SHORT PAPER: 'SYMMETRIES ON THE WEAVING BOARD'

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This paper reports on study recently undertaken with pupils of grade11 and 12, aiming to improve their skills in reasoning, working with weaving boards.
A weaving board (WB) is a simple kit to perform weaving. It consists of a frame of cardboard strips attached to a stiff cardboard, and of loose strips to be interwoven with those of the frame. The border of the stiff cardboard is numbered to make the description of the path of the strips easier.
The pupils, final task was to formulate and to generalise conjectures related to the woven patterns vs. number patterns by common words or by mathematical symbols, exploring WBs.
By the process of exploring the WBs in order to find any regularity in the woven patterns, pupils came themselves to some notions related to symmetry, such as ,opposite of", "same as", "other way round", and so on. Although there is a limitation of the WB, since its dimensions are finite, the symmetrical woven patterns gave the pupils sufficient insight to generalise the position of a strip in the whole (infinite) design. That is, they could describe the path of the strip at the n-th position (beyond the WB dimensions) according to the (symmetrical) patterns in the WB.