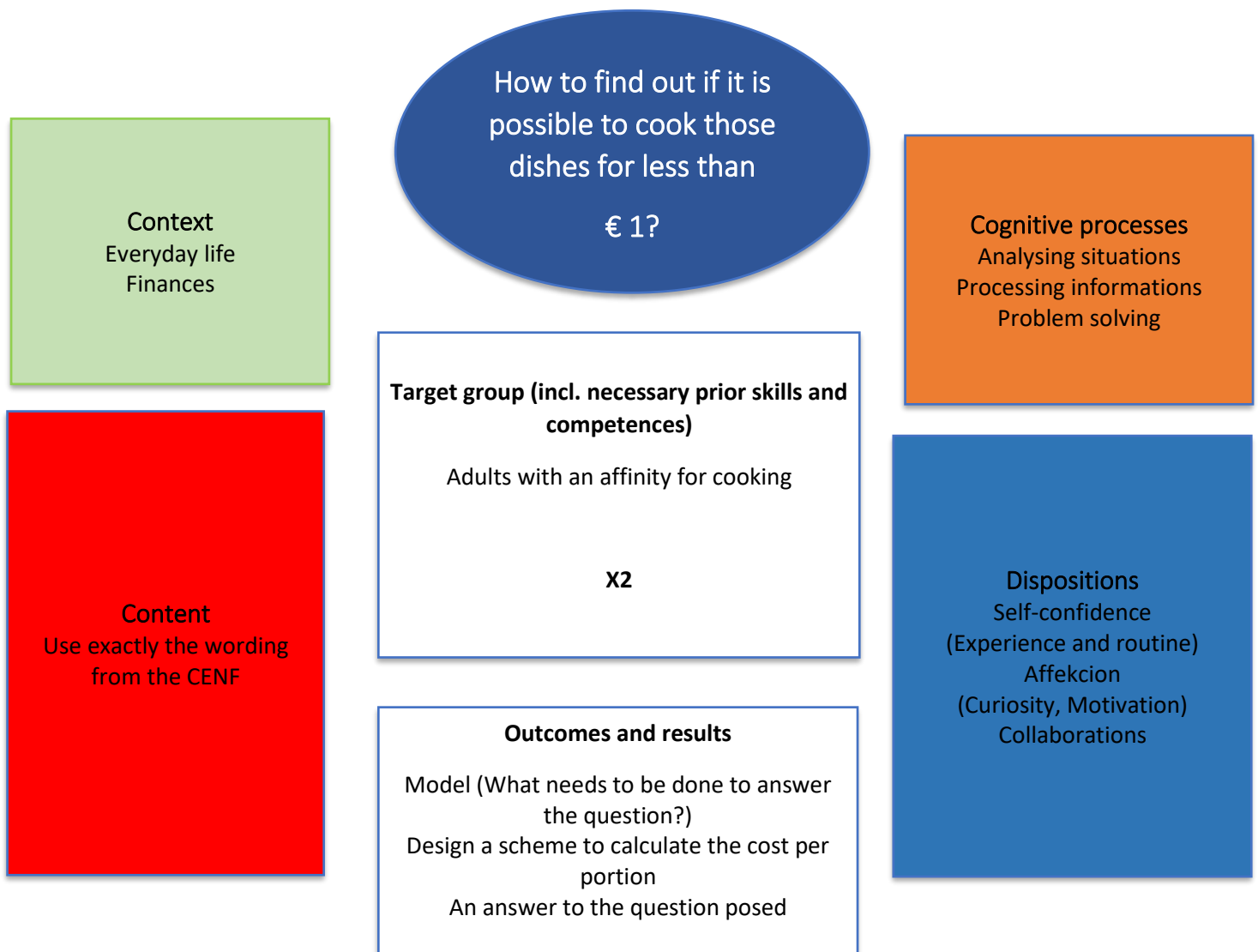


Situation 1: Cooking for less than € 1 - does that pay off?

You spend a lot of money on groceries but still, you often don't know what to cook for your family without even higher costs. Then, you step over some recipes from Swedish Nutritionist Hanna Olvenmark that make sustainable eating possible – for less than one euro per portion!
And the best: All these dishes shall be easily and quickly prepared!

Now you're curious: Is that really possible? You want to and will try out!

Overview “Cooking for less than € 1 – does that pay off?”



Main information

Content	Natural numbers Number range up to 1000 Units of measurement, quantities (weight, money)
Target group	Adults with an affinity for cooking Learners <ul style="list-style-type: none"> ▪ recognise and understand simple, common quantitative representations and use the information to make decisions ▪ cope with one-step, simple operations such as counting, performing basic arithmetic operations to cope with everyday situations ▪ are insecure in communication
Learning intention	Calculating for personal and private purposes
Duration	3 UE +
Material and resources	4 recipes Picture cards (ingredients) Symbol cards
Group size	from 7 to 12 learners / small group work: 2 to 3 learners
Problem statement	The current inflation is forcing many people to be even more conscious with the money at their disposal and to calculate more tightly. Advice and savings tips are booming. Does it pay to check them out?
Working questions	How to link to learners' experiences and prior knowledge? How can learners be brought into a mathematical situation and identify (mathematical) problems in a situation? How can learners be supported in planning and carrying out a problem-solving process? How can adults learn to compare, check and, if necessary, adapt results and ways of solving problems?
Learning outcomes and results	Learners recognize mathematical information in a text. They represent a real everyday situation as a model. They represent a multi-step solution process step by step. They understand the concepts underlying basic arithmetic. They move in the number range up to 1000 and compare and order numbers (more, less - larger, smaller).
Reference to National Qualification Frame	Optional (country's decision)

Working plan

Time	Description of content/activities ¹	Material	Methodical and didactic information
60'+	<p>1. Discover: Cognitive activation Which of the dishes would you like to cook? Choose.</p>	<p><u>Handouts</u> 4 cooking recipes picture cards (ingredients)</p>	<p>investigate text, information and vocabulary</p>
10' - 20' followed by presentation	<p>2. Devise: Modelling 1 The world of things</p> <p>Cooking for € 1,- per portion - Does that pay off? What do you think? How can you check this?</p> <p>Open situation - Investigation task</p> <p>Imagine the situation. What all has to be done until you can start cooking?</p> <p>Present your considerations in a model. Numbers do not play a role here yet! Use the materials available.</p> <p>Presentation / discussion of the proposed solutions and the individual assumptions behind them. Feed back</p>	<p><i>Symbol cards, Flemo materials</i></p>	<p>hands on learning</p> <p>Working in small groups</p> <p>HITs <i>Metacognitive strategies, Questioning, Collaborative learning</i></p>
40' followed by presentation, discussion	<p>3. Develop: Modelling 2 Numerate challenge</p> <p>Open problem task</p> <p>What is the question? What numbers do you find in the recipe? What do they mean in context? What calculations do you need to make? What other information do you need?</p> <p>Place the matching cards with the known numbers in the corresponding place in your initial model. Which numerical information is still missing for you and where? Mark these places.</p> <p>Which calculation would you do in which place. Put the appropriate cards (+, -, x, :) in the corresponding place.</p> <p>Where do you get intermediate results? Put in cards for meaningful intermediate results.</p> <p>Presentation / discussion of the proposed solutions and the individual assumptions behind them. Feed back</p>	<p>Symbol cards with numbers, units of measurement and symbols for arithmetic operations (from the recipe), Flemo materials</p>	<p>investigate numbers, calculation paths, hands on learning,</p> <p>Working in small groups,</p> <p>HIT's Questioning, Explicite teaching, Worked examples, Differentiated teaching</p>

up to several hours	<p>4. Defend: The calculation</p> <p>Vorzeigeaufgabe/Übungsaufgaben</p> <p>Where does the calculation start? What are the steps for the calculation? What do you have to calculate at each step?</p> <p>Write down intermediate results on blank cards. What final result do you get?</p> <p>Presentation / discussion of the proposed solutions and the individual assumptions behind them. Feed back</p>	Forms, Worksheets, calculator, picture cards, cuisenaire rods,	<p>HIT:</p> <p>Differentiated teaching, explicit teaching, instructional routines worked examples (I do, we do, you do)</p>
	<p>Transfer</p> <p>Questions arising from everyday life where numbers play a role</p> <p>Text information, where numbers are located</p>		

This task focuses on modelling as a general competence of mathematical work. It is about establishing a relationship between everyday situations and mathematics. When adults stumble upon mathematical problems in everyday life, they usually want to investigate and cope with a concrete life situation or task. They are first faced with the task of forming an image, of constructing a thought model. Concepts such as Realistic Maths, Investigation Maths, Inquiry Maths Pedagogy are particularly dedicated to this aspect.

The challenge for learners is certainly to gain a routine in translating an everyday problem into the language of mathematics and to process and solve it by mathematical means. Some will progress faster; some will need more time. Therefore, it is advisable to use such tasks in lessons from time to time.

HITS worth of special consideration for this type of task

Structuring lessons

Because this task is initially an open investigation task, which should make visible which (numerical) facts can be found in an everyday problem, the sequence of 4 phases has proven itself: Discover - Devise - Develop - Defend and should also be used for similar tasks. In this way, routines in dealing with tasks - guided by a question, with ambiguities that have to be negotiated, mathematical reasoning required to address the problem and justify a proposed solution (in our opinion, the DNA of Numeracy and solving numerical problems in daily life) - are established in the learners.

While in phase 2 (Devise) the task should be worked on as independently as possible by the learners in small groups, in phase 3 (Develop) and phase 4 (Defend) the use of elements of explicit teaching (instructions, Mathematical talks, valid fluency, implementation of arithmetic techniques through worked tasks and exercise tasks) proves to be useful and recommendable. (Teachers have mostly sufficient materials and experience in this regard).

Phase 4 (Defend - The Calculation) can certainly be carried out separately as one or more lessons, in which increased use is made of structural elements such as explicit teaching, instructional routines, ...

It is important to keep in mind the various possibilities of representation (pictures, real objects, ...). It is equally important to use the different types of tasks in a varied way.

Questioning

This teaching strategy is a powerful tool in the classroom and extremely valuable for teachers. In the appendix there are specific suggestions for questions to ask about this example.

Metacognitive strategies

The learners should gain control over their learning, improve their learning skills, reduce anxiety and control their own motivation to learn. Therefore, it is recommended to conclude each phase with a presentation / discussion of the proposed solutions and the individual assumptions behind them and to give feedback as a teacher.

Phase 1 - Discover

4 cooking recipes to choose from

1.
Mushroom risotto from rice pudding



4 Portionen, 40 Minuten

Zutaten

- 300 g Champignons
- etwas Öl
- 1 Würfel Gemüsesuppe
- 1 Zwiebel
- 1 Knoblauchzehe
- 360 g Milchreis
- 100 ml Weißwein
- 50 – 100 g Käse
- Salz, Pfeffer

2.
Peas - Falafel



4 Portion, 40 Minuten, vegan

Zutaten

- 250 g getrocknete, gelbe Erbsen
- 1 Zwiebel
- 1 Knoblauchzehe
- 1 Würfel Gemüsesuppe
- 1,5 EL gehackte Petersilie
- Salz, Pfeffer
- 1 TL Paprikapulver geräuchert
- ½ TL Paprikapulver edelsüß
- 1 Msp Sambal Oelek
- 2 EL Erdnussmus
- Öl

3.
Fruity coconut milk curry with chickpeas



8 portions, 60 minutes, vegan

Ingredients

- 2 onion
 - 2 garlic cloves
 - oil
 - 2 tbsp yellow curry powder
 - 400 ml coconut milk
 - 400 g chopped tomatoes
 - 1 cube vegetable soup
 - 60 g peanut puree
 - 600 g cooked chickpeas
 - 125 g mango
 - 3 sliced bananas
 - Salt, pepper
 - Coriander leaves to garnish
- Reis für 8 Personen

4.
Potato salad with lentils and parsley



4 Portionen, 45 Minuten, vegan

Zutaten

- 1 kg Frühkartoffel
- 250 g Belugalinsen
- 100 g frische Petersilie
- Saft von 2 Limetten
- 1 TL gemahlener Kreuzkümmel
- 1 EL Raps- oder Olivenöl
- 2 Tomaten
- 100 g Feta

Ingredients

“Fruity coconut milk curry with chickpeas”



onion



garlic cloves



oil



yellow curry powder



coconut milk



Tomatoe



Vegetable soup



peanut puree



chickpeas



mango



bananas



Salt, pepper



Coriander leaves



rice

Phase 2

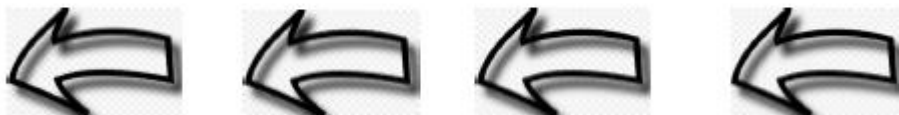
MODELLING MATERIAL

Symbol cards

(suggestions)



and any more ■ ■ ■ ■ ■ ■ ■ ■ ■ ■



+ -
÷ ×



FLEMO Material

Learning means creating one's own image

[Flemo. - ppt herunterladen \(slideplayer.org\)](#)



Phase 3 -Develop

A mix of techniques and tools is needed to solve everyday mathematical problems.

Cuisenaire rods as an alternative approach in the development of basic arithmetic operations

Solving Addition Problems with Cuisenaire rods

[Solving Addition Problems Using Cuisenaire Rods - YouTube](#)

Cuisenaire rods Subtraction

[Cuisenaire Rods Subtraction - YouTube](#)

Cuisenaire rods Multiplication

[Multiplication with Cuisenaire® Rods | Brainingcamp - YouTube](#)

Cuisenaire rods Division

[Dividing - With Cuisenaire® Rods - YouTube](#)



Phase 4 -Defend

Formular for price comparison

	Best Price	for which quantity	where (in which supermarket, ...)	How much do I need
Onions				
Garlic cloves				
Oil				
Yellow curry powder				
Coconut milk				
Tomatoes				
Cube vegetable soup				
Peanut purree				
Cooked chickpeas				
Mangos				
Bananas				
Salt				
Pepper				
Coriander leaves				
Rice				

A shopping list

What and how much do I buy?

grocery list

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

Questioning

Questions teachers might ask with this example - some proposals

How to link to learners' experiences and prior knowledge?

- What situation do you find yourself in?
- What is it about?
- What questions arise?
- What do you already know about using recipes?
- Do you use recipes?
- How do you verify information?

How can they put learners in a mathematical situation?

- What information can you find in the recipe?
- Which ones help you to answer the question? (Can I really prepare this dish for € 1,- per portion?).
- Which ones do you still need? How do you arrive at these?
- Which assumptions do you make? What steps do you take?

How can adults learn to identify (numerical) problems in a situation?

- What numbers do you find in the question?
- What numbers do you find in the cooking recipe?
- What do they mean in context?
- What calculations do you have to make?

How can adults learn to plan and carry out a problem-solving process? How can they be supported in this?

- How many people should be cooked for?
- What ingredients are needed?
- What quantities are needed?
- What are the relationships? What happens if you want to cook one more portion?
- What quantities should be bought?
- Where should you buy?
- How much does the total purchase cost?
- How many portions are needed?
- How much does a portion cost?
- What invoices do you have to make?

How can adults learn to compare, check and, if necessary, adapt results and solution paths?

- How can you present your solutions with the materials available?
- How can you explain your solution to others?
- What results have you reached?
- Are you satisfied with your results?
- Where could you improve your solution?
- Which solution seems best to you?