

Spatial Cognition to Enhance Mathematical Learning (SPACE): Research Summary



What did we do?

We wanted to know if a Lego® block construction programme paired with teacher training could improve spatial skills and mathematics competence. We called this the SPACE programme.

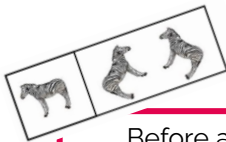


SPACE
SPATIAL COGNITION TO ENHANCE
MATHEMATICAL LEARNING

409 children took part in 12 whole class SPACE sessions during their mathematics lessons at school. 104 children formed our control condition.

We delivered professional training to classroom teachers prior to the SPACE sessions, providing them with prompts to encourage children's spatial reasoning during the sessions.

Each week, the SPACE sessions had a different fun theme, such as *Scientists* or *Superheroes*.



Before and after the 12 SPACE sessions, children completed tasks to measure their spatial language, spatial and mathematics abilities.



We found:



The SPACE programme improved spatial ability and mathematics.

The programme was enjoyable and pupils engaged well with the visual instructions removing barriers to learning.

Positive effects were also observed on children's fine motor skills, resilience, perseverance and confidence.

Block construction training was easy for teachers to deliver but some expressed a challenge fitting it into the existing curriculum content

Recommendations:

Teachers include spatial activities and use Lego or blocks to support children's mathematics learning.

Spatial training is part of teachers' continued professional development.

Currently, spatial reasoning is largely missing from mathematics curricula.

We recommend that curricula are spatialised.

For more on
Spatial
Reasoning:

