

Ability to recognize spatial objects in different spatial situations (e.g., be able to build tangram patterns, match paper folds and cuts, recognize networks of spatial objects)

Typical Sample Tasks

A cube is rotated 90° several times and leaves stamps on its net.

Click on the side surface of the net which has the illustrated stamp.

A cube (its centre can be found in the origin of the coordinates) is rotated on the y- and x-axis by 90°. The symbol "+" represents an anti-clockwise turn. Choose where the red side will end up.

A B C D

The square is folded once. Some parts are removed with a pair of scissors. After unfolding, one of the four illustrated figures emerges. Which is the correct one? Click on it.

That's the way how the paper is folded and then cut.

After unfolding? →

A: B: C: D:

The pattern shown here will be colored and the letter at the top right is then created.

Click on exactly that side surface which needs to be colored **yellow** after folding.

Ability to recognize relationships between spatial (partial) objects (e.g., being able to recognize a pot and its matching lid, being able to recognize spatial complementary bodies)

Spatial Relation | SR

Typical Sample Tasks

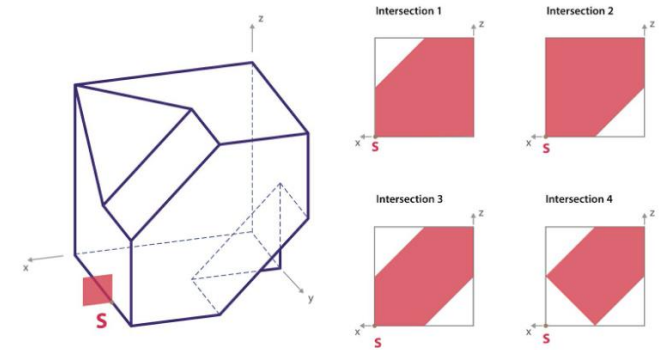
One of the four objects together with the given object results in a complete cube.
Click on the corresponding box.

The given Object	Object 1	Object 2	Object 3	Object 4

- Object 1
 Object 2
 Object 3
 Object 4

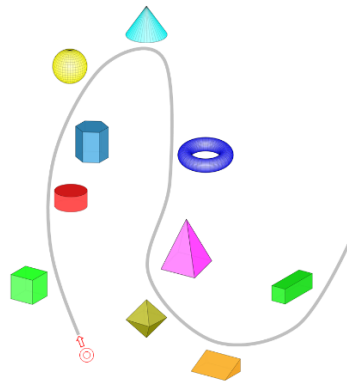
The object is intersected with a plane parallel to the xz plane at point S.

Choose the correct figure of intersection.



Daniel is jogging and notices many figures along the footpath.
Which figures can be found on the **right** side of the path?
Click on the corresponding box.
Mind the direction of movement (arrow).

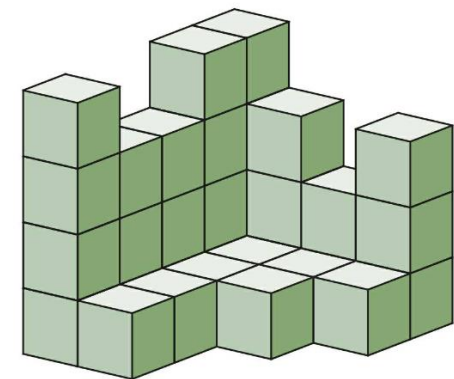
- | | |
|-------------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Cone | <input type="checkbox"/> Cube |
| <input type="checkbox"/> Ring | <input type="checkbox"/> Cylinder |
| <input type="checkbox"/> Bipyramid (octahedron) | <input type="checkbox"/> Hexagonal prism |
| <input type="checkbox"/> Cuboid | <input type="checkbox"/> Sphere |
| <input type="checkbox"/> Wedge | <input type="checkbox"/> Pyramid |



The object made of cubic elements was colored in green.
The bottom side is left unpainted.

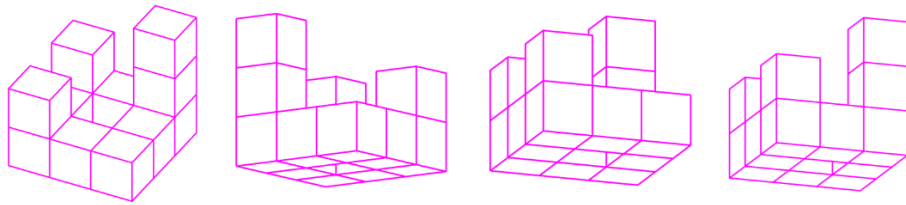
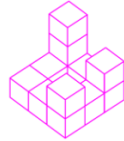
Count all of the visible cubes which include exactly **four sides** colored in green.

State the quantity:



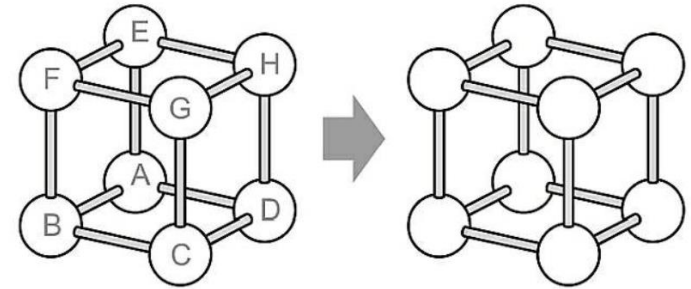
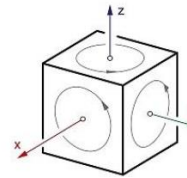
Typical Sample Tasks

There is a series of cubes on the right side. Four other figures of this series of cubes can be found below. Unfortunately, there are **two** figures of a different series of cubes among them. Click on them.



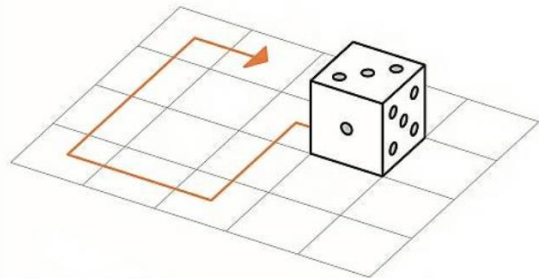
The cube on the left is rotated around the **positive x axis** by 90° .

Click on the spheres on the right that include the vertices A and F of the rotated position.



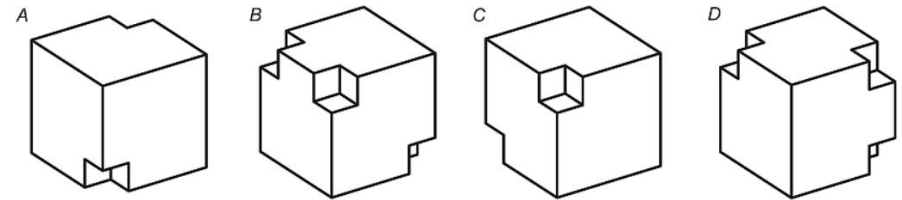
Hint: The arrows in the circles of the left figure below indicate the positive direction of rotation.

A die is put on a grid of squares as shown and subsequently rotated several times around one of its bottom edges along the marked path until it reaches the end position of the polygon which is marked with a little triangle. Which number of dots will be on the **bottom side** of the dice after it has been moved? Hint: The sum of the number of dots of the opposing sides is always 7.



- 1 3 4 5

The drawings depict wooden cubes of which several corners in all cases have been milled out. Only two of these cubes are identical. Which ones? Tick the corresponding letter. Hint: Hidden cube corners are not milled out.



- A B C D

Ability to imagine spatial scenes from other positions (e.g., after movements in real environments, be able to estimate positions and distances of and to objects, be able to read maps and plans, be able to imagine objects from the backside)

Typical Sample Tasks

The figure on the right shows a roundabout from above on which several geometric objects are placed. Sam looks at the roundabout from his position (red dot on the lower right) while it rotates in the direction of the red arrow. He takes pictures of the roundabout.

Which picture did he take first? A or B?

A B

The figure on the right shows nine cars in a parking area. Each car is marked with a letter.

Click on the car that is marked with the letter **B** on the right in the image below.

A group of cuboids was photographed from the corners A, B, C and D.

Click on the photo that was taken from corner **B**.

Four objects are photographed from different positions (1 to 11). From which position was the colored photo taken? Click on the correct number.