

Mathematical moments with 3 & 4 year olds

Spatial reasoning: flipping and rotating

Alphabet jigsaw



Who would have thought the letters of the alphabet could pose such a challenge for spatial reasoning! This jigsaw insert puzzle provided lots of opportunities for turning letters round and flipping them over, as well as matching the letters to the shape of their holes. Orientation is a problematic issue with letters: symmetrical letters, like T or Y, and are easily spotted when they are the wrong way round. Asymmetrical letters, like J, are trickier: *Which way does this one go? I've forgotten* asks one child. Other letters get confused, like M and W, or N and Z, because they are basically the same shape in different orientations.

In [this video](#), one child perseveres in trying different ways to make the letters fit in their holes. She is supported by useful suggestions and strategies from her teacher, like, *I think it might be upside down*, and *Turn it round until it fits*. However, finding the language to communicate orientations to a young child is challenging too. For instance, we refer to things being 'upside down' both horizontally and vertically, so *Turn it upside down* could mean 'rotate' or 'flip over'. *Turn it all the way around* is effective here.

As the activity progresses, the child seems to become more confident, rotating and flipping S, with no preliminary attempts, predicting those moves will make it fit. And completing the jigsaw is very satisfying to both children!

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