameter of wheel B is twice as small as that of wheel B in the drawing. This type of extension can also be done with a circumference twice as big or twice as small, which will help them work out the difference between diameter and circumference.
<b><i>Individualisation</i></b>	Yes.
<b><i>Answers</i></b>	Yes.

Model A



Model B



**1. If A turns in the direction of the arrow, B will turn:**

- 1. in the same direction as the arrow
- 2. in the opposite direction to the arrow
- 3. anticlockwise

**2. If A turns in the direction of the arrow, C will turn:**

- 1. in the same direction as the arrow
- 2. in the opposite direction to the arrow
- 3. it's impossible to know

**3. If C turns full circle, A will do:**

- 1. a full circle too
- 2. 5 turns
- 3. 2 turns

**4. If A turns full circle, C will do:**

- 1. less than one turn
- 2. 4 turns
- 3. 1 and a half turns

**5. If A turns full circle, B will do:**

- 1. 2 turns
- 2.  $\frac{1}{2}$  a turn
- 3. 5 turns

**1. If A turns in the direction of the arrow, B will turn:**

- 1. in the same direction as the arrow
- 2. in the opposite direction to the arrow
- 3. anticlockwise

**2. If A turns in the direction of the arrow, C will turn:**

- 1. in the same direction as the arrow
- 2. in the opposite direction to the arrow
- 3. it's impossible to know

**3. If C turns full circle, A will do:**

- 1. a full circle too
- 2. 5 turns
- 3. 2 turns

**4. If A turns full circle, C will do:**

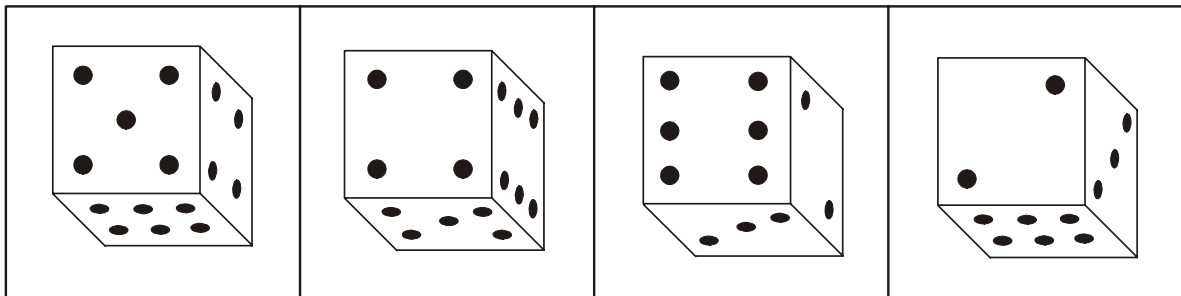
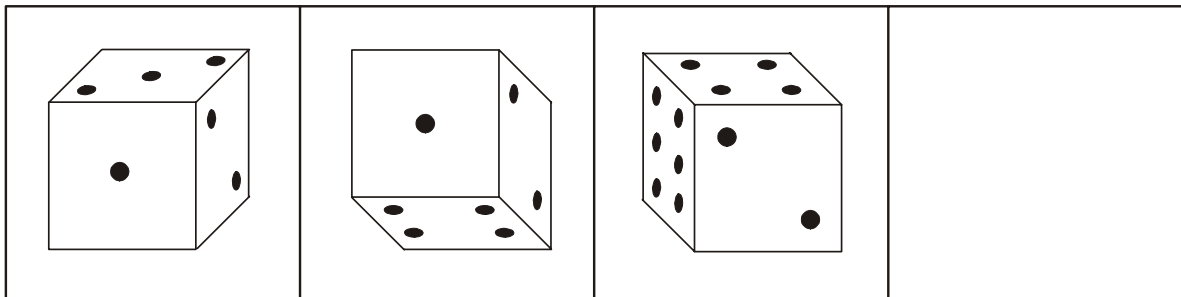
- 1. less than one turn
- 2. 4 turns
- 3. 1 and a half turns

**5. If A turns full circle, B will do:**

- 1. 2 turns
- 2.  $\frac{1}{2}$  a turn
- 3. 5 turns



<b><i>Aims</i></b>	Practise identifying a side after a rotation.
<b><i>Applications (examples)</i></b>	<p><u>In class</u>: anything relating to decentring, identifying the non-visible surfaces of a geometric shape, observation.</p> <p><u>At work</u>: any job requiring you to situate yourself in relation to a movement, depending on whether you are on the right or the left, of a vehicle, for example, when assembling in the factory or repairing. Fit in with a team. Understand the way things move during training in safety, repairs, maintenance, etc</p> <p><u>In everyday life and for leisure</u>: anything concerning children’s games, as well as searching or exploring (for example looking for a document in a file, or a child in a crowd, etc.).</p>
<b><i>Materials</i></b>	A page with a die seen from different angles, the fourth one missing. Below, 4 numbered dice.
<b><i>Instructions</i></b>	The pupils choose, from the 4 numbered dice, the one that, if the rotation is continued in the same direction, would complete the series above.
<b><i>Comments</i></b>	The teacher can use a real die to make explanations easier when the solutions are pooled.
<b><i>Variations (examples)</i></b>	The pupils can each make a die with paper and adhesive tape, and put the numbers or dots in a different order to the one in the exercise. The other pupils have to find the hidden side of each die shown to them when they can see the other three sides.
<b><i>Individualisation</i></b>	Yes.
<b><i>Answers</i></b>	Yes.

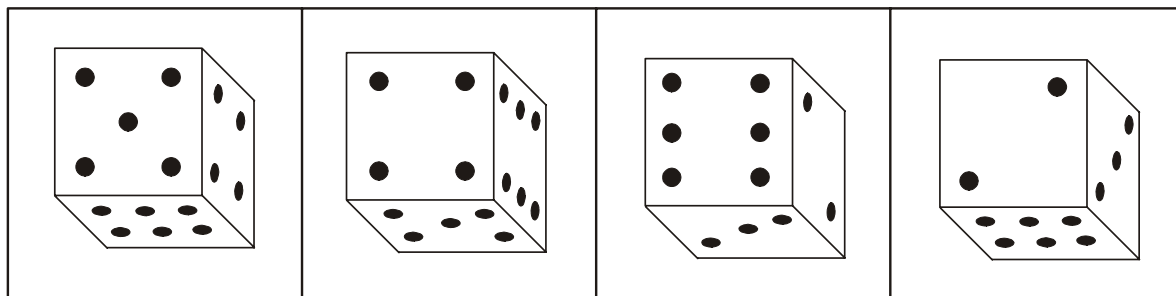
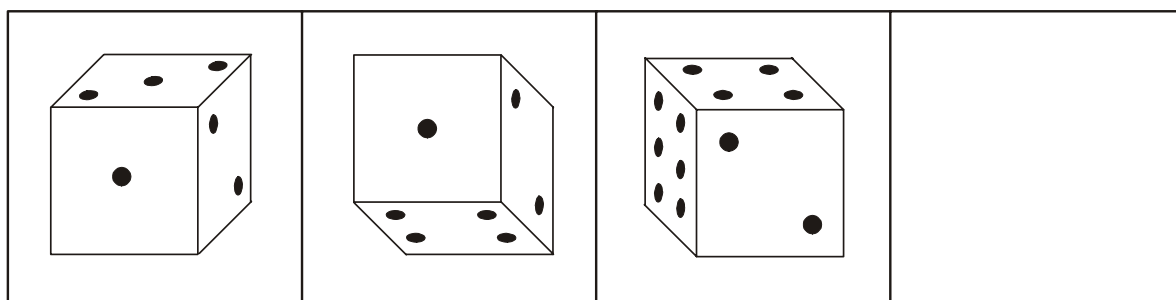


**1**

**2**

**3**

**4**



1

2

3

4