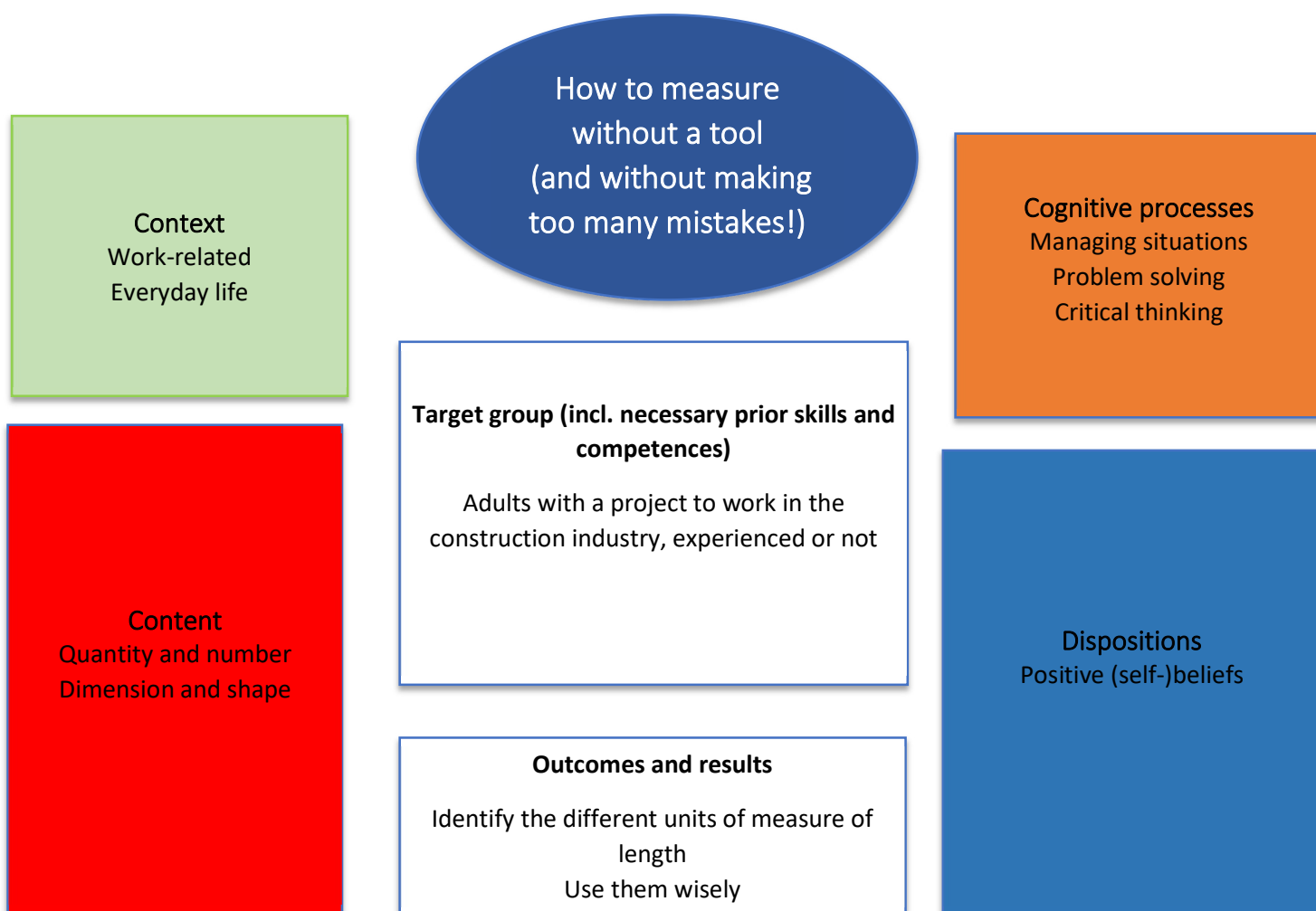


OOPS, I FORGOT MY TAPE MEASURE”

Estimating lengths

Well, imagine that you are on your construction site, your team leader has gone to get the necessary equipment, and he calls you to ask you what is the length of the sidewalk you need to build... you have no tools to measure, how do you respond to him?

Overview “Oops, I forgot my tape measure”



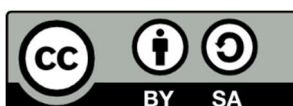
Main information	
Content	measurement units ranking compare estimating introduction to decimals
Target group	This example was used with people of foreign origin, with little or no schooling in their country of origin, and unfamiliar with formal calculations
Learning intention	Numeracy for professional issues
Duration	1 to 2 lessons
Material and resources	Different measuring tools: rulers, professional tape measure of different lengths (meters, decameters,...)
Group size	Range from 6 to 12 learners
Problem statement	When you work in the construction industry, you constantly need to quickly measure dimensions, sometimes without having all the necessary equipment at your disposal. It is also essential to know the units of measurement to understand and follow the instructions. You must therefore have a clear vision of the different units of measurement, of what they represent, and be able to estimate a distance fairly accurately
Working questions	What are the different units of measurement? Which is the smallest/largest? What should I measure in my work? What unit do I need the most in my work? What is 1 meter? How to estimate lengths without material?
Learning outcomes and results	<ul style="list-style-type: none"> - Identify the different unit of measurement - Choose the appropriate one facing a situation - Use measuring tools: read and report - Estimate lengths and dimensions without tools
Reference to National Qualification Frame	Optional (country's decision)



Working plan

Time (lessons)	Description of content/activities	Material	Methodical and didactic information ¹
1	<p>Introduction to the topic</p> <ul style="list-style-type: none"> - Present the situation as described on page 1, and complete with 1 or 2 other examples of similar situations, related to the professions exercised or targeted by the people, for example: you are a house painter, you need to measure a wall to calculate the amount of paint - Link to the experiences of the learners, by asking them if they have ever experienced this type of situation - How to deal effectively with these situations? <p><i>The goal is to highlight the 2 elements that will be worked on: identify the units of measurement, get an idea of what they represent</i></p>		<p>Brainstorming</p> <p>Questioning</p> <p>Based on real situations</p>
	<p>Identify the different units of measurement:</p> <ul style="list-style-type: none"> - the trainer asks which units of measurement the trainees know, and writes them on the board - which is the smallest? which is the biggest? How do they line up in ascending/descending order? <p>Apply to different measurement situations, usual or not!</p>	<p>Appendix 1 <i>(to be adapt!)</i></p>	<p>Questioning</p> <p>Collaborative learning</p>

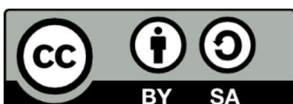
¹ for description and explanation of kinds of tasks, HITS and other background information please consult the teacher's/user's guide



	<ul style="list-style-type: none"> - Without calculating or measuring, choose the appropriate unit for the situation. Individually work, then pool. <p>The group agrees on each situation, exchanging arguments. In case of doubt, the trainer seeks to bring out the order relation: is it greater than? is it smaller than?</p> <ul style="list-style-type: none"> - Then we move on to the second task: without using measuring tools, estimate the dimensions/distances Individual work, then pooling: the trainer does not give the right answers, he notes any discrepancies between the trainees' proposals. How to agree? We will have to measure 		
	<p>Estimate vs measure</p> <ul style="list-style-type: none"> - Presentation of the different tools: known or not, already used, in which cases and for which use? <p>In teams of 2, the trainees take the measures to answer the questions of the exercise. The trainer moves from group to group, to identify the organization put in place (especially for long length measurements), and any difficulties in using the tool. When all the measurements are taken, the trainer questions the trainees about the difficulties they may have encountered and</p>	<p>Different measurement tools: rulers, professional and personal tape measure of different lengths (meters, decameters, ...)</p> <p>Provide at least 2 different tools per pair</p> <p>Appendix 2</p>	<p>Experiment</p> <p>Collaborative learning</p> <p>Critical thinking</p> <p>Self-reflexing</p>



	<p>focuses on reading the measurements on the tools: which unit(s) are written? What do the graduations correspond to?</p> <p>He ensures that all the trainees are able to read a measurement correctly</p> <p>Then put together the results found: does everyone have the same ones? If large differences appear, we measure again together.</p> <p>Individually, each trainee compares their estimate to the result found by measuring, and reflect on this gap.</p> <p>Anchoring of learning: always in pairs, the trainees must first estimate, then measure different elements present in the training room. The trainer moves from group to group.</p>		
	<p>Transfer</p> <p>At the end of the activity, collective debriefing time: what did I discover/learn? Were my estimates at the end more accurate? How can I use it at work?</p> <p>Individually, everyone lists all the work situations where it's need to measure</p>		<p>Self-reflexing</p>



Suggestions for the teacher/user

The example presented here should be considered as exemplary and inspirational material presenting a guideline with a high range of possibilities of adapting those suggestions to a specific group of learners or an individual learner with his or her very personal requirements.

In concrete terms, this example could be adapted these ways:

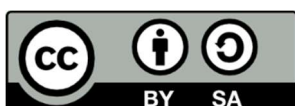
- Duration: depending on the level of autonomy of the people, it is possible to spend less time on step 1 (identify the units of measurement)
- Level of difficulty: this example is also a good introduction to decimal numbers. If relevant for your trainees, it may be interesting to reinforce this dimension

It is particularly interesting to note that a trainee who has difficulty with "formal" measurement may have a very good ability to estimate, and vice versa. This activity can thus be very interesting to develop self-confidence and self-esteem

Our educational activities aim at numeracy skills being not only memorized, but first of all being practiced and functionally used by the learners in daily life or/and vocational situations. It is therefore recommended to implement the idea of HITS² (higher impacts of teaching skills) as far and often as possible: ...

- ... work with concrete and authentic material that learners will recognize from everyday life situations.
- ... ask the learners questions and let them raise questions themselves. It can be crucial to discuss numeracy themes, contexts and numbers.
- ... think of possible ways of transfer: identify all measurement situations related to their specific professional environment, rely on internship periods in companies if they exist in the training program...

² For general information and explanation on HITS please see teacher's/user's guide



Appendix

Appendix 1

Assessing distances

1. Associate the appropriate unit of measurement with the indications given

Meter	Kilometer	Centimeter	Decameter	Millimeter
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2. Estimate this length

Complete :	Appropriate unit of measurement	Estimated length
Length of a football pitch		
Distance Lyon – Paris		
Width of a Renault Clio car		
Distance Hôtel de Ville – Place Bellecour		
Size of an ant		
Laptop dimensions		
Distance between the 2 eyes		
Size of a grain of rice		
Dimensions of a smartphone		
Length of training room		
Width of training room		



Appendix 2

Estimate vs measure

For each of the following elements, first make an estimate and then take the measurement

Element	Estimate	Measure
Table length		
Table width		
Height of a window		
Height of the training room		
Length of a pen		
Height of the board		
Width of the door		



This material was produced in the Erasmusplus project **Numeracy in Practice**, projectnumber 2021-1-NL01-KA220-ADU-000 026 292. In this project, 11 partners in 11 countries worked together in designing, evaluating and improving the materials. All materials can be found on the website (www.cenf.eu).



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