TMERC

Trent Math Education Research Collaborative

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Reconsidering students' assets in mathematics: A spatial reasoning approach for young children

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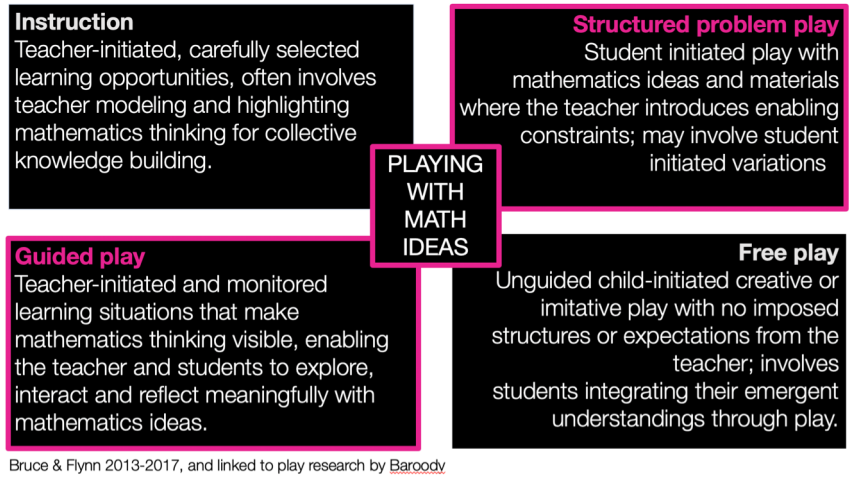
Math for Young Children

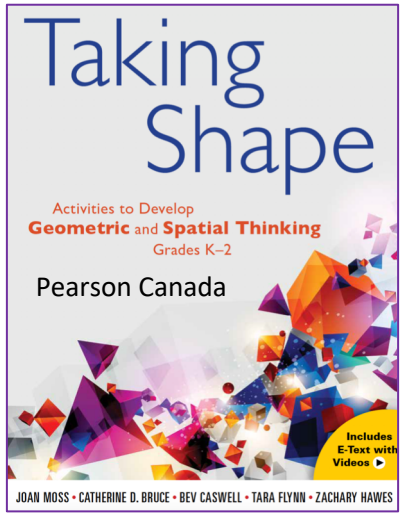
The Math for Young Children research project has been in progress since 2011. Our goal is to investigate young children's mathematics (Kindergarten-Grade 2), with a particular focus on spatial reasoning. The M4YC website is designed as a resource for early primary teachers, and contains research backgrounds as well as lessons, photos, video and full lesson study packages from teacher teams involved in the M4YC lesson study research.

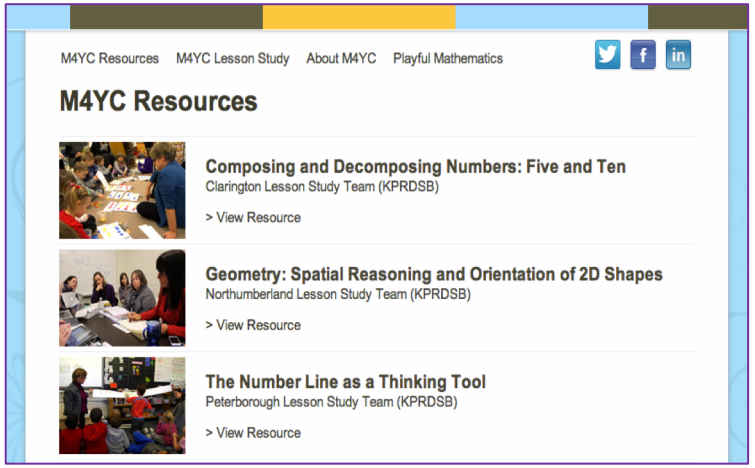
http://www.mathforyoungchildren.ca/

Spatial reasoning, involves the location and movement of objects and ourselves, either mentally or physically, in space.



Bruce & Flynn 2013-2017, and linked to play research by Baroody





Spatial Reasoning…

…and mathematical thinking are intricately linked. (Geary, 1996; Dehaene, 1997; Mix & Cheng, 2012; Cheng & Mix, 2013; Verdine et al., 2014)

…is an important predictor of success in mathematics and in STEAM careers. (Wai, Lubinski & Benbow, 2009; National Research Council, 2009; Newcombe, 2010, 2013; Gunderson, Ramirez, Beilock & Levine, 2012; Farmer et al., 2013; Verdine, Irwin, Golinkoff & Hirsh-Pasek, 2014)

…can be improved. (Uttal et al., 2013)

Sample teacher interview quotes:

"Children's capability is huge. You sometimes think they can't do that, they're too young…how many times have they surprised me when we thought it would be a challenge and it wasn't. They surprise you."

"…So before, it was very basic, just knowing the shapes and positional words. And it turns out there's this whole other world of activities and things that children can do, that they're very capable of doing…so why weren't we doing it before?"