



# MATH&MOVE

## LESSON

### USING MOVEMENT TO

learn the length of objects



This lesson focuses on pupils using parts of their bodies to measure objects and convert the lengths into centimetres, allowing them practice identifying units of measurement.



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

- Understand the concept of length in centimetres
- Recognise how their bodies can be correlated with different length measurements

**TOPIC:** Units of measurement

**DURATION:** 30 mins

**LEVEL:** Ages 8-9

**PARTICIPANTS:** entire class or pairs

## LESSON PREPARATION

### Required skills

For this lesson, pupils should already know how to:

- Recognise longer and shorter objects and classify them according to length
- Use a ruler and understand what the units on a ruler represent

### Required materials and set up

**1** 1 empty space is needed for the pupils to move around and retrieve objects

- 1 part of the classroom that should be empty so that pupils can move around and measure their movements (you may instruct pupils to remove their shoes if this works better for you and would contribute to a fun atmosphere)
- 1 part of the classroom is occupied by objects that need to be measured.



2

## Various objects placed in the learning area for children to measure

- These could include anything that you already have in your classroom, but you must calculate each object's length in cm beforehand and write it down on the board. For the lengths, try to round to a number that ends in 0 or 5 to simplify the calculations for pupils. Your chosen objects can be a pencil, a notebook, a backpack, a carpet, a drawing board, a desk, etc.

3

## A ruler for measuring the length of the objects

- This can either be a regular 30cm ruler or you can make a custom ruler out of paper that is long enough to measure the entire length of the longest object

# LESSON INSTRUCTIONS

1

The teacher begins by discussing the concept of length and how a ruler can normally be used to measure how long an object is. They then explain to the pupils that they can also measure length using parts of their body, which include: hand span, foot span and upper arm span.

The teacher writes on the board how these body parts correlate to length in cm:

- Hand span = 15cm (calculated as the distance from the tip of their thumb to the tip of their pinky)
- Foot span = 20cm (calculated as the distance from the tip of their toe to the heel of their foot)
- Cubit = 35cm (calculated as the length from the elbow to the end of the fingers)



2

The teacher then turns the children's attention to the part of the learning area in which different objects are placed: a pencil, a notebook, a backpack, a carpet, a drawing board, a desk, etc. The task of the pupils is to each come up and choose an object from the ones arranged on the floor and measure them with the help of either their hand span, foot span or cubit.

After this, they will circle one of the cm lengths already written on the board by their teacher, which represent the correct lengths of the items in cm (15cm, 30cm, 25cm, 20cm, 50cm...). It's important to clarify to pupils that those who have smaller subjects should use smaller measurements, for example their hand spans instead of their cubits.



3

The pupils should form a line and approach each object, one by one, and choose which one they'd like to measure. After determining the length of the object with their body parts (a backpack may be equal to 3 foot spans, for example), they need to calculate how much 3 foot spans is in centimetres ( $3 \times 20$ , or  $20+20+20$ ). Once they have decided on a length, they should look for it on the blackboard and circle it.



## CONCLUSION



When all pupils have circled a number on the board they think represents the length of the object in cm, the teacher will then use a ruler to confirm if their guesses were correct!

## TO GO FURTHER



For older pupils we could play the game by drawing complex geometry shapes such as rhombuses, hexagons, or 3-D shapes such as sphere or pyramid and mixed lines such as zig zag and curved, straight and zigzag and get them move towards them.

## RECOMMENDATIONS FOR INCLUSION

### How to adapt this lesson to younger pupils

The lesson can be adapted to pupils aged 6-7 years old by keeping the units of measurement as only hand spans, foot spans and cubit, instead of calculating length in cm. This way, the numbers on the board may show: 2 foot spans, 5 hand spans, 1 cubit, etc. In this instance, pupils would recognise which lengths are used for objects with smaller lengths (hand spans) and which are used for longer objects (cubit).

### Accommodations for pupils with specific learning disorders

Pupils with specific learning disorders may experience difficulties with the multi-step process of identifying which spans to use for which objects and then converting the lengths into cm. Therefore, this is an activity that can be modified to work in pairs, so that pupils can collaborate on the different steps. That way if a pupil with learning disorders struggles with the conceptual understanding of linear measurements (calculating length in cm), they can focus on the practical measurements only (2 hand spans instead of 30cm).

## BIBLIOGRAPHY

Measuring Length | Mathematics Grade 1. YouTube, 2017.  
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