A daily measure of health, cooking, and shopping

Weights and weight measurements

In our everyday lives, we are constantly confronted with weight measurements. We use it at the supermarket to know how much fruits, vegetables, meat or cheese we're buying. Getting ingredient measurements right is crucial for making dishes or baking correctly.
People keeping an eye on their health or working on fitness goals often use weight measurements to track progress, for example weighing themselves or monitoring strength training by lifting specific weights.

Overview "How heavy is it?"

How can we estimate weights and calculate with wight measurements?

Context
Everyday life

Content
Quantity and number

Target group (incl. necessary prior skills and competences)

Adult learners with basic arithmetic skills

X1

Outcomes and results

The learners know the different weight measurement and are able to convert them.

Cognitive processes
Managing situations
Analysing situations
Processing information
Mathematising
Problem solving
Critical thinking

Dispositions
Self confidence
Affection
Flexibility
Math difficulties

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Main information

Content	Natural and decimal numbers Basic arithmetic operations Weight measurements Conversion of weight measurements
Target group	Adult and young adult learners with basic arithmetic skills
Learning intention	What is the intention of adults to face this problem? – Numeracy for personal and private purposes – Numeracy for professional issues
Duration	Approx. 2 lessons
Material and resources	Flipchart, picture cards, some items to weigh, scales, table explaining weight measurements, worksheets
Group size	Range from 5 to 15 learners
Problem statement	We often meet weights and weight measurements in our everyday lives. Sometimes it is difficult to convert weight measurements and to calculate with weights.
Working questions	In which areas of our everyday lives do we meet weights and weights measurements? Which weight measurements are there? How can we estimate the weight of items? How can we sort things by their weight? How can we convert weight measurements? How can we calculate with weights?
Learning outcomes and results	The learners are able to estimate and control the weight of different items. They know the most important weight measurements. They use tis knowledge to make informed decisions in everyday life situations.
Reference to National Qualification Frame	Optional (country's decision)

Working plan

Time (minutes)	Description of content/activities	Material	Methodical and didactic information[1]
15‘	Activation The teacher asks the learners in which areas of their everyday lives weights and weight measurements play a role? The teacher writes the terms mentioned on a flipchart. The learners try to match each term with a correct unit of measurement (e.g.: shopping food – grams, kilograms)	Flipchart	Cognitive activation
30’	Estimation The learners estimate the weight of different items. Therefore, they get different picture cards and weight measurements. They can also use items in the classroom. To control their estimations, they weigh some items after the estimation.	Picture cards + weight measurements (Appendix 1) Some items to weigh scales	Collaborative learning Metacognitive strategies
45’	Learning The teacher presents a table for converting weight measurements. The learners practice the conversion and calculation with weight individually or in small groups.	Table weight measurements (Appendix 2) Different learning apps (Appendix 3) and worksheets	Explicit teaching Hands on learning
	Transfer The learners look at home (in the fridge, in the cupboard, …) for items with weights. They make a list and start with the item that weighs the least. The list can be made on a sheet of paper or in Excel.	List Laptop when using Excel	

[1] for description and explanation of kinds of tasks, HITs and other background information please consult the teacher’s/user’s guide

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, the example "How heavy is it?" could be adapted these ways:

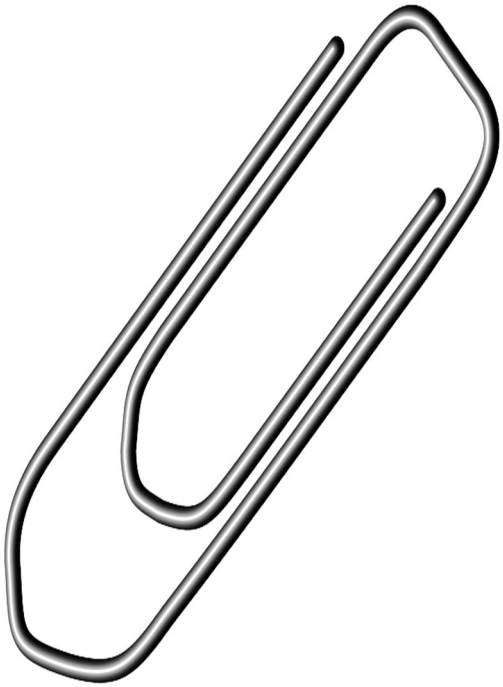
- Further or additional material: This example represents only the start into the wide field of calculation with weights:
    - Cooking: work with recipes – calculate the weight of ingredients for more or less people; write a shopping list, …
    - Shopping: compare prices per weight, as often things are cheaper when we buy larger packs
    - Fitness and health: calculate the Body Mass Index: BMI=kg/m², …
    - Construction: calculate the need of construction materials, loading cars and trailers, …

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 HITS[2] (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: The learners can use their knowledge in various areas of everyday life to make informed decisions when it comes to purchasing the right amount of groceries or measuring, moving and utilizing materials, …

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

Appendix 1



Source pictures: www.pixabay.com

1 gram **(1 g)**	**10 grams** **(10 g)**
100 grams **(100 g)**	**500 grams** **(500 g)**
4 kilos **(4 kg)**	**30 kilos** **(30 kg)**
1 ton **(1 t)**	**3,5 tons** **(3,5 t)**

Appendix 2

1 t = 1000 kg
1 ton = 1000 kilos
1 kg = 1000 g
1 kilo = 1000 g

Examples:

1 ton = 1.000 kilos

2 kilos = 2.000 grams

	t			kg			g
	1	0	0	0			
				2	0	0	0

Appendix 3

Example learning app

Tabelle - Gewichte umwandeln kg und g in kg (learningapps.org) ;[09.01.2024]