

## Tactile Puzzles

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### Introduction

Enjoyment of visually handicapped person is less than that of the person who can see. We developed the puzzle that was able to be enjoyed even by the visually handicapped person. In this poster-session we introduce it.

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### SUDOKU

"SUDOKU", the numerical puzzle born in Japan, is well known as one of the most popular puzzle and is compared with the crossword puzzle. We developed SUDOKU for visually handicapped person to be able to play by touching. 9 × 9 lattice is partitioned into 3 × 3 blocks enclosed by the thick line. The figure from 1 to 9 is put in each measure eye of nine rows and nine columns, and those of 3 × 3 block one by one. Some figures or numeral are put in the measure eyes beforehand, and the measure eyes of the remainder are filled with the figure of the remainder one by one. Healthy person solves the SUDOKU problem using a pencil and erasing rubber. We improved SUDOKU for visually handicapped person to be able to solve the problem by touching. Introduced a piece to which a numeral and a numerical braille transparent sheet is pasted instead of writing the numeral. First of all, one frame with 9 × 9 measure-eyes is made. To specify the block, the width of the boundary of 3 × 3 block was widened and short sticks were arranged at the corner of the block. It designed so that two frames were folded like the note to make SUUDOKU portable. The cover is attached for the back of the frame. Pieces of the problem are arranged on the one side frame and those of answer are arranged on the other side frame. To prevent peace from coming off when SUDOKU is opened or is shut, the iron plate was pasted to the back of the frame, and a magnetic seat was put on the bottom of each peace.

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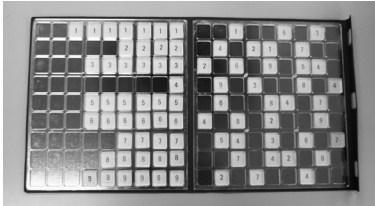
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	1	4	5			3		
8			1		9	4	2	
	5	9						4
4		7	8				2	
	7		2	6				
	9			1			5	
2		3						4
5	3	6	7	1				

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9	1	4	2	5	6	8	7	3
6	5	7	8	3	9	4	2	1
8	3	2	1	4	7	5	9	6
2	8	5	6	9	3	1	4	7
4	6	9	7	1	8	3	5	2
3	7	1	5	2	4	6	8	9
7	9	6	4	8	1	2	3	5
1	2	8	3	7	5	9	6	4
5	4	3	9	6	2	7	1	8

Tactile SUDOKU

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**Rainbow-cube**

By cutting off eight corners of cube a solid of cuboctahedron appears. A parallel layer to the triangle can be rotated around the vertical axis to the triangle as well as the Rubik's cube. The tactile recognition mark corresponding to the color in each facet of Rainbow- cube is pasted. The blind can enjoy Rainbow-cube as a tactile mark matching puzzle.




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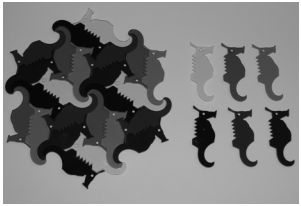
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**Escher-like mosaic pattern**

One or two kind of character such as the animal can fill the space without void. Example of sea horse is shown in the figure. In order that visually handicapped person fill the space by the sea-horse pieces, it is necessary to make pieces with the different thickness and size.



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