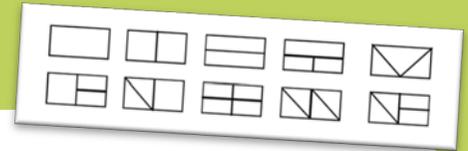# SPATIAL COMBINATORICA 2

20–25 minutes

To develop the ability to judge size by eye when drawing freehand
To practise drawing a variety of different detailed diagrams based on the same outline
To promote flexibility, creativity and spatial imagination – the ability to create several solutions to a problem
To develop self-regulation

FROM YOUR BLOCK SET

❖ Access to your full block set

❖ Clever Monkey and Wise Old Owl

❖ 3 Scaled-Down Diagram Sheets – one of large prisms, one of cuboids and one of large half-cubes (one of each per child/team)

❖ A ruler, a regular pencil and a red pencil (per child)

❖ Some 'architect's glasses' (per participant)

Note: Don't let your child see the diagrams on these sheets! Having a second participant would ideal for this session is possible – if not, participate yourself in the competition.

'Clever Monkey, Wise Old Owl and King Lion':

Show your child the Clever Monkey and Wise Old Owl cut-outs, and tell the story of 'Clever Monkey, Wise Old Owl and King Lion':

All the animals in the savanna were arguing. Some of them said that Clever Monkey was the smartest animal in the whole of the savanna... he can climb anything to find food! Others said it must be Wise Old Owl as she flies so silently at night to catch the tiniest insects to eat!

They argued for a long time. Tempers were rising, so they decided to ask King Lion.

'Well,' thought King Lion. 'This is a difficult question. Obviously, Monkey is best. He climbs so well with his agile arms and legs and his flexible tail. Owl cannot climb trees; she only has wings. On the other hand, Monkey cannot see well at night and he cannot fly – he does not have any wings. So obviously, Owl is best. She is brilliant at flying and catching insects in the dark. Oh, how am I to answer the question? I do not know who is best, and I must find an answer because I am the King Lion! Everybody expects me to know.'

'I'm too busy to answer you now. Come back tomorrow,' growled Lion.

'We will,' the animals replied.

King Lion racked his brains to find a way of answering the question. He paced up and down a clearing in the savanna. He felt very sad and frustrated. His youngest lion cub saw that King Lion was not happy.

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Your child can draw different detailed diagrams for the same outline diagram.
Your child can judge size by eye when drawing freehand.
Your child has created several solutions to a problem.

KEY TO LEARNING @HOME

'What's the matter, Daddy?' she asked. King Lion explained that he had to decide who was the smartest, Clever Monkey or Wise Old Owl, but he did not know how to compare them. One was a great climber. The other was fantastic at flying. The clever little cub thought for a minute and then she laughed.

'I know how you can compare them!' she said. 'Clever Monkey cannot fly and Wise Old Owl cannot climb. But they can both think! Why not have a 'thinking competition'? Set them a problem to solve, one with many solutions, and see who can find the most!'

So that is what they did. They arranged a Thinking Competition between Wise Old Owl and Clever Monkey. The two animals enjoyed it so much that they decided to hold a Thinking Competition every year. And do you know what? Some years Clever Monkey won, and some years it was Wise Old Owl. I wonder who will win this year...

Explain that it is Thinking Competition time now. Tell your child that they can be Wise Old Owl or Clever Monkey – you or the other participant will be the other character. If you have three children doing this session, two should work together as a team of Clever Monkeys or Wise Old Owls, and you with the third child so the teams of animals are equal. Put out the owl and the monkey cut-outs next to each person or team, to make it obvious who is who.

Explain: *Both Clever Monkey(s) and Wise Old Owl(s) must look for as many ways as possible of solving three problems. The winner/winning team is the one that finds the most solutions in total. We can give a point for each correct solution and then add up the points for each animal at the end.*

The Competition – Round One – How Many Ways Are There to Make a Large Prism? (Dissecting an Outline Diagram)

Give each participant/team a Scaled-Down Diagram Sheet of the large prism, a ruler, a regular pencil and a red pencil (for correcting mistakes). Explain that the diagrams are scaled down – how they show here smaller than the actually block size. Then ask them to draw on the diagram all the different ways that they could use blocks to make the prism. They should draw freehand (as they can't draw around the blocks this time due to the size, but they can use a ruler to help them if they want to). If necessary, remind them of the games from the previous session with Brickie Bill. You may also need to model one possibility here, as an example.
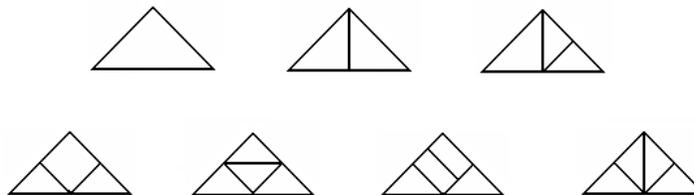
When they have finished creating detailed diagrams (i.e. dissecting the outline diagrams as above), give them architect's glasses. Ask them to put on the glasses to help them focus on the drawings and check their work, and then correct any mistakes with the red pencil. They can use the blocks if they need them to check their solutions.

Put the work of the Clever Monkey(s) next to that of the Wise Old Owl(s). Look together at all the drawings and work out how many different solutions each has found. The one with the highest number of solutions wins the round.
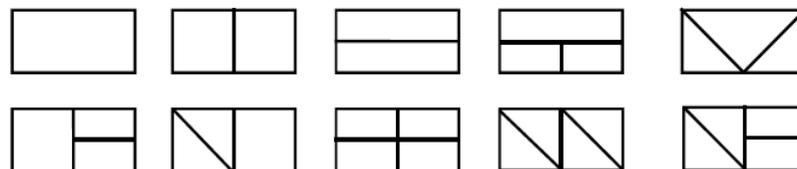
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The Competition – Round Two – How Many Ways Are There to Make a Cuboid? (Dissecting an Outline Diagram)

Announce Round Two. Repeat the process from Round One with the Scaled-Down Diagram Sheet of the cuboid.

The Competition – Round Three – How Many Ways Are There to Make a Large Half-Cube? (Dissecting an Outline Diagram)

Announce the third and final round. Repeat the process with the Scaled-Down Diagram Sheet of the large half-cube.
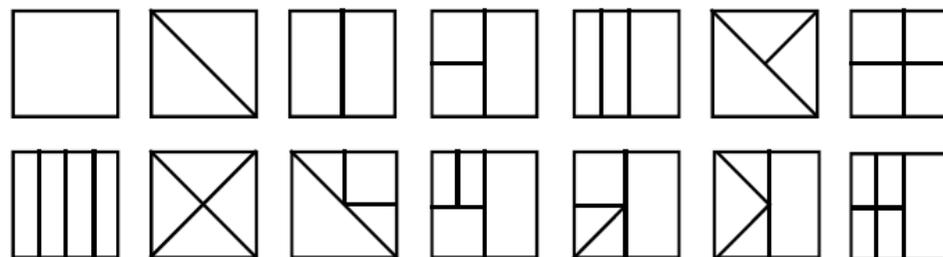
Congratulate the winner/winning team for each round and if appropriate for your child(ren), decide on an overall winner based on the results. Remind your child that some years Clever Monkey won the competition and some years Wise Old Owl won – so being a fantastic and clever thinker can help them win in other such competitions in the future too.

Cut out Clever Monkey and Wise Old Owl separately.