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## Brief

## Mathematising in play on a scientific basis

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In this article, we aim to direct attention to the notion 'mathematising', drawing on Hans Freudenthal's definition and use. In recent years, the notion has been used in the Nordic countries' discussions on mathematics education in the early years, but not always in line with the original meaning as posed by Freudenthal. This is why we intend to problematise the notion and discuss implications for early childhood mathematics education by analysing empirical examples from a Swedish development- and research project. More explicitly, based on 94 video-recordings of three play-based activities we study how mathematising is realised in the interaction between toddlers and preschool teachers, without the original intentions with the play activity being broken or disturbed, but rather expanded and deepened. The results show that it is a challenge to integrate mathematising in play, in that the mathematics become relevant and useful from the perspective of the participating children. In many observations we identify play and mathematics as parallel activities. However, this may be a necessary starting point for enabling mathematics to become embedded in the activity. When mathematics is embedded in the play activity, two options occur: either the mathematics form and content are embedded but not necessary for completing the activity, or the mathematics form and content are embedded and necessary for the child completing the activity. We conclude, based on our interpretation of Freudenthal's intention with the notion, that it is in the last way of embedding mathematics in an activity where mathematising is realized. A deeper analysis of criteria that seem critical for mathematising to occur are: children's agency, knowledge of the structure of the activity and initial mathematical ideas. The analysis further reveals that the appearance of

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mathematising seems to be related partly to the design of the play-based activity, whether mathematics is possible to embed as a relevant and useful part, and partly to the role the preschool teacher takes in affording the child agency to act and explore mathematics as to be useful for the play activity.

Keywords: early childhood education; mathematising; play; teaching