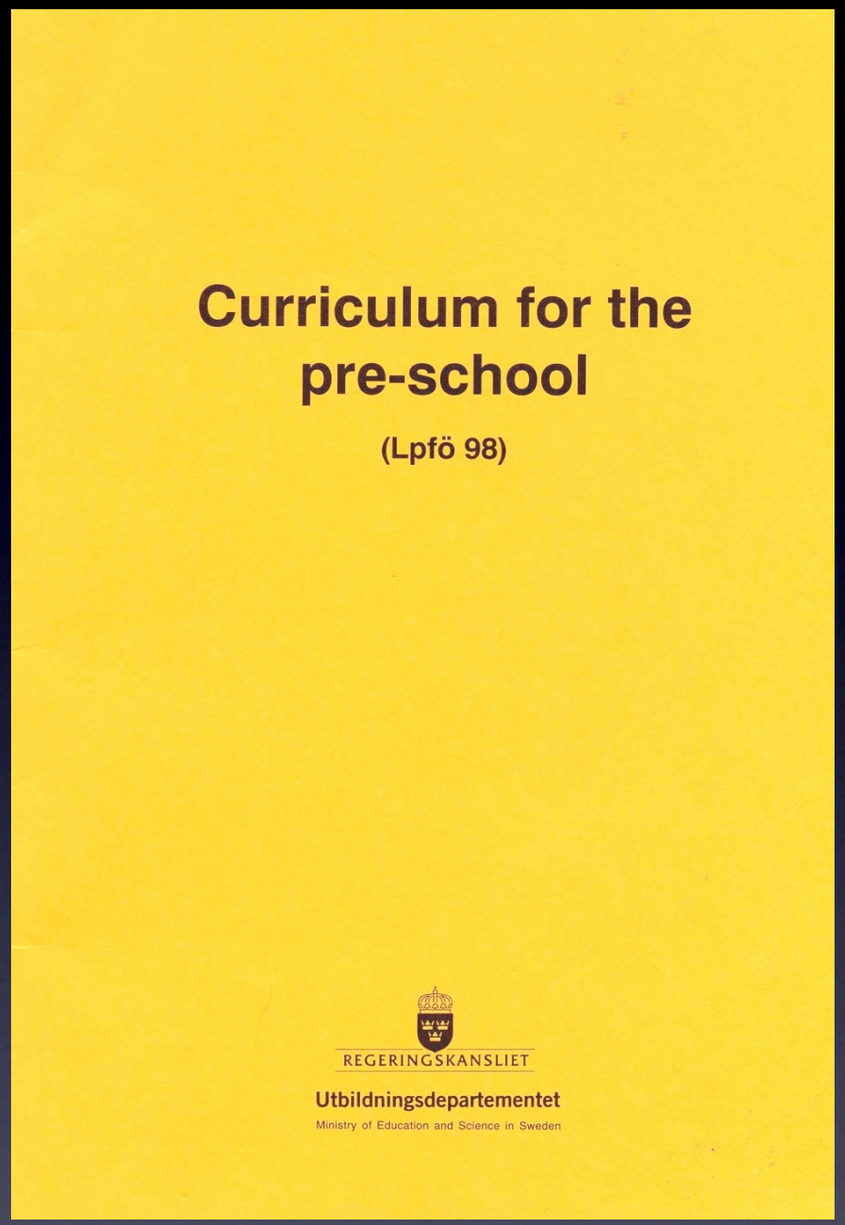
Small Children's Mathematics

Lillemor Emanuelsson, NCM



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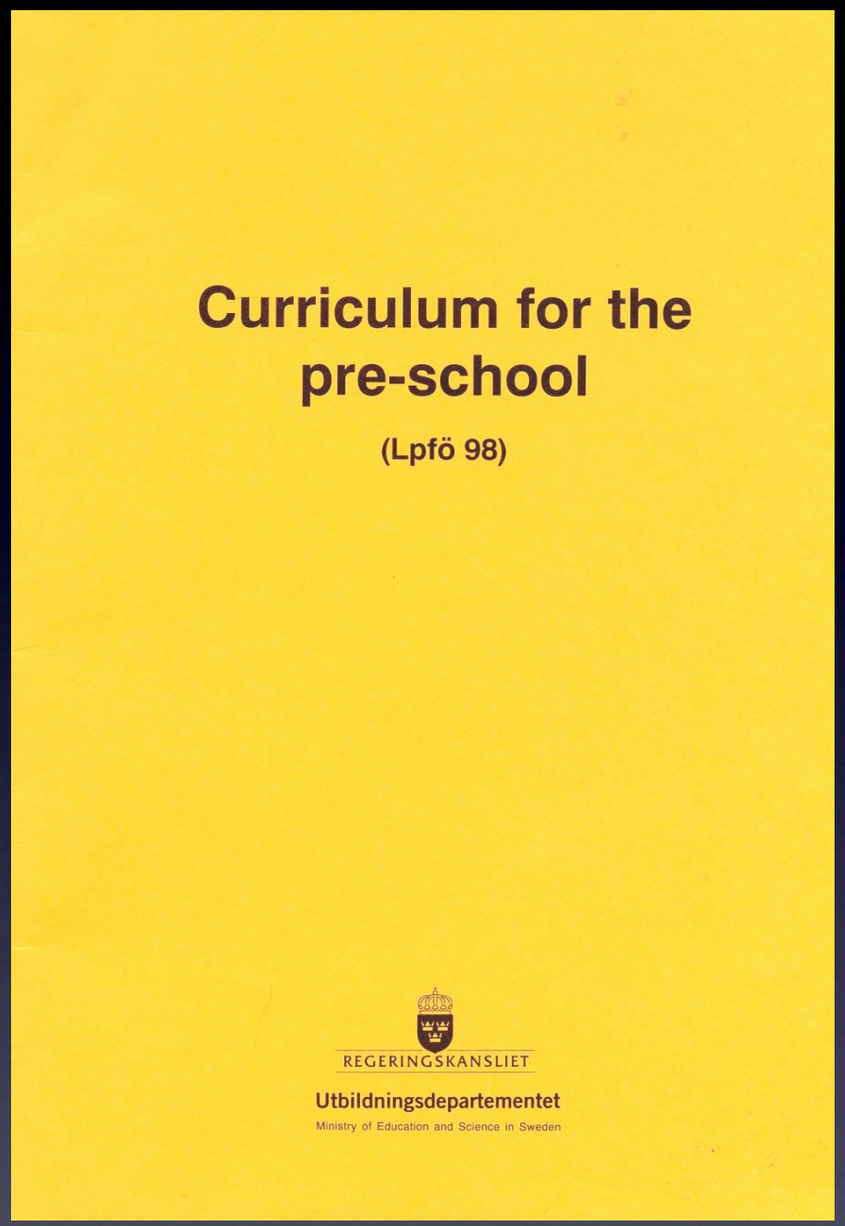

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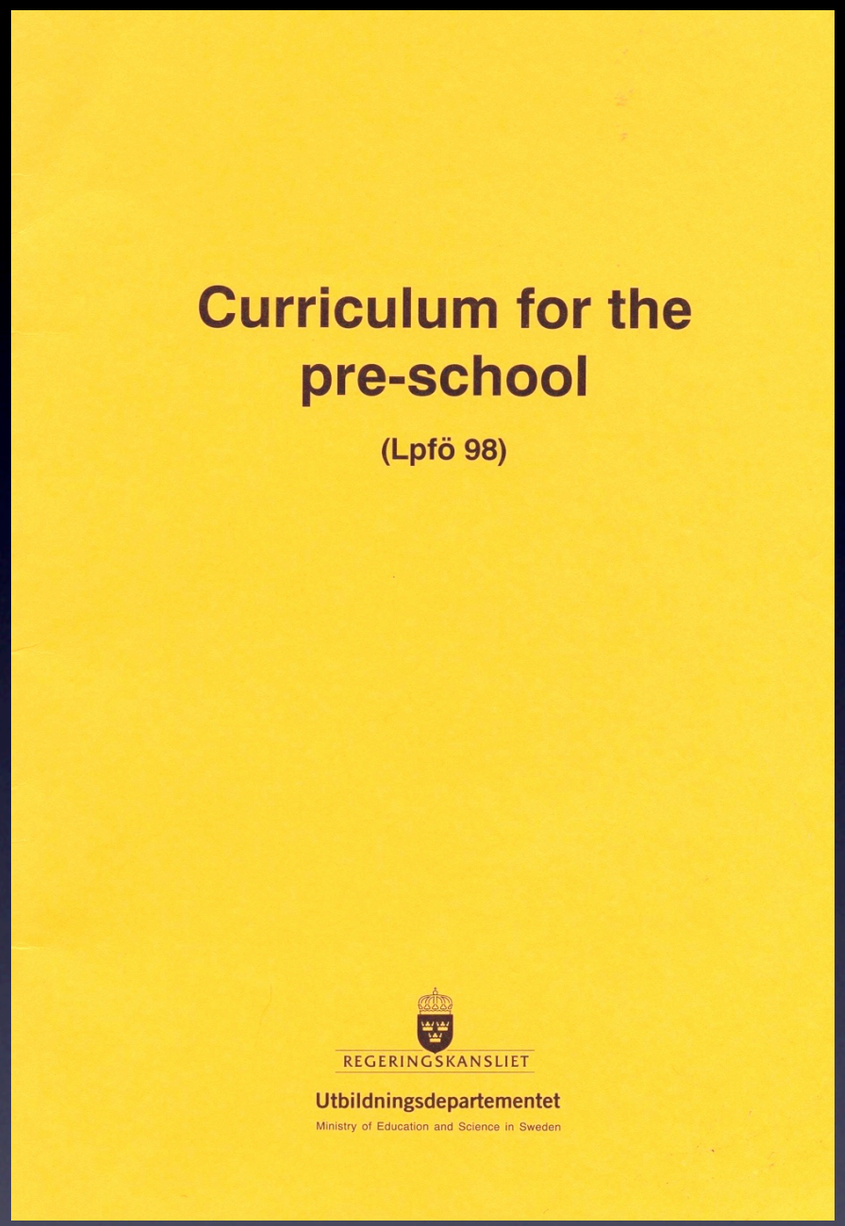
Key words



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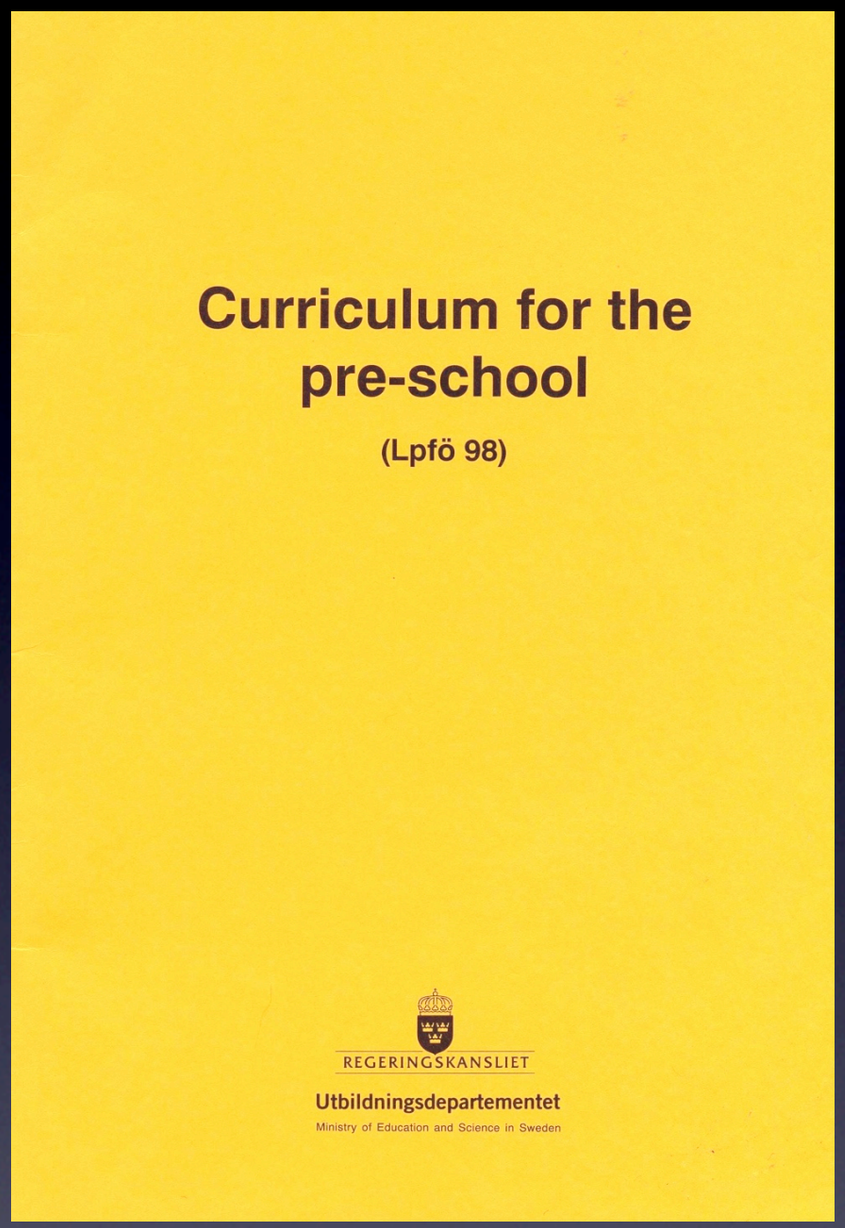

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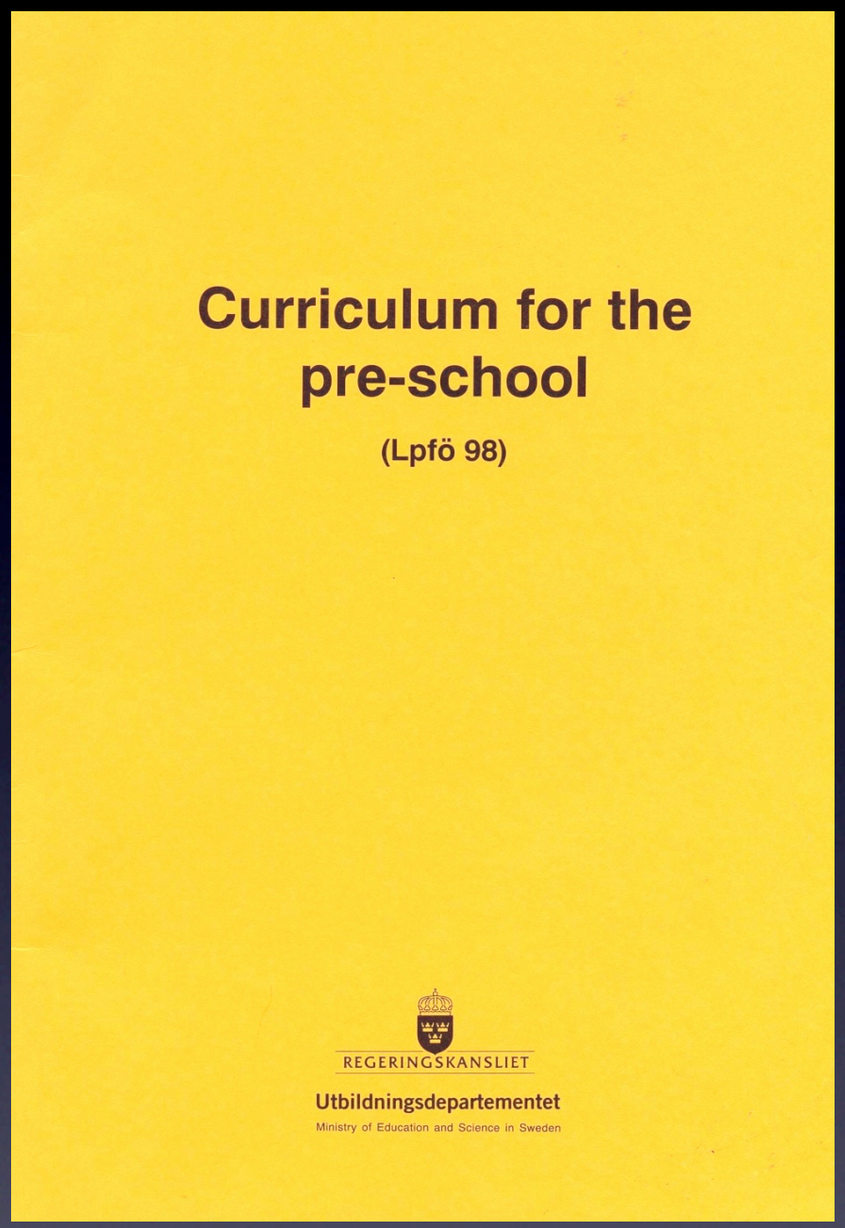

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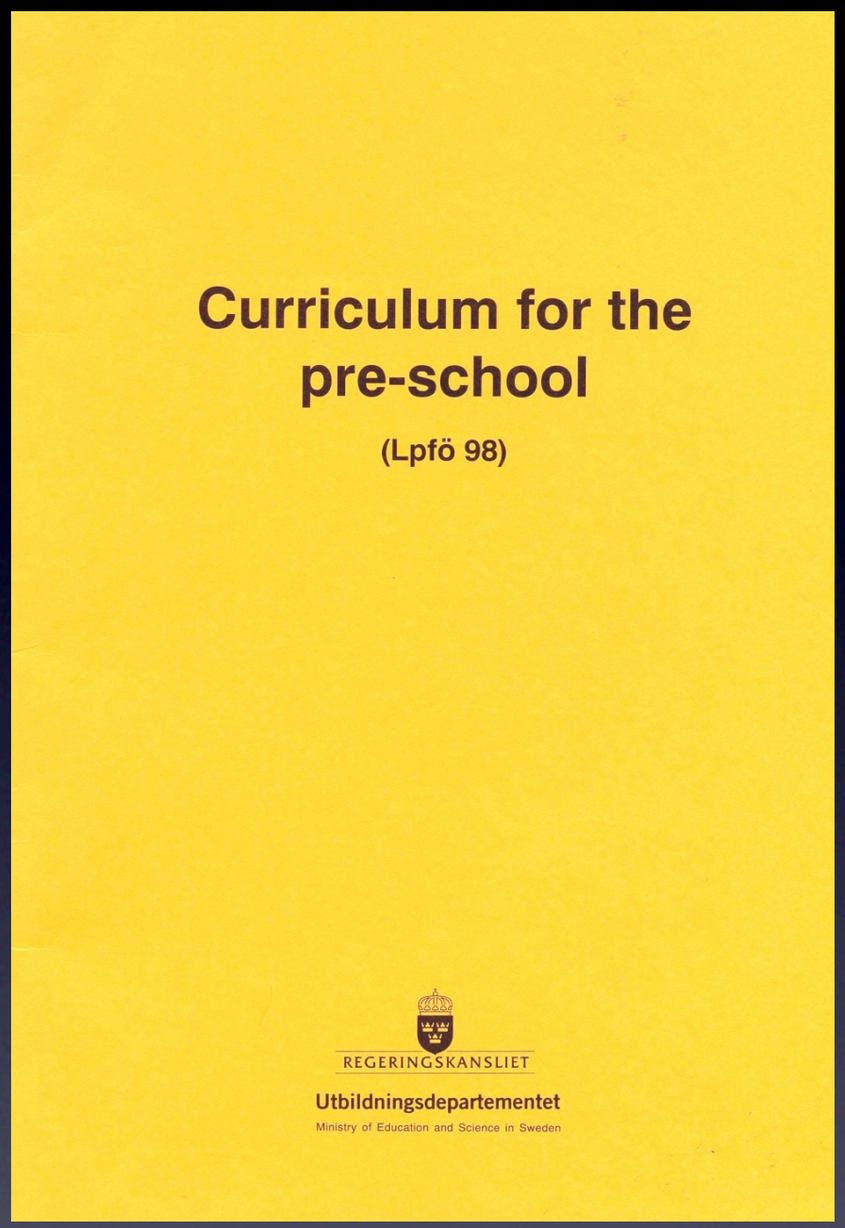

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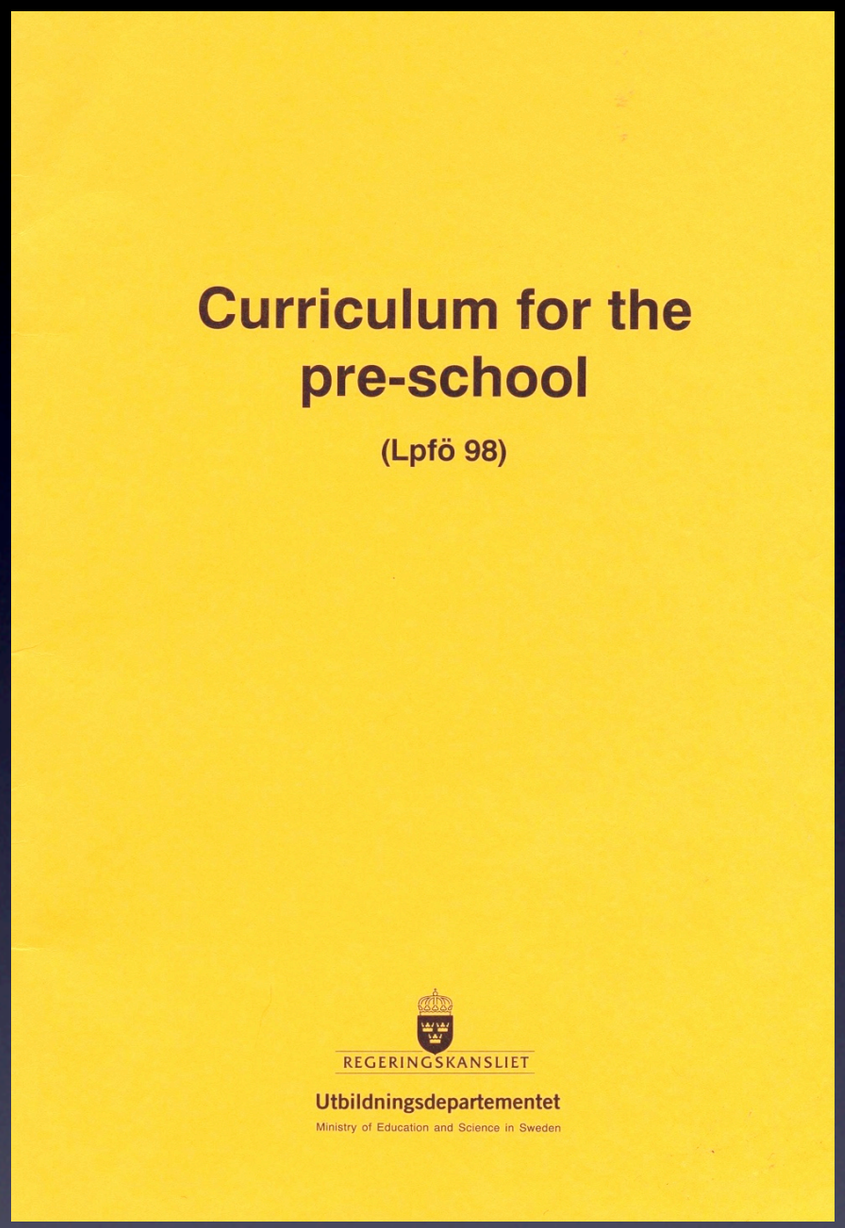

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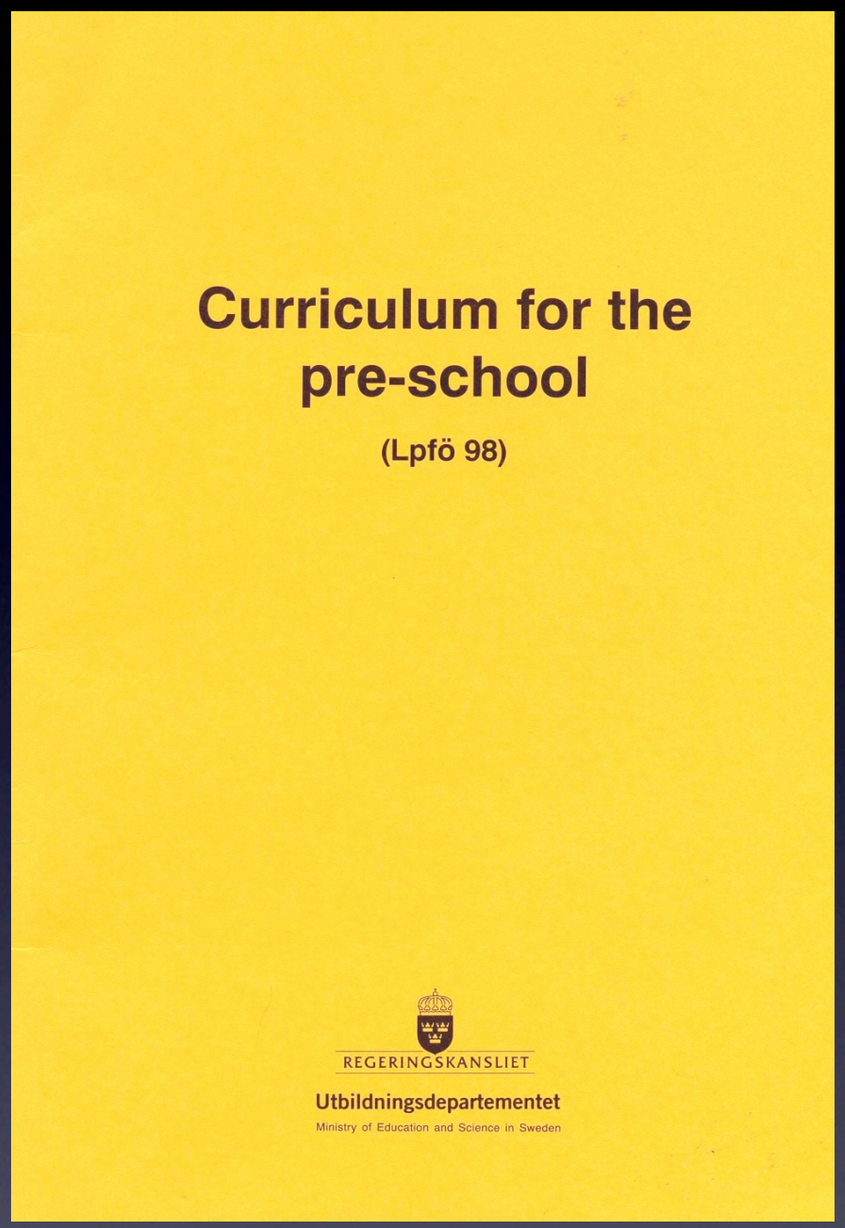

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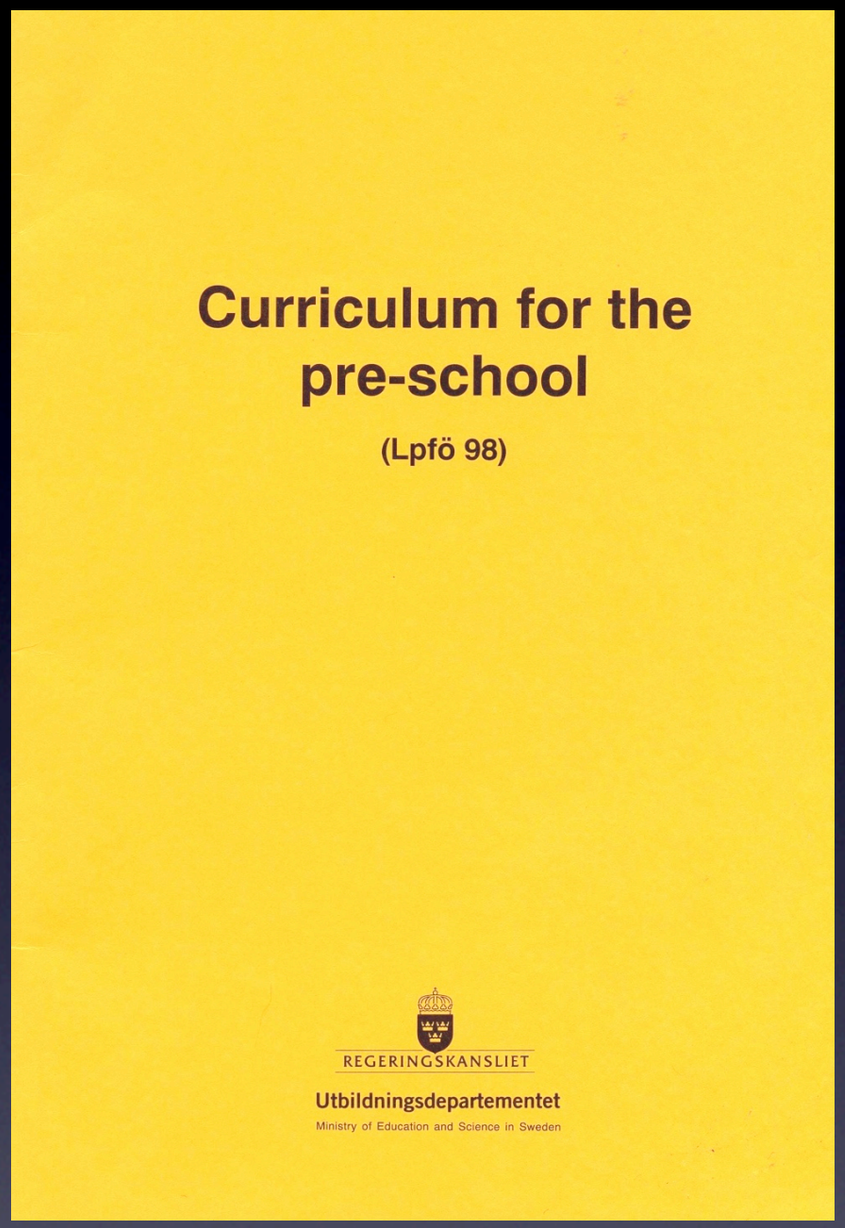

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lifelong learning

enjoyment

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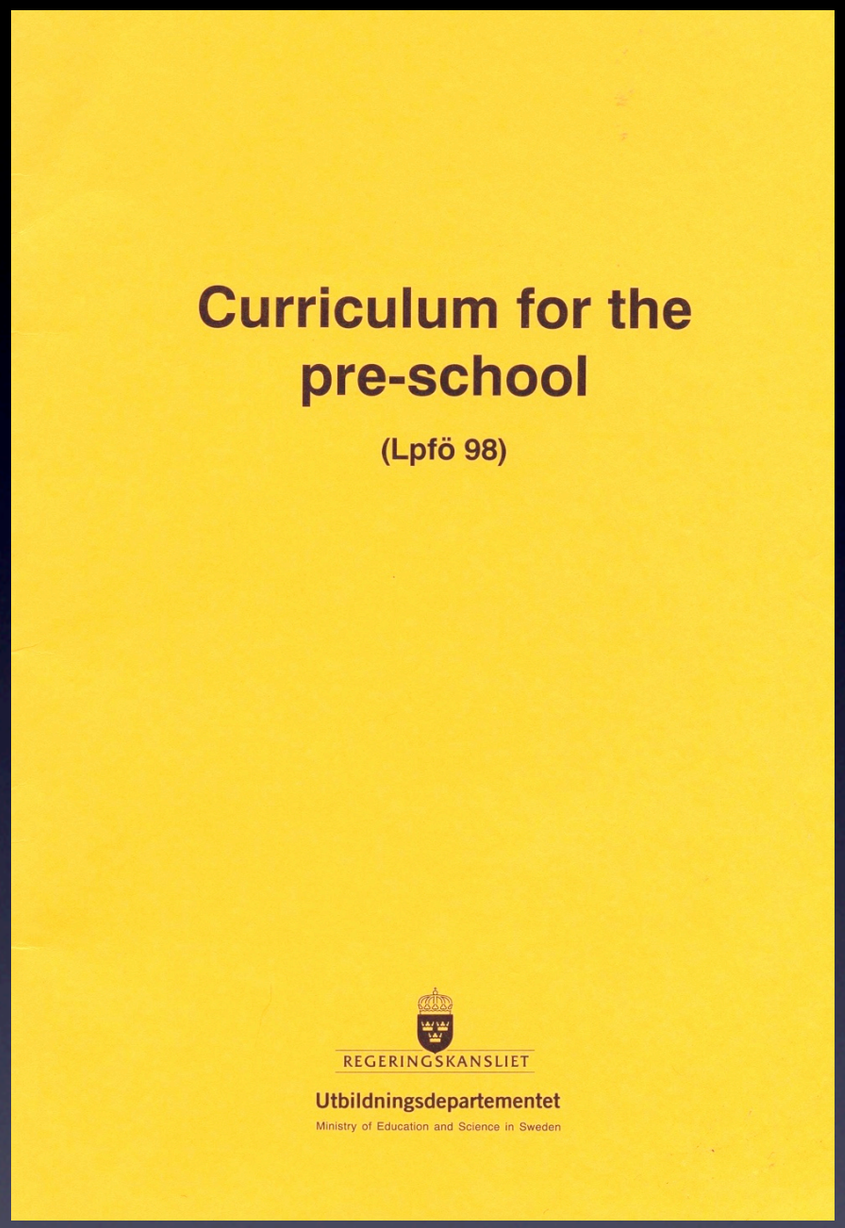

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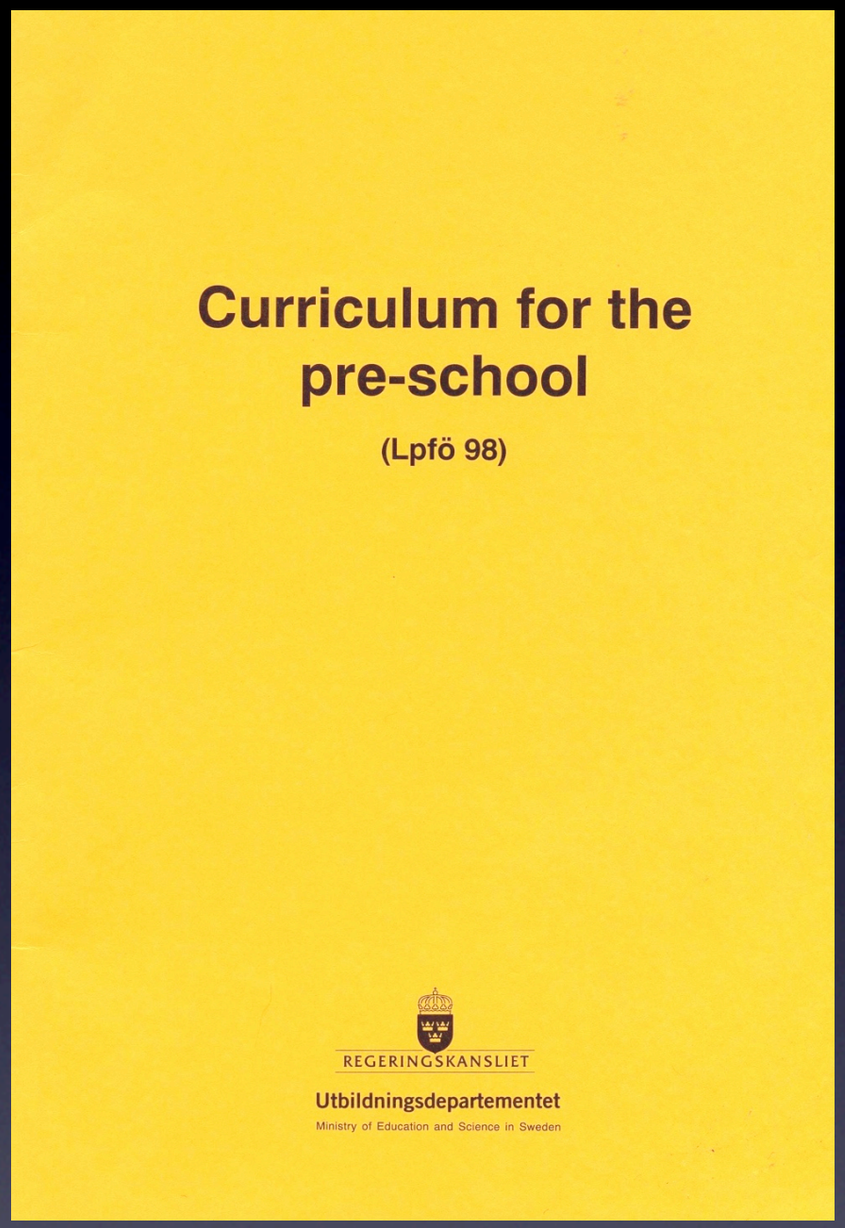

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Goals to strive towards (*Mathematics,* Lpfö 98, pp. 12-13)

... pre-school should try to ensure that children

Goals to strive towards (*Mathematics,* Lpfö 98, pp. 12-13)

... pre-school should try to ensure that children

– develop the ability to discover and use mathematics in meaningful contexts and situations,

– develop their appreciation of the basic characteristics of the concepts of number, measurement and form, as well as the ability to orient oneself in time and space.

Pilot project in pre-school mathematics for teachers and children 1-5 years old

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The project was based

– on interaction adults – children, on what children learnt from each other

– on exploration, the desire to learn – through play, social interaction, exploration and creativity, observation, discussion and reflection, based on children's and teacher's experiences and interest.

130 teachers from
different regions
of Sweden

Övertorneå
Överkalix
Stockholm
Södertälje
Nykvarn
Skövde
Ulricehamn
Borås
Strömstad
Vetlanda

The goals of the project

The goals of the project

– to observe children's mathematics,
– to offer and stimulate experiences, reflections on development of early mathematics,
– to develop competences in studying, analysing, communicating and challenging children's abilities,
– to show the excitement and creativity of mathematics,
– to highlight the importance of playing and variation in children's thinking and learning,
– to support teachers' networks after the project.

Organization and content

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May 2003, half a day – NCM supervisors visiting preschools
Aug 2003, one day and a half – project presentation and discussion
Oct-Nov 2003, half a day twice – Number and Spatial sense
Feb-May 2004, half a day three times – Sorting, graphs,
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Children´s literature.

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In between these seminars the teachers met for half a day.
They tried different activities with the children, made interviews, wrote a logbook, which formed the basis for the meetings.
The pre-school managers were involved and participated in at least two meetings.

An activity in the project

Let us go outdoors and have exciting experiences together!

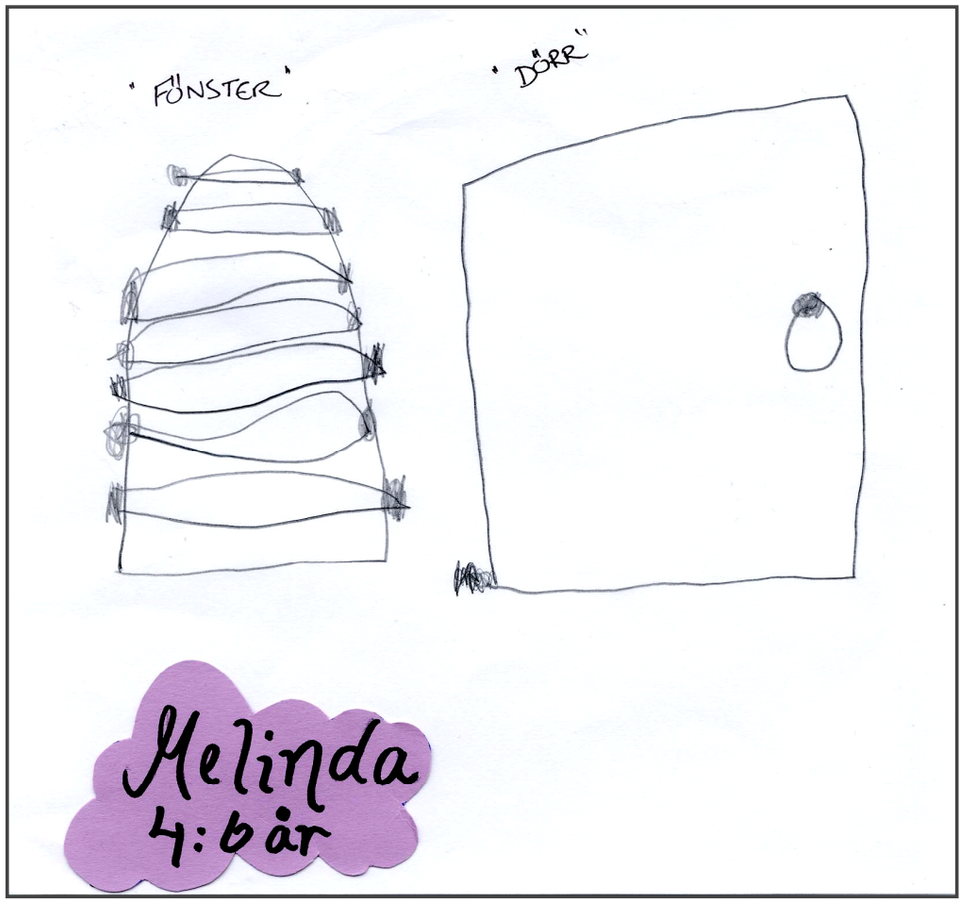
An activity in the project

Let us go outdoors and have exciting experiences together!

The children observe shapes and look for similarities and differences on buildings, windows, doors, gateways, gates, fences, balconies and ...

The children make pictures and models of their findings.

Discussion.



Melinda (4:6) is drawing the window and the door with the symmetric pattern.

Malin (4:10) has drawn the church,
a beginning of a three-D picture.
She also drew the fence.

EVALUATION

The teachers were asked to describe the mathematics they found in a picture,
in the beginning and in the end of the project.

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The teachers were asked to describe the mathematics they found in a picture,
in the beginning and in the end of the project.

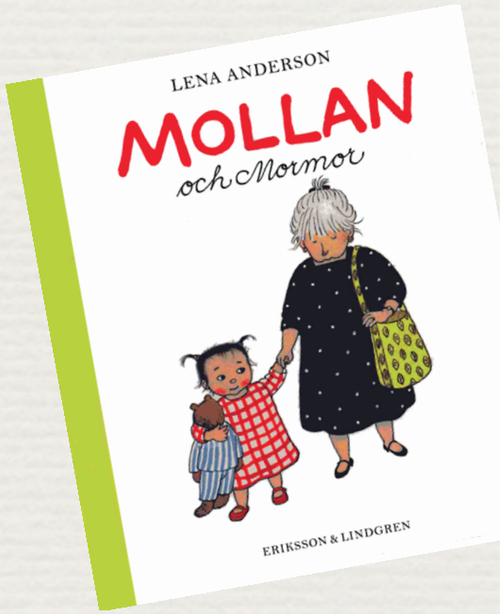
The first time most of them only mentioned numbers, counting, colours and forms.

At the end of the project they expressed more developed views, emphasising the importance of mathematics.

- Looking for possibilities. The teacher in focus.
“What would challenge the children?”

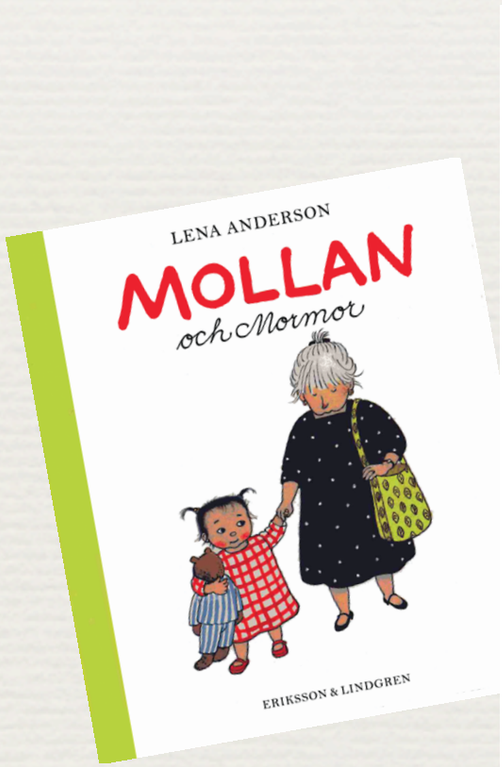
- Problematising. The child in focus.

Mathematics in Children's Literature



Secrets in grandma's bag...

Mathematics in Children's Literature



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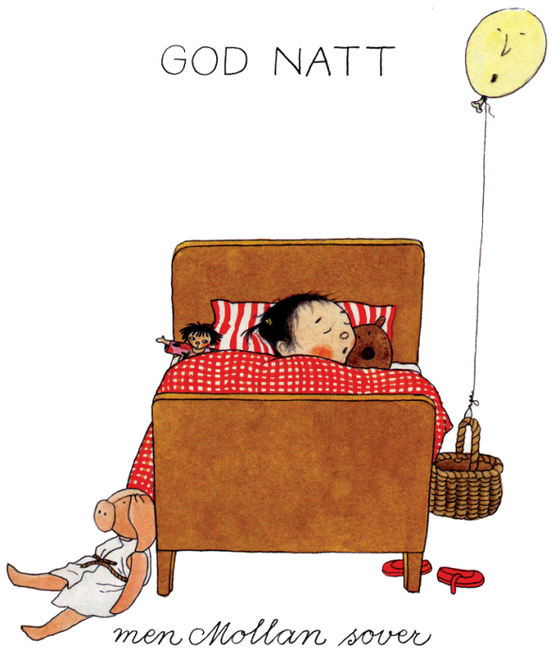
GOD NATT



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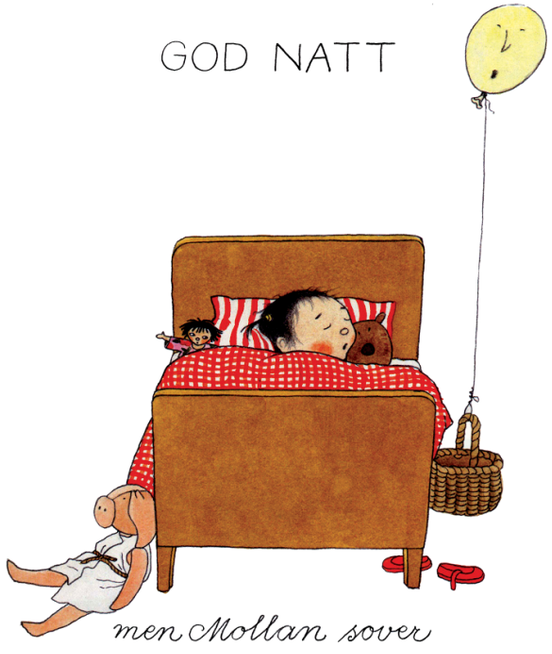
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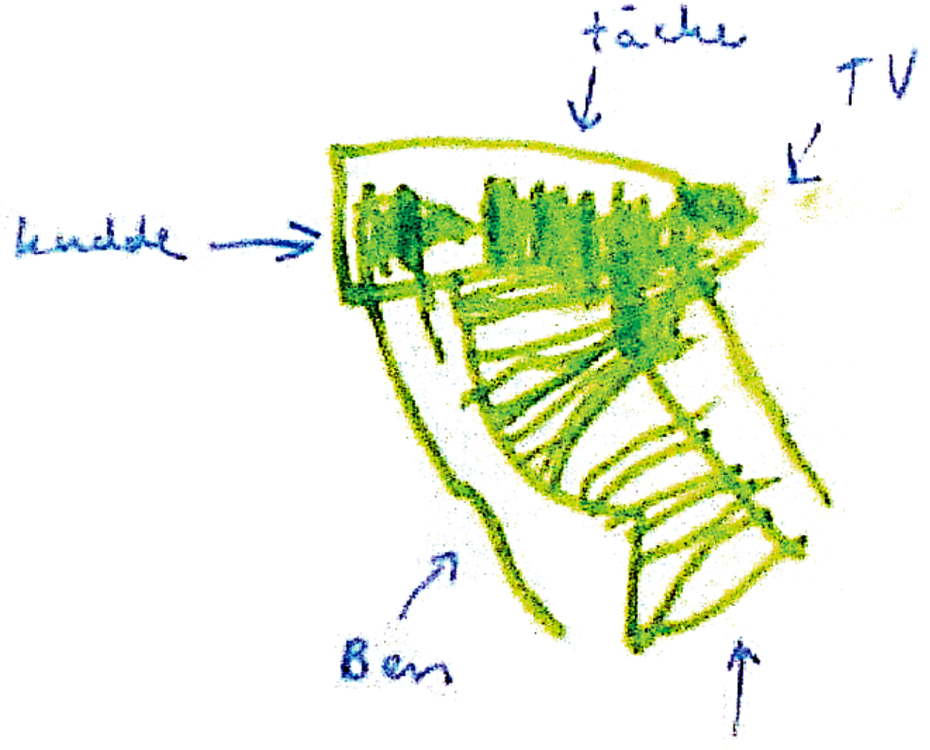
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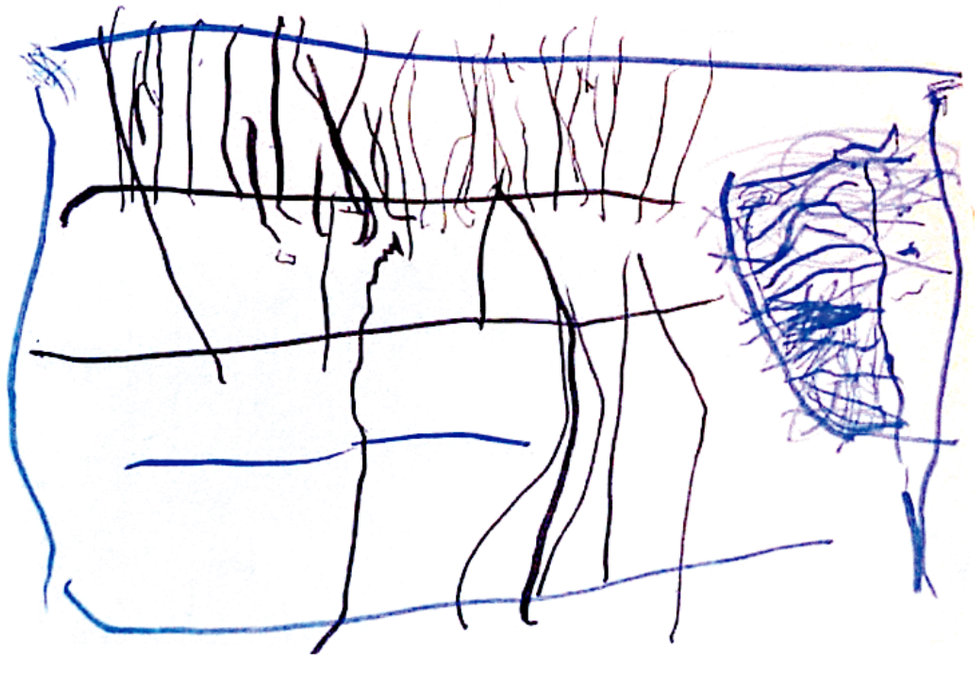

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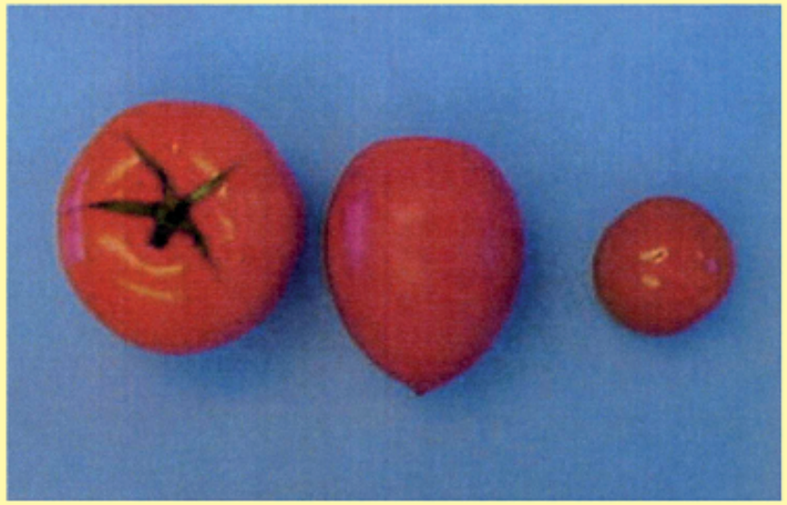

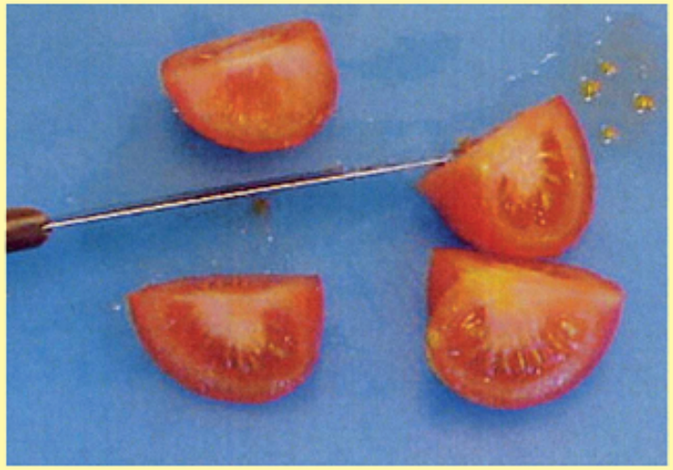

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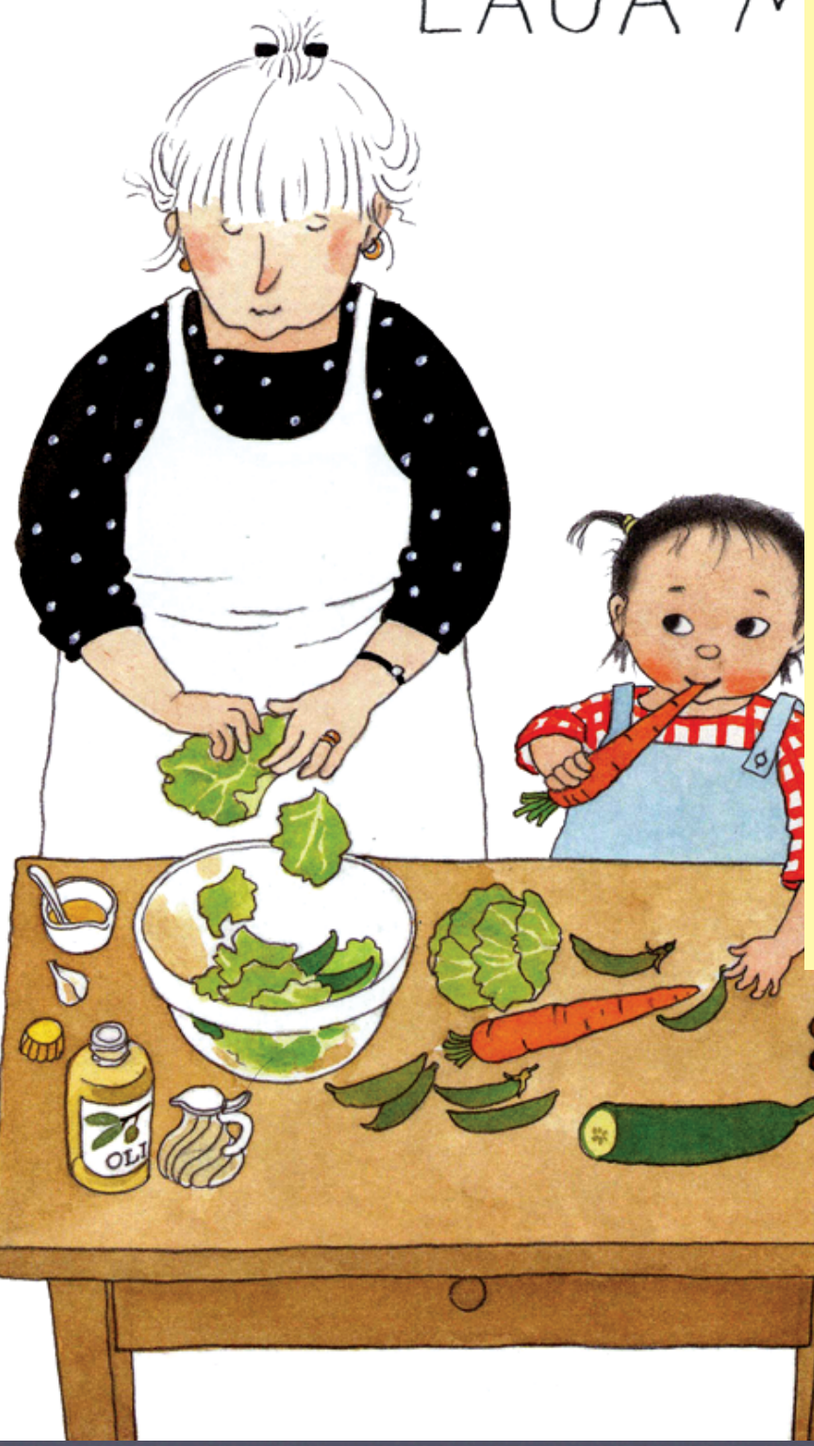
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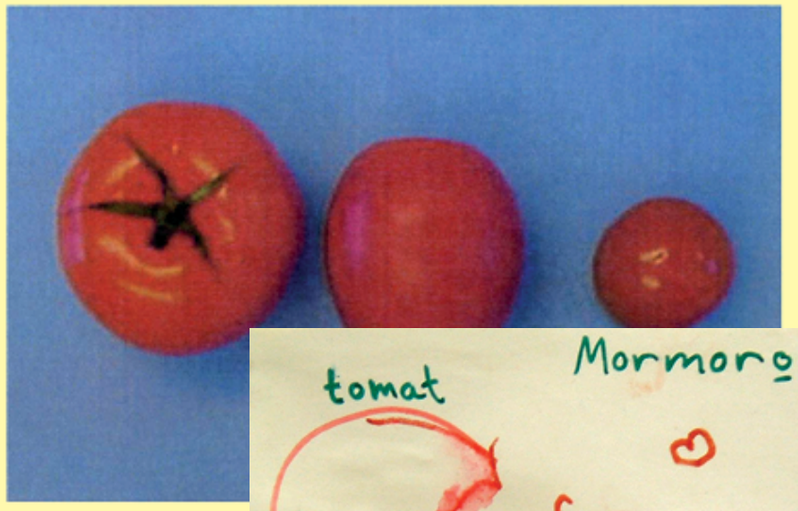

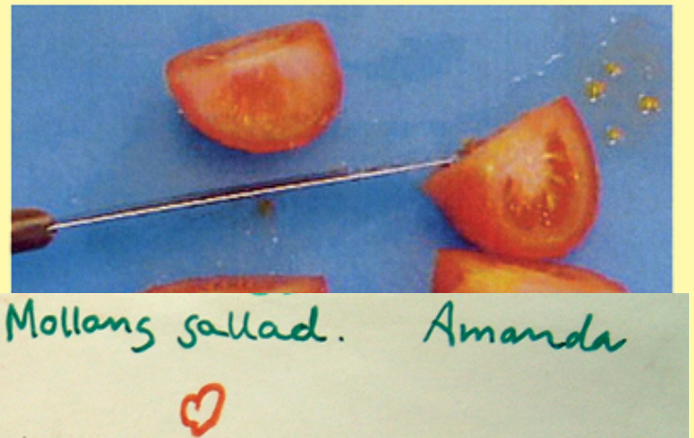

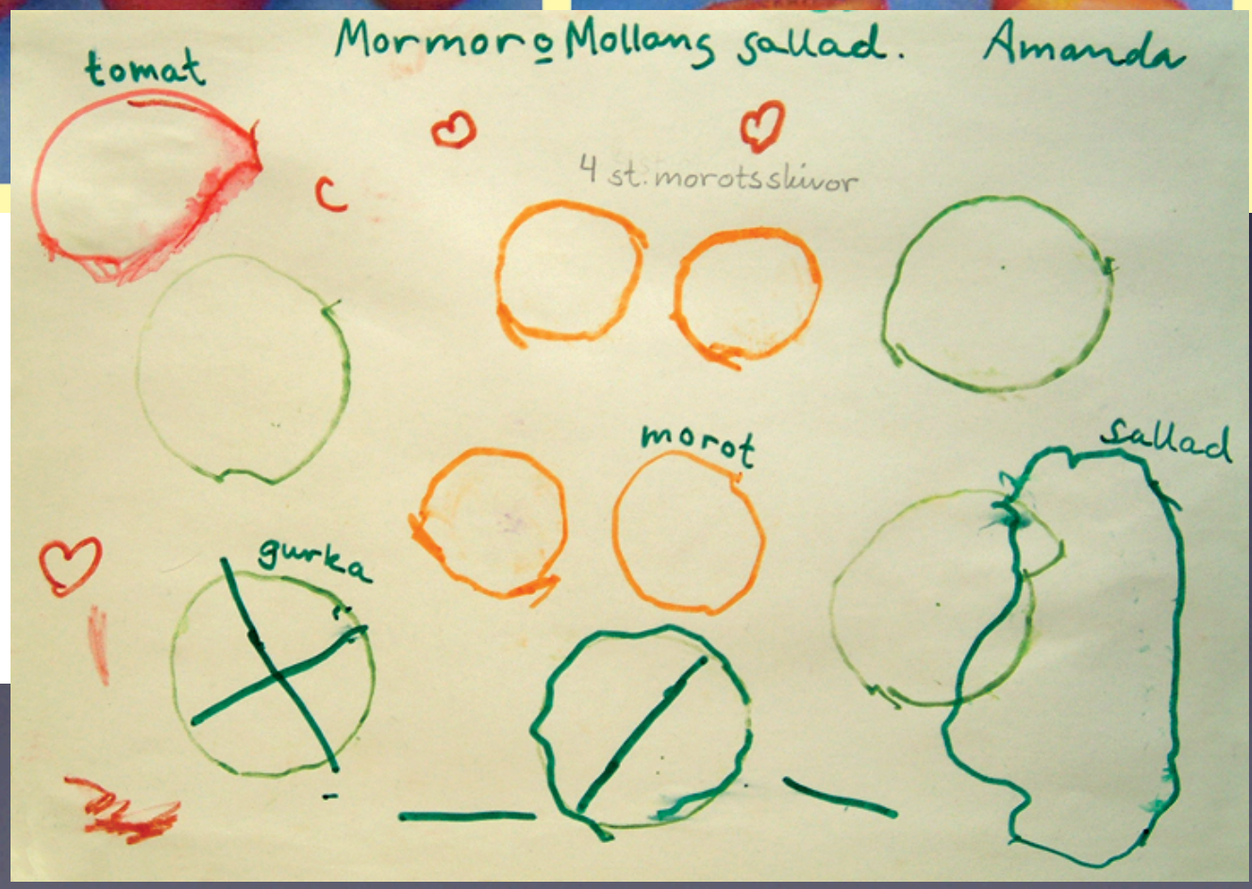
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Mathematics explored and documented
by children aged 3 – 5

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SORTING, CLASSIFYING

Differences and similarities

Mathematics explored and documented by children aged 3 – 5

MEASUREMENT – SPATIAL SENSE

Size – Relation – Estimation

Shape – Length – Volume – Mass – Time

Orientation – Direction – Perspective

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Triangle – Square – Circle – Rectangle

Cylinder – Sphere – Cone – Cube

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NUMBER SENSE AND NUMERATION

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PATTERNS

Recognize – Describe – Create

"Goodbye," said the fox. "And now here is my secret, a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye."

"What is essential is invisible to the eye," the little prince repeated, so that he would be sure to remember.

Antoine de Saint-Exupéry, The Little Prince