FRACTIONS IN YOUR LIFE

"It is **half** past seven." "We cut the pizza into **eighths**." "We split the bill. Each of us has to pay **a third**." "Put **a quarter** teaspoon of salt into the dough." "You should drink **half** a liter of water with your meal." "We have already done **two thirds** of our way to Vienna." Fractions are part of our everyday life – for example when we have a look at the quantities of some ingredients for a recipe. But those quantities are not always written the same way. We need ¼ liter of milk or we need 0,25 liter of milk. So, let's have a look at the relationship between fractions, percentages and decimals.

Overview "Fractions in your life"

½ = 0,5 = 50%

What is the relationship between fractions, decimals and percentages?

Context
Everyday life
Work-related
Finances

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

Target group

Adult learners with basic arithmetical skills

X2

Content
Quantity and number
Pattern, relationships and change

Dispositions
Self-confidence
Affection
Beliefs
Collaborations

The learners understand the relation between fractions, decimals and percentages and can better solve real-life problems and make informed decisions.

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Main information

Content	Basic arithmetic operations (focus on division) Fractions Decimals Percentages
Target group	Adult learners with basic arithmetical skills being interested in understanding better numerical concepts
Learning intention	What is the intention of adults to face this problem? – Numeracy for personal and private purposes – Numeracy for professional issues – Numeracy to understand society
Duration	Approx. 2,5 lessons
Material and resources	Flipchart, worksheets, online-tools, picture cards
Group size	Up to 10 learners
Problem statement	Fractions are part of our everyday life (measuring ingredients for recipes, dividing items, …) Therefore, it is important to understand the relationship between fractions, decimals, and percentages.
Working questions	In which areas of our everyday life do we find fractions? How can we graphically represent fractions? What is the definition of "percentage"? How can we represent fractions as decimal numbers and percentages? How can we calculate with fractions?
Learning outcomes and results	The learners are able to better understand numerical concepts, to solve real-life problems and to make informed decisions.
Reference to National Qualification Frame	Optional (country's decision)

Working plan

Time (lessons)	Description of content/activities	Material	Methodical and didactic information[1]
30 min.	Activation The trainer writes some fractions on a flipchart and clarifies the term "fraction". He moderates a brainstorming session on the topic of fractions in everyday life. Alternatively, picture cards can be used as a support. The results are written on a flipchart	Flipchart Appendix 1a,1b	HITs questioning
60 min.+	Learning The trainer develops a flipchart (as in appendix 2) and explains the relationship between fractions, decimals and percentages. He also emphasizes on the correct naming.	Appendix 2a,2b	HITs Explicit teaching
60 min.+	Practicing The learners do different exercises to visualize percentages or fractions. The learners identify all the fractions, decimals and percentages in a text and transfer them to a table. The learners transform the fractions in a recipe into decimals. Additionally, they can calculate the recipe for 8 persons instead of 4. The results can be compared in partner work.	Appendix 3, 4a, 4b worksheets, online-tools Appendix 5	HITs Hands on learning Collaborative learning
	Transfer The learners have developed skills which help them to solve everyday problems, e.g. adjusting recipes or calculating the price per unit of weight.		

[1] for description and explanation of kinds of tasks, HITs and other background information please consult the teachers'/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 (Fractions in your life) could be adapted these ways:

- Duration: During the activation, it is useful to collect as many examples as possible for fractions in our everyday lives to facilitate the understanding. Depending on the learners' prior skills and interests, the teacher can go into more detail when developing the flipchart to explain fractions/decimals/percentages.

  For example: ¼ = 1 divided by 4

  1 : 4 = 0,25

  10

  20

  00

- Individualization: The teacher can offer a big variety of exercises according to the needs of the learners. Possible topics include for example:
  - Sharing resources
  - Finances (splitting expenses, calculating interests)
  - DIY projects (measure lengths or areas and cut material)
  - Travel (measure distances)

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.

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

- … think of possible ways of transfer: By knowing the relationship between fractions, decimals and percentages, the learners are empowered to understand better numerical concepts (how numbers can be represented in various forms), to solve real-life problems (e.g. calculating discounts while shopping) an to make informed decisions.
- …encourage collaborative learning. In general, working in groups helps the learners to develop social skills. They often learn best when they have to explain a concept to someone else.

Appendix 1a

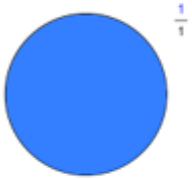
Quelle: www. pixabay.com

Appendix 1b

Quelle: www. pixabay.com

Appendix 2a

How to present fractions, decimals and percentages

1	1/2	1/4	1/8
1 whole	1 half	1 fourth	1 eighth
			
1	0,5	0,25	0,125
100%	50%	25%	12,5%
100 percent	50 percent	25 percent	12,5 percent

Appendix 2b

Definition: pecentages

percent = parts from one hundred

1 percent = 1 part from 100 parts

25% = 25 from 100

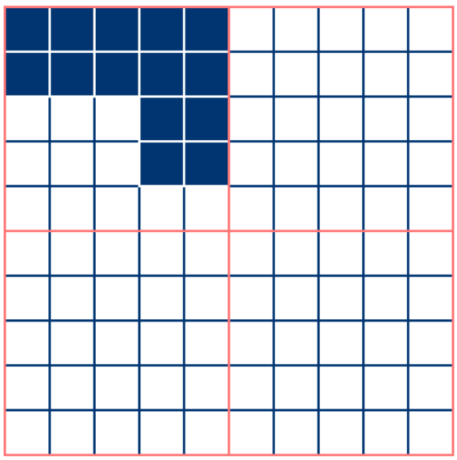
91	92	93	94	95	96	97	98	99	100
90	89	88	87	86	85	84	83	82	81
71	72	73	74	75	76	77	78	79	80
70	69	68	67	66	65	64	63	62	61
51	52	53	54	55	56	57	58	59	60
50	49	48	47	46	45	44	43	42	41
31	32	33	34	35	36	37	38	39	40
30	29	28	27	26	25	24	23	22	21
11	12	13	14	15	16	17	18	19	20
10	9	8	7	6	5	4	3	2	1

Appendix 3

www.mathetoolbar.de/interaktive-tafelbilder/#prozentrechnung-interaktiv, [30.08.2023]

Darstellung von Prozentwerten

▶ Stelle einen beliebigen ganzzahligen Prozentsatz dar.
Klicke die Kästchen oder ziehe mit der Maus.



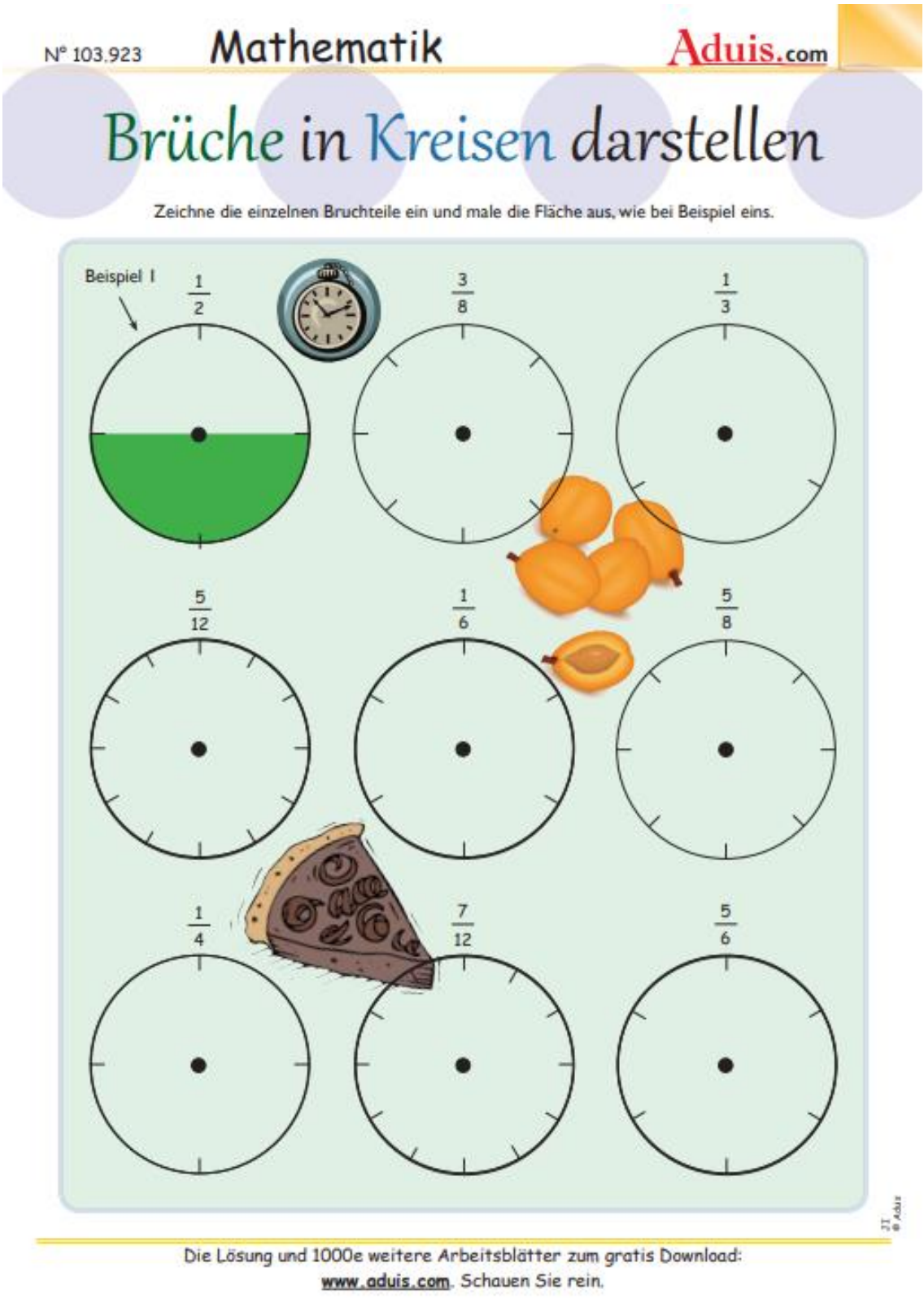
Prozentsatz:

14 %

Ergebnis ausblenden

Appendix 4a

www.aduis.ch/zahlenarten-bruch-und-dezimalzahlen-ab48354, [30,08.2023]



Appendix 4b

www.matheretter.de/ab/bruch/1022, [04.10.2023]

AB: Brüche-Pizza

1. **Verteile die Pizzen gleichmäßig auf die Anzahl der Personen. Zeichne dazu die Schnittlinien ein. Die Stücke sollen alle gleich groß sein.**

Bsp. Für 4 Personen:

a) Für 2 Personen:

b) Für 6 Personen:

c) Für 8 Personen:

d) Für 9 Personen:

e) Für 3 Personen:

Appendix 5

www.chefkoch.de/rezepte/1861741301519318/Kinderpunsch.html?portionen=4, [30.08.2023]

Kinderpunsch

bewährt bei jeder Weihnachtsfeier

Aus Wasser, Tee, Zimtstange und Glühfix einen Tee kochen, nach Packungsangabe ziehen lassen. Apfel-, Trauben- und Orangensaft dazugeben und erwärmen.

Kann warm und kalt getrunken werden und ist der Renner bei jeder Weihnachtsfeier.

Bild für Druck ausblenden

Arbeitszeit	ca. 20 Minuten
Gesamtzeit	ca. 20 Minuten
Schwierigkeitsgrad	simpel

Zutaten für 4 Portionen:

1 Liter	Wasser
5 Beutel	Tee (Weihnachts-Früchtetee)
½ Stange/n	Zimt
½ Beutel	Glühweingewürz
1 ¼ Liter	Apfelsaft
1 ¼ Liter	Traubensaft
¼ Liter	Orangensaft

Complete the table with the missing fractions or decimals and state how much you need for 8 people instead of 4.

4 people		**8 people**
1 litre of water	**1** litre of water	
5 bags of tea		
½ stick of cinnamon		
	0,5 bags of mulled wine spice	
	1,25 litres of apple juice	
1 ¼ litre of grape juice		
	0,25 litres of orange juice	