FINDING DISTANCES

If we happen to look at a map, we can get some useful information: some of it is immediate (where a particular city is located, for example, or where a major motorway runs), while others can be derived using some simple calculations. This is the case when calculating distances between two cities for example.
Using the scale on the map and applying proportions, it will be easy to derive the distances or size of a region or state.

Overview "FINDING DISTANCES"

How to find how far apart two cities are using a map

Context
Everyday life

Cognitive processes

Processing information

Target group (incl. necessary prior skills and competences)

Adults and young adults with basic mathematical skills, who know and can apply proportions and are familiar with units of length.

Content
Quantity and number;
Using calculator

Dispositions

Flexibility

Outcomes and results

Learners will be able to derive a distance, expressed in the appropriate unit of measurement, using a map.

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Main information	
Content	- Quantity and number (decimal numbers); - Units of length; - Multiplication and division
Target group	Adults and young adults with basic mathematical skills, who know and can apply proportions and are familiar with units of length.
Learning intention	– Numeracy for personal and private purposes
Duration	Approximately 90 minutes.
Material and resources	Maps; projector
Group size	Range from 6 to 10 learners
Problem statement	A map, if interpreted correctly, can give us a variety of information. It is possible, for example, by using proportions and referring to the scale that is always indicated on the map, to derive the distance between two cities or the size of a given area.
Working questions	- How is the distance between two points expressed? What units of measurement do you know? - What would be the most appropriate unit of measurement to indicate the distance between two Italian cities? - Can you calculate the distance between two points using a map?
Learning outcomes and results	Learners will be able to derive a distance, expressed in the appropriate unit of measurement, using a map.
Reference to National Qualification Frame	

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Working plan			
Time (lessons)	**Description of content/ activities**	**Material**	**Methodical and didactic information**
35’	**1. Activation** The teacher leads a discussion using the questions in the “*Working questions*” section. All learners actively participate and review the units of length (including multiples) together.	Balckboard ; Projector	Discussion; Questioning
60’ (20’ +40’)	**2. Find out the distance** This activity, in which we get to the heart of the situation, is divided into two parts (2.1 and 2.2). **2.1 Guided exercise** The teacher shows a type of exercise that will be carried out thanks to the learners' cues and interventions. **2.2 Exercises** The teacher hands out different maps to pairs of students, who together have to calculate certain distances just as they did during phase *2.1*	Maps, Ruler; Projector	Explicit teaching; Hands on learning. Collaborative learning;
25’+	**3. Discussion** Learners will initially share the method used during the exercise and question whether or not the result obtained is consistent with reality. Finally, space is left for the learners to discuss their opinions and ideas regarding the activity and possible real-life applications.		Feedback

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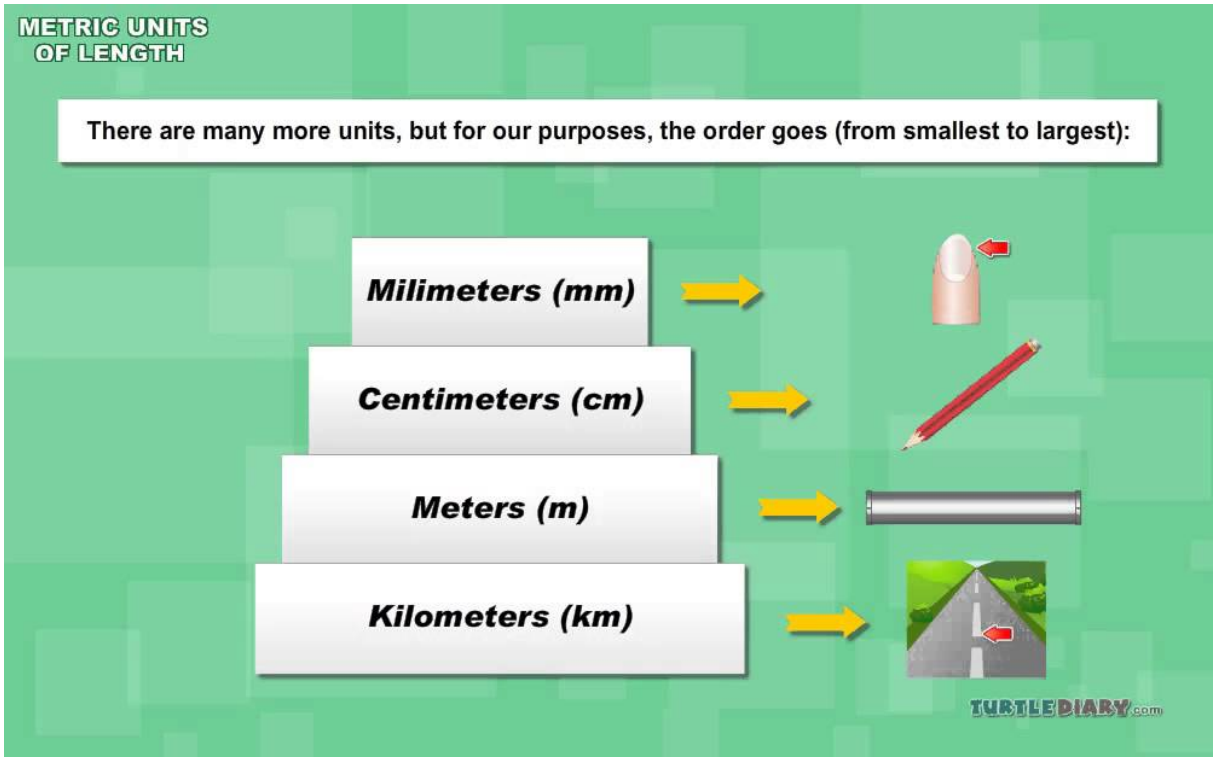
Appendix

1. **Activation:** (some examples of video or other material that could be used in this part of the activity)

https://study.com/academy/lesson/distance-in-the-metric-system.html

https://www.onlinemathlearning.com/convert-metric-length.html



Metric System Prefixes

Prefix	Symbol	Multiplier (Scientific Notation)	Multiplier
Exa	E	10^{18}	1,000,000,000,000,000,000
Peta	P	10^{15}	1,000,000,000,000,000
Tera	T	10^{12}	1,000,000,000,000
Giga	G	10^{9}	1,000,000,000
Mega	M	10^{6}	1,000,000
Kilo	k	10^{3}	1,000
Hecto	h	10^{2}	100
Deka	da	10^{1}	10
Deci	d	10^{-1}	0.1
Centi	c	10^{-2}	0.01
Milli	m	10^{-3}	0.001
Micro	μ	10^{-6}	0.000,001
Nano	n	10^{-9}	0.000,000,001
Pico	p	10^{-12}	0.000,000,000,001
Femto	f	10^{-15}	0.000,000,000,000,001
Atto	A	10^{-18}	0.000,000,000,000,000,001

Meter = m = 1

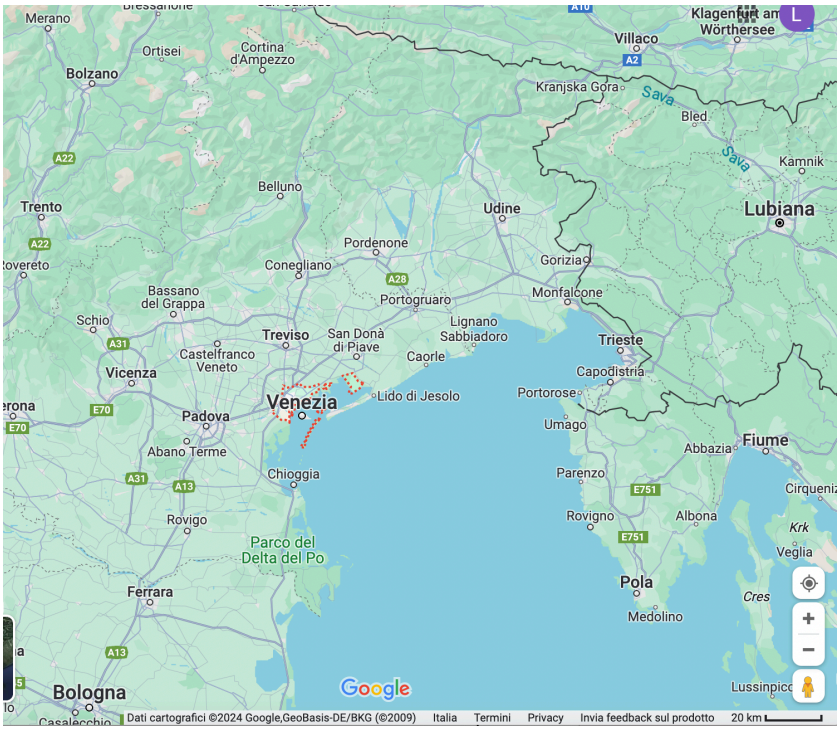
2. Find out the distance

https://www.pinterest.it/pin/716987203149688418/

EXAMPLE OF EXERCISE:

"WHAT IS THE DISTANCE BETWEEN LJUBLJANA AND BOLOGNA?"

" HOW FAR ARE VENICE AND BOLZANO?"



[google maps]