



SINUS - Thüringen

Steigerung der Effizienz des
mathematisch-naturwissenschaftlichen
Unterrichts

■ Documentation for the teaching material »Pair Work – Percent Calculation«

School:	KGS Erfurt (grades 5 - 10)
Grade:	7 and 10
Subject:	Mathematics
Authors:	Kerstin Schoele
Target:	Consolidation of knowledge of word problems of the percent calculation
Organization form/time needed:	The students work according to the cooperative learning method Think-Pair-Share. There is one lesson at disposal.
Evaluation of the students' performances:	Task 3 can be introduced at the end of the lesson by a student
Material Requirements:	Each student gets a copy, solution sheets for the tasks 1, 2 and 3
Methodical Indications:	<p>The class is divided into two groups, A and B, and each student gets a worksheet. The students of group A receive only task 1, the students of group B only task 2. Each student solves his task. Afterwards, two students from different groups come together and discuss both tasks. The missing task is solved by the partner.</p> <p>For controlling, there could be solution sheets with the calculation method applied on the blackboard. If both students have solved the two tasks completely, the teacher hands out the sketch with the missing facts for task 3. Now both students solve this task together. There could be steps of learning aids applied on the blackboard to lead even low achieving students to the solution of the task. Also, calculation method and solution of task 3 are displayed. Subsequent to this exercise, there was a test paper written on percent calculation in grade 7.</p> <p>In grade 10, this pair work can be used as examination preparation.</p> <p>The sheet »Original« is designated only for the teacher as a survey of the tasks.</p>
Students' Materials:	Worksheet, calculator
Literature:	-

Learning in a Team

Percent Calculation 10

Original

The 3 basic parameters of percent calculation are:

- FZ:
- FZ:
- FZ:

Appropriate diagrams for demonstrating percentages are
and growth processes can be displayed by

Think – Solve the task independently. Pay attention to the step sequence in solving problems!

Write down all the steps so that you can explain them to your partner afterwards!

■ **Task 1.1.** – Solve the tasks by mental arithmetic!

- a) 20 % of 135 Euro are b) 125 kg are 25 % of c) 3 % of 2.4 t are
d) 23 m of 2.3 km are % e) 250 % of 3.6 m² are f) 39 h are 75 % of

■ **Task 1.2.** – Martina buys a jacket which is reduced by 15 %. So she has to pay 33.92 Euro.

- a) How much did the jacket cost before?
b) How much tax does the retailer have to pay?

unknown:

given:

solution:

answer:

Pair – Now find a partner in the other group. Explain to each other the solution of the task

and write down the respectively missing task. Think through every step together!

■ **Task 2.1.** – Solve the tasks by mental arithmetic!

- a) 25 % of 140 Euro are b) 125 kg are 20 % of c) 7 % of 3.8 km are
d) 16 a of 16 ha are % e) 350 % of 5 ml are f) 4.9 dm³ are 50 % of

■ **Task 2.2.** – The Ott family (3 people) consumes 335 liters of water a day. Only 5.5 % are used as drinking water.

- a) How many liters of drinking water are consumed each day?
b) Compare the percentage of consumption with an average family, imagine if every German citizen consumes 140 liters a day!

unknown:

given:

solution:

answer:

Share – Now solve task 3 together. It is important that each of you understands every step of the solution.

Therefore discuss the solution quietly before writing down your thoughts! In case of problems contact another group by letting a member of your group act as a spy!

■ **Task 3**

The Schulze family thinks about purchasing a car for a price of 20,000 Euro. They want to resell the car after three years, by respectively returning it to the dealer. Possible are:

- Credit buying:**
- deposit 30 % of the purchase price
 - 36 installments of 460 Euro
 - pre-calculated resale after 3 years for 9,000 Euro

Cash purchase:

- discount 3 %
- same resale as credit buying

Leasing:

- payoff of 40 % of the purchase price
- 36 installments of 180 Euro
- no property, therefore no resale

Compute all three rough calculations and give the most favorable financing for the Schulze family!

Learning in a Team

Percent Calculation 10

Group A

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■ **Task 3**

The Schulze family thinks about purchasing a car for a price of Euro. They want to resell the car after three years,
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Learning in a Team

Percent Calculation 10

Group B

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- FZ:

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■ **Task 1.2.** – Martina buys a jacket which is reduced by 15 %. So she has to pay Euro.

- a) How much did the jacket cost before?
b) How much tax does the retailer have to pay?

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solution:

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