

Spatial Reasoning Toolkit



**Shape composition
and construction**

Birth to 7 years



This keyring includes typical spatial reasoning development and how adults can support this.

Please note:

- Ages are approximate
- Each child develops differently and at their own rate
- Ages are a guide and not expectations
- The stages build so earlier spatial learning continues to develop alongside new learning.



Children are learning to:
Attempt to fit shapes into spaces
e.g. pushing objects through
holes, sometimes successfully



6-12 months



Adults could:

Explore shape sorters and home-made posting toys with children e.g. posting a pompom through a cardboard tube or hole in a plastic lid.



Spatial Language:

'in' and 'on'

6-12 months



Children are learning to:
Begin to explore stacking
objects with flat surfaces
together, e.g. stacking blocks
and cups.



1 to 2 years



Adults could:

Provide a range of construction materials, e.g. wooden blocks, cups and build towers up for children to knock *down*.



Spatial Language:

'up' and 'down'

1 to 2 years



Children are learning to:
Attempt to fit shapes into spaces, beginning to select a shape for a specific space and put objects of similar shape inside each other.



1 to 2 years



Adults could:

Provide bowls, boxes, toys etc. which nest inside each other. Encourage children to try and slot similar shaped objects inside one another.



Spatial Language:

'inside' 'under' 'that's too big', 'that fits perfectly' and 'just right'

1 to 2 years



Children are learning to:
Use blocks to create their own simple structures and arrangements including lines of identical shapes.



1 to 2 years



Adults could:

Provide a range of construction materials, e.g. wooden blocks, Duplo, packaging.

Play alongside children, building your own structure with a commentary, or building together.



Spatial Language:

'on top' and 'underneath'

1 to 2 years



Children are learning to:
Predict and fit pieces into
inset puzzles.



2-year-olds



Adults could:

Provide inset boards and jigsaw puzzles of increasing complexity.

Talk about the shape of the pieces and the holes when fitting pieces into puzzles.



Spatial Language:

'turn' and 'too big/small'

2-year-olds



Children are learning to:
Make simple constructions
with blocks, combining identical
shapes to make walls, towers, etc.



2-year-olds



Adults could:

Provide a variety of indoor and outdoor construction materials.

When building, talk about the shape of the blocks you are selecting and why.



Spatial Language:

'on top of' and 'fits'

2-year-olds



Children are learning to:
Partition and combine shapes to make new shapes with 2D and 3D shapes (e.g. putting blocks together to make a 'floor').



3-year-olds



Adults could:

Cut food items into different shapes e.g. sandwiches, perhaps predicting the shape before cutting.

Display children's constructions and talk about how shapes have combined to make new shapes.



Spatial Language:

'round', 'corners', 'together'

3-year-olds



Children are learning to:
Create arches and enclosures
when building, using trial and
improvement to select blocks.



3-year-olds



Adults could:

Challenge experienced builders to make entrances, bridges and rooms. Offer choices of block:
“Would you like one of these or one of these next?”



Spatial Language:

‘over’, ‘next to’ and ‘beside’

3-year-olds



Children are learning to:
Solve shape puzzles of increasing complexity, selecting shapes according to their properties.



4- and 5-year-olds



Adults could:

Cut up greeting cards to make puzzles and use outline shapes to fit pattern blocks into.

Teach strategies (e.g. turning it around) and describe properties.



Spatial Language:

'between', 'turn around'
and 'flip'

4- and 5-year-olds



Children are learning to:
Compose and decompose shapes, knowing how shapes combine to make other shapes, and identifying shapes within shapes (decomposing).



4- and 5-year-olds



Adults could:

Look at photos of paving and tiling and talk about how the shapes fit together in the patterns made (e.g. triangles making a rectangle).



Spatial Language:

'similar', 'beside', 'inside'
and 'fit together'

4- and 5-year-olds



Children are learning to:
Build complex compositions that include arches (made of three blocks), corners (pieces at right angles) and ramps. Selects shapes to solve a problem.



4- and 5-year-olds



Adults could:

Provide construction materials of different sizes such as blocks and junk modelling for children to build complex models that include corners, arches and ramps.



Spatial Language:

'in front', 'between'
and 'beside'

4- and 5-year-olds



Children are learning to:
Plan mentally by visualising
what they will build and selecting
blocks needed.



4- and 5-year-olds



Adults could:

Provide 2D images of models to inspire children to create a 3D model. Predict what it will look like from the back, side, etc.

Discuss *same* and *different* (model and image) when created.



Spatial Language:

'same shape as', 'from above/behind', 'sideview' and 'larger/smaller than'

4- and 5-year-olds



Children are learning to:
Solve shape puzzles of increasing complexity, predicting which shapes will fit and how.



6- and 7-year-olds



Adults could:

Provide a range of jigsaws of increasing complexity.

Encourage collaborative jigsaw completion, discuss different strategies with children. Ask to predict ('try it in your head') which piece before trying it.



Spatial Language:

'upside down', 'turn it around'
and 'edge'

6- and 7-year-olds



Children are learning to:
Build complex constructions
including repeated units,
staircases and ceilings.



6- and 7-year-olds



Adults could:

Provide images of constructions (including pictorial instructions) and encourage children to create instructions for their own models.

Point out the single units of combined blocks within models.



Spatial Language:

'between', 'underneath'
and 'across'

6- and 7-year-olds



Children are learning to:
Decompose shapes in different ways e.g. predicting folds, nets and cross-sections.



6- and 7-year-olds



Adults could:

Ask children to use visualisation to predict and justify the shape of the paper after cutting across a piece of folded paper.



Spatial Language:

'slanting' 'diagonally' and
'greater/less than 90 degrees'

6- and 7-year-olds



Children are learning to:
Relate 2D and 3D in making
models from photos and plans
and draw 3D models.



6- and 7-year-olds



Adults could:

Provide 2D pictures and 3D model making resources so children can construct 3D models (e.g. recreate a street plan in 3D) from 2D, predicting what the 3D will look like from different viewpoints.



Spatial Language:

'between', 'opposite',
'overlapping', in front of',
'front/side/back view'

6- and 7-year-olds



For children's book ideas
related to shape
composition and
construction visit
[www.earlymaths.org/
spatial-books](http://www.earlymaths.org/spatial-books)

Birth to 7 years

For more ideas and
information please scan
the QR code below to
visit the Spatial
Reasoning Toolkit



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