

When and where?

by Dr Agnes Jordanidisz

Supporting time and spatial awareness in early years

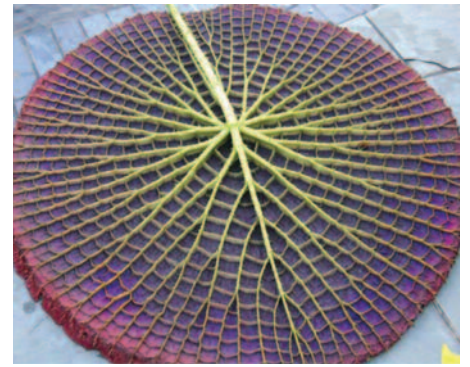
Temporal and spatial characteristics belong to our life on Earth. It takes years before children fully develop these senses. Time and spatial awareness go hand in hand. We cannot expect children to understand how time passes (i.e., what we do not see) until they understand and use properly such prepositions as 'before', 'after' and 'between', concerning the spatial orientation of objects (i.e., what we do see).

- First, children discover space by moving in it. The more experience they have the quicker they are and the more definite their awareness. Climbing, crawling, jumping, swinging – to mention just a few ways of exploring the space around us.
- Then they expand their knowledge of space by using objects. Blocks are a great resource for children to experiment with shape, size, gravitation and balance. There are also natural resources for developing mathematical thinking.
- Nursery-age children acquire the concept of sequencing. They are able to make patterns of colours, shapes and size. As they discover the repeated patterns of visual forms they understand the patterns of the days, the seasons, the months and finally the hours and the minutes.

In the God-created world, time and shapes provide beautiful harmony and rhythm.



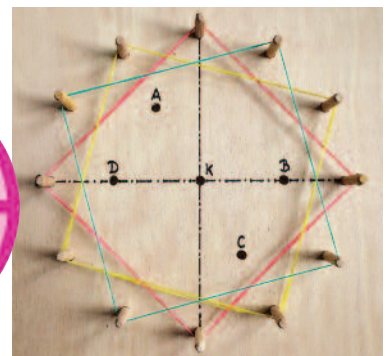
“Rhythm and harmony penetrate the human soul the most.” (Plato)



Therefore, let us use the natural, God-given resources to support our children's learning process! It is especially significant in the 21st century world where time is represented only as digits on smartphones and the rhythm of weekdays and weekends disappear from the society.

In many places, maths and geometry are taught only as abstract knowledge. Children rarely have a chance to experiment and arrive at the stage of deductive reasoning from their solid knowledge of the relationships between the characteristics of geometric shapes (such as sides and angles).

Nursery-age children classify shapes according to a prototype. They need the adults' help to pay attention to the properties of the shapes (sides and angles) to shift their holistic view to a more analytic approach; to be able to say that square is a square because it has four equal sides and four right angles instead of the holistic reasoning that it is a square because it looks like a box. They need various examples of circles, squares, triangles, etc. in order to step from the first stage of geometrical thinking to the second one according to the van Hiele model¹. They can make these shapes on pegboards or on the geo-clock.



¹Burger, F. William and Shaughnessy, J. Michael (1986), *Characterizing the van Hiele levels of development in geometry in Journal for Research in Mathematics Education* Vol. 17. No 1. 31-48.

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