



# MATH&MOVE

## LESSON

### USING MOVEMENT TO

learn orientation in space



This lesson focuses on pupils strengthening their orientation skills with the help of directions (forward - backward, right - left).

**At the end of this lesson, pupils should be able to:**



- Improve their orientation skills
- Apply orientation markers to both indoor and outdoor spaces
- Find the position of objects in space based on a fixed reference point (i.e. a chair)

**TOPIC:** Orientation in space

**DURATION:** 20- 30 mins

**LEVEL:** Ages 6-7

**PARTICIPANTS:** 1 class divided into groups of 4 to 6

## LESSON PREPARATION

### Required skills

For this lesson, pupils should already know how to:

- Have a basic understanding of directions (forward - backward, right - left)
- Recognise numbers from 1 to 50
- Be able to follow basic instructions

### Required materials and set up

- 1** White sheets of A4 paper cut in half for the teacher to write the commands/instructions
  - Cardboard cards or laminated paper are also a good idea as they are more durable. The number of cards should be equal to the number of pupils.
- 2** 1-2 markers
- 3** 1 chair

### Required materials and set up

**4** Post-it notes to number the squares of the board

**5** 1 paper tape roll to construct the floorboard

- Depending on the size of the board you may need more rolls of paper tape. Alternatively, chalk, string or rope can be used.

**6** Coloured scarves to tell apart the groups

- Choose as many colours as the groups you created.

Due to the size of the board, we recommend conducting this lesson with the pupils outside if possible.

## LESSON INSTRUCTIONS

- Prepare the floorboard in the space of your choice (inside the classroom or outside, i.e courtyard). Make sure that the number of squares that will make up your floorboard is greater than the number of your pupils. For example, it could consist of 16 (4x4), 25 (5x5) or 36 (6x6) numbered squares.
- Warm pupils up by reminding them what horizontal, vertical, in front of, behind, left and right means. You can use a chair as a fixed reference point and ask pupils to stand in front, behind, etc. of it as a warm-up activity.

Alternatively, you could, using the paper tape, make a cross shape on the floor and ask pupils to walk on it in the corresponding directions.

- Do not forget to have the command/instruction cards ready beforehand (i.e. Take 3 steps forward, Take 1 step left or Take 2 steps back and 1 right...) so that you are ready when the activity starts.

**Take 3 steps back**

**Command/Instruction card**

31	32	33	34	35	36
30	29	28	27	26	25
19	20	21	22	23	24
18	17	16	15	14	13
7	8	9	10	11	12
6	5	4	3	2	1

**Floorboard**

## 2

Divide the pupils into groups. The groups' number is defined according to the squares on the horizontal axis of the board you have made, i.e. 4, 5 or 6 groups. All the members of the groups tie on their wrists the corresponding coloured scarf (red, blue, green, etc.) to stand out. Proceed by explaining the activity.

- In this group activity the members of each group stand in a row, one behind the other, outside the board and in front of each numbered square of the horizontal axis.
- The first player of each team picks up a movement command card, reads it silently, moves on the board according to the command and stands in the correct position. i.e. "Take 3 steps forward"
- The other players of the team must shout out the number of the square that their teammate stood on. i.e. "13"
- The first players from all teams continue in the same way so that there is one player of every colour on the floorboard.

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30	29	28	27	26	25
19	20	21	22	23	24
18	17	16	15	14	13
7	8	9	10	11	12
6	5	4	3	2	1



For the next player to continue, the playing team must always shout out the number of the square their player is standing on.

After the first players of all teams have taken their place on the floorboard, the same process continues for the second, third, ... player.

**Note: If two players happen to be on the same square, then the player who arrived second moves to the closest free square.**

The game is over after all the players of all the teams have played once and all of them are standing on a square of the floorboard.



## CONCLUSION



With all players standing on the floorboard, ask each team to take a look and find the squares left empty by either saying the number (i.e. 23) or the position (i.e. The square 2 steps behind me).

## TO GO FURTHER



Returning to the beginning of the floorboard, the teams in turn throw an object into one of the squares. They think of the shortest or longest route in steps to get there.

In addition, worksheets might offer further practice in locating an object in space (with respect to 2 vertical axes).





## RECOMMENDATIONS FOR INCLUSION

### How to adapt this lesson to older pupils

The activity can be adapted to pupils aged 8-9 yearz old by increasing the difficulty level. For example, organise a treasure hunt with more complex command cards where the right steps and/or movements are used to search for a "treasure" in an area (i.e. school yard or garden).

Also, use real compass to orientate using the cardinal points. Or a map so that students can locate a place (i.e. where a city/town is with respect to another one).

### Accommodations for pupils with specific learning disorders

As pupils with SLD have difficulty memorising instructions, they could read the instruction cards aloud and keep them with them until they reach their place on the floorboard. We encourage them to move confidently on it.

Make sure that each group is of equal math performance ability. SLD pupils should be divided equally into the groups so that they are not overwhelmed.

Avoid emphasising competition but focus on cooperation and teamwork.

Place the coloured scarf on pupils' left wrists to help them not only identify members of their group but also better differentiate their right and left sides.

## BIBLIOGRAPHY