

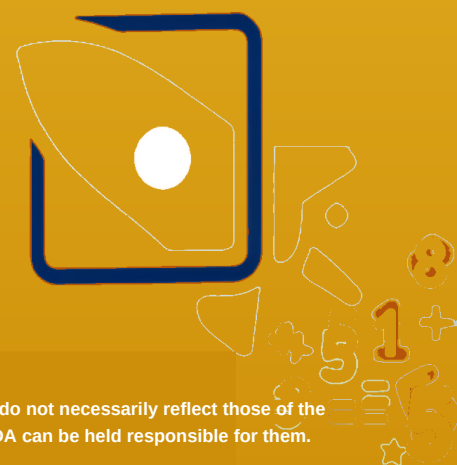


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Resource Bank

Grade 3 Workbook



Division Facts within 100: Automation and Using Inverse Operations

GRADE: 3rd Grade

LEARNING AREA: Arithmetic (Numbers and Operations)

SUBJECT: Mathematics

TOPIC: Division Facts within 100: Automation and Using Inverse Operations (Division facts within 100)

LESSON TYPE: Knowledge Acquisition, Consolidation, and Application

DURATION: 40 + 40 minutes (2 Lesson Periods)

Part I: Learning Objectives and Competences

Lesson Goal: Students consolidate core division facts within the number range up to 100. They develop a deep conceptual understanding of division as the inverse operation (inverse operation) of multiplication and actively use their secure knowledge of multiplication tables to derive division facts quickly and strategically.

Operationalized Learning Objectives (Learning Outcomes):

H1: Students derive unknown or complex division problems within the number range up to 100 directly from known core multiplication table facts.

H2: Students recognize and name the mathematical relationships within a "fact family" (fact family), consisting of two multiplication and two division equations.

H3: Students automate division within the multiplication tables and solve equations containing placeholders in a structured manner.

H4: Students flexibly apply their division knowledge to combinatorical math riddles and construct mathematically correct logical models.

Part II: Didactic-Methodical Alignment

Methods and Techniques: Teacher Exposition, Classroom Discourse (Question-Answer), Cognitive Demonstration (Working with dot arrays and number houses), Gamification (The Game: "Fact Family Code Breaker").

Teaching Materials and Media: Magnetic triangular number cards for the blackboard (structuring fact families), dot arrays (one-hundred grid), digital math games on the smartboard, differentiated worksheets.

Social Forms: Frontal Teaching (Plenary for strategy instruction), Pair Work (mutual testing with flashcards), and Individual Work.

Part III: Lesson Procedure (Table Model)

Phase	Objective	Content	Method	Media	Social Form	Duration
1. Introduction & Organization	—	Secure classroom order. Students prepare their math notebooks, multiplication notebooks, and writing tools.	Discussion	—	F	5 Min
2. Motivation & Lead-in	—	The teacher shows a locked combination padlock with the combination . The numbers and are attached to the blackboard. "How do the division sign and multiplication sign connect to crack this code?"	Problem Posing / Math Mystery	Combination lock / Blackboard illustration	F	5 Min
3. Goal Orientation	—	Announcement of today's mission: We will become code breakers in the number range up to 100. We use our multiplication table knowledge as a secret weapon to solve any division problem in a flash.	Teacher Exposition	—	F	5 Min
4. Activating Prior Knowledge	H1	Choral multiplication chain drills: The teacher calls out a multiplication problem (e.g.,), and the class answers in chorus (). Rapid transition to simple neighboring facts.	Mental Math / Plenary testing	Smartboard visualization	F	5 Min
5. Acquisition Phase	H1, H2, H3	1. The Principle of Inverse Operations: If I know that is, then I automatically also know what is. The result must be the . 2. The Fact Family: Introduction of the number triangle with vertices . The students form the quartet: , , , .	Demonstration & Cognitive Exploration	Magnetic number triangles, one-hundred dot array	F / P (Pairs)	30 Min
6. Consolidation / Application	H3, H4	Students work on the prepared worksheet "The Code-Cracker Headquarters: Connecting Multiplication and Division!". The exercises are structured from easy to difficult.	Independent Application	Worksheets	I	20 Min

Phase	Objective	Content	Method	Media	Social Form	Duration
7. Conclusion & Homework	—	Summary: The teacher calls out: "divided by !" – A child states the multiplication problem to justify the answer: "Because is!". Homework: Complete the three number houses on the worksheet.	Summary	Blackboard	F	10 Min

Abbreviations: F: Frontal (Whole Class Plenary), I: Individual (Independent Work), P: Pair Work, G: Group Work. ---

Part IV: Template for Accompanying Material (Measurement & Assessment)

□ Draft for the Worksheet (Worksheet): "The Code-Cracker Headquarters: Connecting Multiplication and Division!" This worksheet is structured into three difficulty tiers following the principle "from easy to difficult":

TIER 1: Connect and Derive (Easiest)

Task: Use the known multiplication fact to solve the division problem lightning-fast.

(Blank spaces left intentionally as in the original text)

TIER 2: Completing the Fact Family (Medium)

Task: Four math siblings live in each number triangle. Fill in the missing problems for the family.

Number Triangle with the numbers: 24, 3, 8 *

*
*
*

TIER 3: Designing and Puzzles (Hard)

Task: Solve the tricky mathematical secret riddle and draw your very own Math Monster!

Number Riddle: I am a number smaller than 100. If you divide me by 8, you get the result of . Which number am I?

(Hint: First calculate the result of , then use the inverse operation!) Answer: I am the number _____

Creative Part: Draw your personal "Code Monster" in the empty space next to it according to the following conditions:

The monster has as many eyes as the result of the equation:

eyes.

Draw a number of arms for the monster that corresponds exactly to the result of the equation:

corresponds.

Teacher's Notes – 3rd Grade Worksheet (Fact Families)

Class: 3rd Grade

Topic: Multiplication and Division as Inverse Operations – Fact Families in the Basic Multiplication Tables (The Code-Cracker Headquarters: Connecting Multiplication and Division!)

Learning Objectives:

- Understand the inverse relationship between multiplication and division and purposefully use existing multiplication tasks as a solution strategy for division tasks.
- Structure three given numbers into a complete fact family (a quartet consisting of two multiplication and two division equations).
- Systematically solve complex, two-step mathematical word riddles by logically combining division with the appropriate inverse multiplication fact, and precisely transfer the results into a drawing.

Worksheet Created By: GEDONSOFT GMBH

TASK 1: The Inverse Code: Using Multiplication Tasks as a Secret Weapon	Instruction for the Student	Expected Answer	Focus of Assessment / Observation	Materials / Resources	Methodological Recommendations
	"Look closely at the familiar multiplication problems. They will help you solve the division problems in a flash. Find the correct inverse code and check the box next to the right answer."	a) CODE 1: [X] The answer is 6, because $6 \cdot 8 = 48$. b) CODE 2: [X] The answer is 9, because $9 \cdot 4 = 36$.	Does the student recognize the direct mathematical relationship between the factors of a multiplication problem and the elements of the corresponding division task?	Student worksheet, colored pencils	* Easier: Students can be provided with a multiplication table grid to visually cross-reference rows and columns, making the "code" tangible. Challenging: Students can be asked to independently write the second remaining division task ($48 : 6 = 8$) in the margin next to Code 1.
TASK 2: The Fact Family	Instruction for the Student	Expected Answer	Focus of Assessment / Observation	Materials / Resources	Methodological Recommendations
	"Inside each number triangle live 4 math siblings (two multiplication and two division problems). Translate the triangle into the correct mathematical equations!"	* $3 \cdot 8 = 24$ (or $8 \cdot 3 = 24$) $8 \cdot 3 = 24$ (or $3 \cdot 8 = 24$) $24 : 3 = 8$ $24 : 8 = 3$	Can the student apply the commutative property of multiplication and do they understand that in division, the product (24) must stand at the very front as the dividend?	Student worksheet, pencil	* Easier: The number triangle can be color-coded on the chalkboard (e.g., the top peak red for the total/product, the bottom corners blue for the factors) to clarify the structure. Challenging: Provide an empty number triangle and ask students to enter three matching numbers of a new family themselves and form the quartet.

TASK 3: Tricky Secret Riddle and Your Code Monster	Instruction for the Student	Expected Answer	Focus of Assessment / Observation	Materials / Resources	Methodological Recommendations
	"First, solve the tricky mathematical secret riddle using the hint. Next, calculate the exact number of eyes and arms for your Code Monster, and then draw it in the large free space!"	* Secret Riddle: * Intermediate step: $27 : 3 = 9$ Inverse task: $9 \times 8 = 72$ Answer: I was the number 72. Monster Rules: * Eyes: $72 : 9 = 8$ eyes Arms: $40 : 8 = 5$ arms Drawing: * A monster with exactly 8 eyes and 5 arms drawn inside the designated area.	Can the student solve two-step logical chains in division ($x : 8 = 27 : 3$)? Do they translate the calculated numerical values ($72 : 9 = 8$ and $40 : 8 = 5$) into a creative graphic representation without errors?	Student worksheet, pencil, eraser, and colored pencils.	Easier: If the calculation step in the secret riddle gets blocked, the teacher can guide the student step-by-step: "What is $27 : 3$? Good, 9. Which number divided by 8 equals 9? Use your 8 times table!" Challenging: Add an optional bonus rule for the legs: "The number of legs corresponds to the result of $56 : 7$. Calculate and add them to your drawing!"



Name: _____



Class : _____



Date : _____

The Code-Cracker Headquarters: Connecting Multiplication and Division!

TASK 1: The Inverse Code: Using Multiplication Tasks as a Secret Weapon	 What do I need to do?	 What materials do I need?
	Look closely at the familiar multiplication problems. They will help you solve the division problems in a flash. Find the correct inverse code and check the box next to the right answer.	Colored pencils..



Task Design Area

● a) CODE 1:

- Since $6 \times 8 = 48$ $6 \times 8 = 48$ $6 \times 8 = 48$, what is the correct division answer?

$$48 \div 8 = 48 \div 8 = 48 \div 8 = ?$$

● b) CODE 2:

- Since $9 \times 4 = 36$ $9 \times 4 = 36$ $9 \times 4 = 36$, what is the correct division answer?

$$36 \div 4 = 36 \div 4 = 36 \div 4 = ?$$

Self-Assessment	Teacher's Comments
☐ I finished the task.	
☐ I checked my work.	

How did I do? (Please circle):



TASK 2: The Fact Family (Completing Number Houses)	 What do I need to do?	 What materials do I need?
	Inside each number triangle live 4 math siblings (two multiplication and two division problems). Translate the triangle into the correct mathematical equations!	Pencil

TASK 2: The Fact Family (Completing Number Houses)



What do I need to do?

Inside each number triangle live 4 math siblings (two multiplication and two division problems). Translate the triangle into the correct mathematical equations!

What materials do I need?

Pencil

Task Design Area

FAMILY 1: Number triangle with the values: 24 (top), 3 (left), 8 (right)

Write down the complete quartet:

$$\underline{\quad} \times \underline{\quad} = 24$$

$$\underline{\quad} \times \underline{\quad} = 24$$

$$24 \div \underline{\quad} = \underline{\quad}$$

$$24 \div \underline{\quad} = \underline{\quad}$$

FAMILY 2: Number triangle with the values: 36 (top), 4 (left), 9 (right)

$$\underline{\quad} \times \underline{\quad} = 36$$

$$\underline{\quad} \times \underline{\quad} = 36$$

$$36 \div \underline{\quad} = \underline{\quad}$$

$$36 \div \underline{\quad} = \underline{\quad}$$

FAMILY 3: Number triangle with the values: 42 (top), 6 (left), 7 (right)

$$\underline{\quad} \times \underline{\quad} = 42$$

$$\underline{\quad} \times \underline{\quad} = 42$$

$$42 \div \underline{\quad} = \underline{\quad}$$

$$42 \div \underline{\quad} = \underline{\quad}$$

FAMILY 4: Number triangle with the values: 56 (top), 7 (left), 8 (right)

$$\underline{\quad} \times \underline{\quad} = 56$$

$$\underline{\quad} \times \underline{\quad} = 56$$

$$56 \div \underline{\quad} = \underline{\quad}$$

$$56 \div \underline{\quad} = \underline{\quad}$$

Self-Assessment	Teacher's Comments
☐ I finished the task.	
☐ I checked my work.	

How did I do? (Please circle):









TASK 3: Tricky Secret Riddle and Your Code Monster	 What do I need to do?	 What materials do I need?
	First, solve the tricky mathematical secret riddle. Then, use the large space to draw your very own Code Monster according to the exact 3rd-grade math rules!	Pencil, eraser, and colored pencils..

TASK 3: Tricky Secret Riddle and Your Code Monster



Example 1

I am a number smaller than 100.

If you divide me by 6, you get the answer to $32 \div 4$ $32 \div 4$ $32 \div 4$.

What number am I?

Answer: I was the number _____

Monster Rules:

- Eyes: $54 \div 9$ $54 \div 9$ $54 \div 9$ → Your monster has exactly _____ eyes.
- Arms: $28 \div 7$ $28 \div 7$ $28 \div 7$ → Your monster has exactly _____ arms.

Example 2

I am a number smaller than 100.

If you divide me by 5, you get the answer to $36 \div 6$ $36 \div 6$ $36 \div 6$.

What number am I?

Answer: I was the number _____

Monster Rules:

- Eyes: $63 \div 9$ $63 \div 9$ $63 \div 9$ → Your monster has exactly _____ eyes.
- Arms: $24 \div 4$ $24 \div 4$ $24 \div 4$ → Your monster has exactly _____ arms.

Example 3

I am a number smaller than 100.

If you divide me by 7, you get the answer to $40 \div 5$ $40 \div 5$ $40 \div 5$.

What number am I?

Answer: I was the number _____

Monster Rules:

- Eyes: $48 \div 8$ $48 \div 8$ $48 \div 8$ → Your monster has exactly _____ eyes.
- Arms: $35 \div 5$ $35 \div 5$ $35 \div 5$ → Your monster has exactly _____ arms.

Example 4

I am a number smaller than 100.

If you divide me by 9, you get the answer to $28 \div 4$ $28 \div 4$ $28 \div 4$.

What number am I?

Answer: I was the number _____

Monster Rules:

- Eyes: $56 \div 7$ $56 \div 7$ $56 \div 7$ → Your monster has exactly _____ eyes.
- Arms: $45 \div 9$ $45 \div 9$ $45 \div 9$ → Your monster has exactly _____ arms.

Self-Assessment	Teacher's Comments
☐ I finished the task.	
☐ I checked my work.	

How did I do? (Please circle):

Pirate Island: Learning to Share and Divide!

GRADE: 2nd Grade

LEARNING AREA: Arithmetic (Numbers and Operations)

SUBJECT: Mathematics

TOPIC: Introduction to Division: Fair Sharing and Grouping into Fixed Sizes

LESSON TYPE: Knowledge Acquisition and First Application

DURATION: 40 + 40 minutes (2 Lesson Periods)

Part I: Learning Objectives and Competences

Lesson Goal: Students understand the basic principle of division. Through hands-on activities and drawings, they can differentiate between fair sharing ("one for you, one for you") and grouping (packing into fixed group sizes). They can translate math stories into division equations using the division sign :.

Operationalized Learning Objectives (Learning Outcomes):

LO1: Students differentiate between fair sharing and grouping based on concrete math stories.

LO2: Students use counters (math counters) or drawings to represent division tasks and determine the result.

LO3: Students write division equations mathematically correct using the division sign :.

LO4: Students solve inverse riddles (halving/doubling) and creatively implement mathematical results into a structural model (The Division Monster).

Part II: Didactic-Methodical Alignment

Methods and Techniques: Storytelling (The Pirate Island), Classroom Discourse (Question-Answer), Tactile Demonstration (Working with counters), Gamification (The Game: "The Fair Pirates").

Teaching Materials and Media: Counters for every student, picture cards of pirates, dogs, bones, and gold coins for the blackboard, worksheets.

Social Forms: Frontal Teaching (Introduction in the plenary), Pair Work (Arranging counters), Individual Work (Worksheet).

Part III: Lesson Procedure (Table Model)

Phase	Objective	Content	Method	Media	Social Form	Duration
1. Introduction & Organization	—	Secure classroom order. Students prepare pencils, erasers, colored pencils, and counters.	Discussion	—	F	5 Min
2. Motivation & Lead-in	—	Pirate Story: "Captain Hook found 16 gold coins on Pirate Island and wants to share them fairly among his 4 pirates. How do we proceed so that nobody gets angry?"	Storytelling / Problem Posing	Picture cards on the blackboard	F	5 Min
3. Goal Orientation	—	Announcement of the journey to "Pirate Island". Today we learn fair sharing and grouping, and we get to know the new math symbol: the division sign $:$.	Teacher Exposition	—	F	5 Min
4. Activating Prior Knowledge	LO1	Short review: What does "fair halving" mean? (e.g., sharing 10 marbles between 2 children – everyone gets the same amount).	Prompt / Mental Math	Counters	F	5 Min
5. Acquisition Phase	LO1, LO2, LO3	1. SHARING: 10 bones are shared fairly between 2 dogs. Lay them out one by one: "one for you, one for you..." Every child uses counters at their seat. Result: 5 bones per dog. 2. GROUPING: 15 fish need to go into aquariums. Exactly 5 fish go into each tank. We group them into sets of 5 and count the aquariums. Result: 3 groups. Introduction of the notation: $16 : 4 = 4$ and $20 : 5 = 4$.	Demonstration & Tactile Exploration	Counters, Blackboard illustrations	F / P	30 Min
6. Consolidation / Application	LO3, LO4	Students work on the worksheet "Pirate Island: Learning to Share and Divide!". The exercises are structured in three difficulty tiers.	Independent Application	Worksheets	I	20 Min

Phase	Objective	Content	Method	Media	Social Form	Duration
7. Conclusion & Homework	—	Summary: One child explains the difference: In <i>sharing</i> , we give an object to each recipient one after another; in <i>grouping</i> , we look for the total number of complete groups. Homework: Finish drawing the Division Monster on the worksheet.	Summary	Blackboard / Worksheet	F	10 Min

Abbreviations: F: Frontal (Whole Class), I: Individual (Independent Work), P: Pair Work.

Part IV: Accompanying Material

□ Accompanying Worksheet: "Pirate Island: Learning to Share and Divide!"

TIER 1: Fair Distribution: Sharing or Grouping? (Easy)

a) **SHARING:** 10 bones are fairly distributed between 2 dogs. Draw lines! What are we doing here?

[X] YES, we are SHARING – one for you, one for you...

[] NO, we are packing fixed group sizes.

b) **GROUPING:** 15 fish need to go into aquariums. Exactly 5 fish go into each tank. Circle groups of 5! What are we doing here?

[X] YES, we are GROUPING – we are looking for the number of groups.

[] NO, we give each recipient one object after another.

TIER 2: Translating Math Stories (Medium)

a) **PIRATE GOLD:** 16 gold coins are shared fairly among 4 pirates. How many coins does each pirate get?

Equation: $16 : 4 = 4$

b) **MARBLE BOXES:** 20 marbles are being packed. Exactly 5 marbles fit into each bag. How many bags do you need?

Equation: $20 : 5 = 4$

TIER 3: Tricky Division Riddle and Your Division Monster (Hard)

Number Riddle: I am a number. If you divide me by 2 (halve me fairly), my result is exactly 8. Which number am I?

Answer: I was the number 16

Creative Part (Rules for your Monster):

EYES: The monster has a total of 18 eyes. They are distributed absolutely fairly across 3 heads. Draw the monster! Each head has exactly 6 eyes (because $18 : 3 = 6$).

ARMS: Draw a number of arms for the monster that corresponds exactly to the result of the equation $10 : 2$. Your monster has exactly 5 arms.

Teacher's Notes – 3rd Grade • 2. Worksheet (Semi-Formal Division)

Class: 3rd Grade

Topic: Semi-Formal Division – Strategic Decomposition of Two- and Three-Digit Numbers by a One-Digit Number (Semi-Formal Division: Dividing Two- and Three-Digit Numbers by a One-Digit Number)

Learning Objectives:

- Strategically decompose large dividends into two smaller tens and ones numbers that are easily divisible by the divisor.
- Step-by-step execution of the semi-formal division method using a step-template and add the partial results together.
- Solve word problems by semi-formal division and determine mathematical results (quotients) to implement structural requirements for a creative drawing.

Worksheet Created By: GEDONSOFT GMBH

TASK 1: The Number-Splitting: Learning Clever Decomposition	Instruction for the Student	Expected Answer	Focus of Assessment / Observation	Materials / Resources	Methodological Recommendations
	"To easily divide large numbers in your head, we split them into two smaller numbers. These must fit well into the multiplication tables. Find the correct decomposition and check the box!"	* a) CODE 1 $(52 : 4) : [X]$ We strategically split the number 52 into 40 and 12. b) CODE 2 $(135 : 5) : [X]$ We strategically split the number 135 into 100 and 35.	Does the student recognize which partial numbers are strategically useful for the basic multiplication tables? Do they understand that a decomposition such as 50 and 2 is harder to process in one's head when dividing by 4 than 40 and 12?	Student worksheet, colored pencils	Easier: For students who find decomposition difficult, a tip can be given to use ten times the divisor first. Example: For $4 \times 10 = 40$, this value is first subtracted from the total number to get a first partial value. Challenging: Students can be asked to find an alternative, also suitable decomposition for the task $52 : 4$, such as into 20 and 32.

TASK 2: Semi-Formal Calculation with the Ste p-Template	Instruction for the Student	Expected Answer	Focus of Assessment / Observation	Materials / Resources	Methodological Recommendations
	"Use the calculation steps of the Number-Composer Factory! First, divide the large tens and then the rest. At the end, add both partial results to find the total answer!"	Expected Answer: * a) $84 : 3 = 28$ $60 : 3 = 20$ $24 : 3 = 8$ $20 + 8 = 28$ b) $175 : 5 = 35$ $100 : 5 = 20$ $75 : 5 = 15$ $20 + 15 = 35$	Can the student execute the partial calculations correctly? Do they transfer both quotients flawlessly into the addition row to determine the correct total answer?	Student worksheet, pencil	Easier: For task b, the number 75 can be further broken down in an intermediate step if needed—for example, into 50 and 25—if the single calculation step seems too large. Challenging: Students work through the calculation method on a blank sheet of paper without pre-defined partial steps and apply it to a more complex task, e.g., $248 : 4$.
TASK 3: Tricky Factory Riddle and Your Composer Monster	Instruction for the Student	Expected Answer	Focus of Assessment / Observation	Materials / Resources	Methodological Recommendations
	"First, solve the tricky mathematical word riddle from the bakery using the hint. Next, calculate the exact number of eyes and arms for your Composer Monster, and then draw it in the large free space!"	* Bakery Riddle: Answer: He can fill a total of 24 bags, because $120 : 6 = 20$ and $24 : 6 = 4$; together this equals $20 + 4 = 24$. Monster Rules: * Eyes: $92 : 4 = 23$ eyes ($80 : 4 = 20$, $12 : 4 = 3$) Arms: $105 : 7 = 15$ arms ($70 : 7 = 10$, $35 : 7 = 5$) Drawing: Create a creative monster drawing with 23 eyes and 15 arms inside the designated area. .	Does the student succeed in independently applying the partial steps learned in tasks 1 and 2 to new text and calculation problems? Are the calculated results flawlessly counted and transferred into the monster graphic?	Student worksheet, pencil, eraser, and colored pencils	Easier: If drawing 23 eyes becomes too cluttered, the student can arrange the eyes in clusters (e.g., groups of 5) or place small dots before coloring them in. Challenging: Add an optional bonus rule for the legs: "The number of legs corresponds to the result of $112 : 8$. Use semi-formal division in your head and add them to your drawing!"



Name:



Class:



Date:

The Code-Cracker Headquarters: Semi-Formal Division!

TASK 1: The Number-Splitting: Learning Clever Decomposition	 What do I need to do? To easily divide large numbers in your head, we split them into two smaller numbers. These must fit well into the multiplication tables. Find the correct decomposition and check the box!	 What materials do I need? Colored pencils.

a) CODE 1: What is the best way to split the task $52 : 4$ so that we can calculate it step-by-step in the factory?

- ☐ We strategically split the number 52 into 40 and 12!
- ☐ We split the number 52 into 50 and 2.

b) CODE 2: What is the smartest way to split the three-digit task $135 : 5$?

- ☐ We strategically split the number 135 into 100 and 35!
- ☐ We split the number 135 into 130 and 5

Self-Assessment	Teacher's Comments
☐ I finished the task	
☐ I checked my work	

How did I do? (Please circle):



TASK 2: Semi-Formal Calculation with the Step- Template	 What do I need to do? Use the calculation steps of the Number-Composer Factory! First, divide the large tens and then the rest. At the end, add both partial results to find the total answer!	What materials do I need?  Pencil.

Task Design Area

FAMILY 1: Enter the partial steps neatly into the template:

- **a)** $84 : 3 = \underline{\quad}$
 $60 : 3 = \underline{\quad}$
 $24 : 3 = \underline{\quad}$
 $\underline{\quad} + \underline{\quad} = \underline{\quad}$
- **b)** $175 : 5 = \underline{\quad}$
 $100 : 5 = \underline{\quad}$
 $75 : 5 = \underline{\quad}$
 $\underline{\quad} + \underline{\quad} = \underline{\quad}$

Self-Assessment	Teacher's Comments
[] I finished the task	
[] I checked my work	

How did I do? (Please circle):





TASK 3: Tricky Factory Puzzle and Your Decomposer Monster	 What do I have to do?	 Materials needed?
	First, solve the tricky mathematical word problem about the bakery. Then use the large space to draw your very own Decomposer Monster according to the exact calculation rules!	Pencil, eraser and colored pencils.

Task Design Area

1. A bakery packs 144 cookies into bags. Each bag holds exactly 6 cookies. How many bags can the baker fill?
(Tip: First split 144 strategically into 120 and 24!)

Answer: The baker can fill _____ bags.

[Large blank space to draw your Decomposer Monster]

Rules for your Monster:

- **Calculate the number of EYES:** Solve the partial-quotients division $92 : 4$.
(Tip: Calculate $80 : 4$ and $12 : 4$.)
Your monster has exactly _____ eyes.
- **Calculate the number of ARMS:** Give the monster a number of arms equal to the result of $105 : 7$.
(Tip: Calculate $70 : 7$ and $35 : 7$.)
Your monster has exactly _____ arms.

Self-Assessment	Teacher's Comments
☐ I finished the task	
☐ I checked my work	

How did I do? (Please circle):





3rd Grade Mathematics Lesson Plan: Seeking Solutions in the World of Problems!

General Information

Course: Mathematics

Grade Level: 3rd Grade

Unit: Operations with Natural Numbers

Topic: Word Problems Requiring the Four Operations (Seeking Solutions in the World of Problems!)

Duration: 40 + 40 Minutes (2 Lesson Hours)

Lesson Type: New Knowledge Acquisition and Application

Part I: Educational Framework & Objectives

Lesson Aim:

To enable students to analyze multi-step word problems, distinguish between given and requested information, create operational plans, and fluently apply multiplication, division, addition, and subtraction in real-life contexts.

Target Learning Outcomes (Curriculum Standards):

O1: Distinguishes and records the given numbers and requested information in word problems.

O2: Plans and selects the correct operational steps (multiplication, division, subtraction) required to solve two-step problems.

O3: Solves multi-step real-world problems involving equal sharing, array structures, and remaining quantities.

O4: Checks problem solutions step-by-step and poses original mathematical problems based on visual scenarios.

Part II: Differentiation & Scaffolding Strategy

Learning Tier	Pedagogical Support & Adaptations
Support (Scaffolding)	• Guide students to write down "Given" and "Asked" headers on the side of their paper before calculating. • Provide visual grid or array drawings for row/shelf problems to help visualize total quantities before multiplying.
Core (Grade Level)	• Complete worksheet tasks step-by-step: underlining given values, filling step-by-step solution templates, and calculating totals.
Challenge (Extension)	• Ask students to add a 3rd operational step to the problem (e.g., calculating total earnings if remaining items are sold for a specific price). • Have students write an original 3-step word problem and exchange it with a peer to solve.

Part III: Instructional Execution Plan (Table Model)

Stage	Outcomes	Pedagogical Content & Teacher Script	Methods & Interaction	Materials & Tools	Duration
1. Organization & Warm-up	-	Establish classroom routines, ensure table readiness, and greet students.	Interactive Conversation	Classroom Setup	5 min
2. Engagement & Hook	-	Ask: <i>"When you go to the stationery store to buy multiple notebooks with a big bill, how do you calculate your change?"</i>	Guided Inquiry (Q&A)	Interactive Board / Realia	5 min
3. Topic & Aim	-	Introduce topic: <i>"Today we are going to become Problem Solvers and learn how to break down complex multi-step problems!"</i>	Direct Lecture	Board / Anchor Visuals	5 min
4. Activating Prior Knowledge	O1	Recall the relationship between multiplication and equal sharing (division) through a quick mental warm-up.	Brainstorming	Chalkboard	5 min
5. Explicit Teaching & Demonstration	O1, O2, O3	Model problem-solving steps: 1. Understand (Given/Asked), 2. Plan (Operations), 3. Solve (Step 1 & 2), 4. Check. Solve an array problem on the board.	Demonstration & Modeling	Board & Example Problems	30 min
6. Performance & Guided Practice	O1, O2, O3, O4	Distribute worksheet. Students complete Task 1 (Notebook Change), Task 2 (Farmer's Apples), and Task 3 (Bus Seats & Library Shelves).	Formative Individual Practice	Worksheet & Lead Pencils	20 min
7. Closure & Self-Evaluation	O4	Review solutions on the board. Students complete their smiley self-evaluation rubric.	Reflection & Summary	Self-Evaluation Section	10 min

Part IV: Associated Worksheet Details & Scaffolding Breakdown

Worksheet Material: **"3rd Grade - Worksheet: Seeking Solutions in the World of Problems!"** follows a 3-stage progressive structure:

Level 1: Let's Find the Given and Requested Information (Analysis & Plan Level)

Objective: Extracting structured data and executing two-step multiplication/subtraction.

Content: Ayşe buys 6 notebooks at 12 TL each and pays with a 100 TL bill. Students record Given (6 notebooks, 12 TL each, 100 TL paid), Asked (Change received), choose operations (Multiplication & Subtraction), and calculate: $6 \times 12 = 72$ TL, $100 - 72 = 28$ TL change.

Pedagogical Function: Low-cognitive-load structured framework to build problem-analysis habits.

Level 2: Sharing and Multiplying (Division & Subtraction Level)

Objective: Solving two-step problems involving equal division and remaining sets.

Content: A farmer puts 56 apples into bags of 7 each, then sells 3 bags. Students calculate Step 1 ($56 \div 7 = 8$ total bags) and Step 2 ($8 - 3 = 5$ bags left).

Pedagogical Function: Connects equal grouping concepts with sequential reduction steps.

Level 3: Guided Multi-Step Problems & Posing (Production Level)

Objective: Solving array/row problems step-by-step and modeling word problems.

Content:

Bus Problem: 4 rows with 5 seats each, 3 empty seats. Step 1: $4 \times 5 = 20$ total seats; Step 2: $20 - 3 = 17$ students sitting.

Library Exercise: 9 shelves with 8 books each, 12 books taken for repair. Step 1: $9 \times 8 = 72$ total books; Step 2: $72 - 12 = 60$ books left.

Posing Task: Creating an original problem using multiplication and subtraction.

Pedagogical Function: Synthesizes multi-step operational logic and encourages creative problem creation.

Part V: Assessment & Verification Framework

Formative Assessment: Check accuracy in identifying "Given" and "Asked" data in Level 1 and verify division step logic in Level 2.

Performance Assessment: Evaluate multi-step calculation accuracy and array modeling in Level 3 tasks.

Self-Evaluation: Student self-check rubric (Good Great / Need help Need Help / Difficult Hard) at the bottom of the worksheet.

Teacher's Notes

Grade: 3rd Grade

Topic: Problem Solving and Posing with Natural Numbers (Seeking Solutions in the World of Problems!)

Learning objective(s):

- To analyze data, prepare a solution plan, and apply the correct order of operations when solving problems that require at least two steps.
- To analyze sequential mathematical relationships in everyday life situations by using multiplication and division fluently.
- To pose and solve original problems containing at least two different operational steps by using mathematical language and symbols.

The worksheet was designed by: CTA

Level 1: Let's Find the Given and Requested Information	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	"Underline the given numbers. Circle what is asked. Choose the operations and solve."	Given: Ayşe bought 6 notebooks, each costs 12 TL, paid with a 100 TL bill. • Asked: How much change should she get? • Answer: 28 TL	Ability to extract structured information (given/asked) from a word problem and correctly execute a two-step operational plan (multiplication before subtraction).	Student worksheet, lead pencil.	Support: Have students write down the intermediate product (72 TL for notebooks) before subtracting from 100 TL. Challenge: Ask: "If she had paid with two 50 TL bills instead of one 100 TL bill, would her change remain the same?"
Level 2: Sharing and Multiplying	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	"Solve the two-step problem. Show your steps clearly."	Step 1 (Total bags): $56 \div 7 = 8$ bags • Answer: 5 bags left	Deducing equal sharing as division, executing accurate division without remainder, and completing the sequential subtraction step.	Student worksheet, lead pencil.	Support: Remind students of the multiplication link: $7 \times \square = 56$ to help find total bags easily. Challenge: Ask: "If the farmer sells each remaining bag for 15 TL, how much money does he earn from the remaining bags?"

Level 3: Posing My Own Problem	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	"Read the problem. Solve step by step using multiplication, subtraction, and division."	• Bus Problem: Step 1: $4 \times 5 = 20$ total seats Answer: 17 students • Library Exercise: Step 1: $9 \times 8 = 72$ total books Answer: 60 books left Step 2: $72 - 12 = 60$ books left Answer: 60 books left	Formulating multi-step solution plans for array/row structures, performing multiplication and subtraction sequentially, and synthesizing word problems.	Student worksheet, lead pencil, eraser. .	Support: Guide students to draw a simple grid or diagram for rows/shelves to visualize total quantities before performing arithmetic. Challenge: Have students pose an original 3rd-grade library problem with 3 steps and exchange worksheets with a peer to solve.



Name: _____



Grade: _____



Date: _____

Seeking Solutions in the World of Problems!

TASK 1: Let's Find the Given and Requested Information	 What do I need to do?	 Materials Needed?
	Underline the given numbers. Circle what is asked. Choose the operations and solve.	Pencil.

[Task Design Area]



Problem: Ayşe bought 6 notebooks. Each notebook costs 12 TL. She paid with a 100 TL bill. How much change should she get?

Given: _____

Asked: _____

Operations: ☐ + ☐ - ☐ × ☐ ÷

My work: _____

Answer: _____ TL

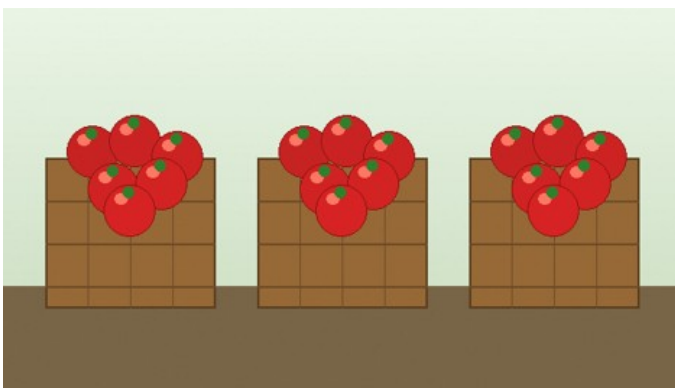
Self-Evaluation	Teacher's Comments
I finished the task.	
I checked my work.	

How did I do? (Circle one):

☐


TASK 2: Sharing and Multiplying	What do I need to do?	Materials Needed?
	Solve the two-step problem. Show your steps clearly.	Pencil.

[Task Design Area]



Problem: A farmer has 56 apples. He puts them into bags of 7 apples each. Then he sells 3 bags. How many bags does he have left?

Step 1 – How many bags in total?

Step 2 – After selling 3 bags:

Answer: _____ bags left

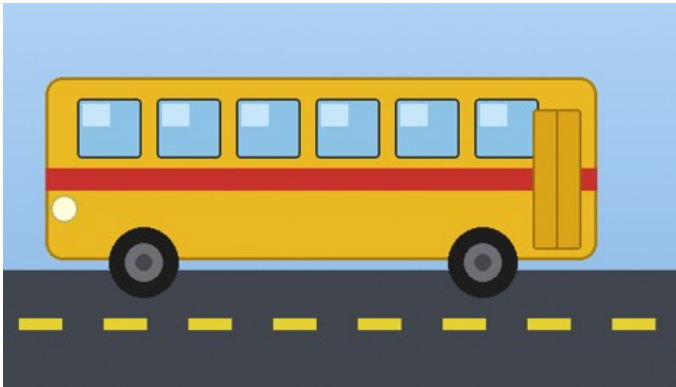
Self-Evaluation	Teacher's Comments
I finished the task.	
I checked my work.	

How did I do ?



TASK 3: Creating My Own Problem	 What do I need to do?	 Materials Needed?
	Read the problem. Solve step by step using multiplication and subtraction.	Pencil

[Task Design Area]



Problem: A school bus has 4 rows of seats. Each row has 5 seats. 3 seats are empty.
How many students are sitting on the bus?

Step 1: _____

Step 2: _____

Answer: _____ students

Exercise

Solve this two-step problem. Show multiplication and division.



Problem: There are 9 shelves in the library. Each shelf holds 8 books.

The librarian takes 12 books to repair. How many books are left on the shelves?

Step 1: _____

Step 2: _____

Answer: _____ books left

Self-Evaluation	Teacher's Comments
I finished the task.	
I checked my work.	

How did I do ?



3rd Grade Mathematics Lesson Plan: Geometry Explorers

General Information

Course: Mathematics

Grade Level: 3rd Grade

Unit: Geometry

Topic: Technical Geometry (Lines, Rays, Line Segments, Angles, and Symmetry)

Duration: 40 + 40 Minutes (2 Lesson Hours)

Lesson Type: New Knowledge Acquisition and Application

Part I: Educational Framework & Objectives

Lesson Aim:

To enable students to distinguish structural properties of lines, rays, and line segments, identify and classify angles (right, acute, obtuse) in real-world objects, and complete symmetrical shapes along a mirror line.

Target Learning Outcomes (Curriculum Standards):

- O1:** Distinguishes between a line, a ray, and a line segment using endpoint criteria and provides concrete real-life examples.
- O2:** Identifies angle models on daily objects, classifies them as right (90 degrees), acute, or obtuse, and uses reference tools.
- O3:** Executes technical geometric drawings using line segments with a ruler and accurately identifies right angles.
- O4:** Completes symmetrical figures across a vertical mirror line.

Part II: Differentiation & Scaffolding Strategy

Learning Tier	Pedagogical Support & Adaptations
Support (Scaffolding)	Use a flashlight beam to demonstrate a "Ray" extending infinitely from a single point and a cut pasta piece for a "Line Segment". Provide paper set-squares to test for 90-degree right angles.
Core (Grade Level)	Complete worksheet activities step-by-step: line matching, angle classification on daily objects, ruler-based robot drawing, and symmetry completion.
Challenge (Extension)	Ask students to count and record the total number of line segments and right angles created on their completed symmetrical drawing, or find 3 additional classroom objects with right angles.

Part III: Instructional Execution Plan (Table Model)

Stage	Outcomes	Pedagogical Content & Teacher Script	Methods & Interaction	Materials & Tools	Duration
1. Organization & Warm-up	-	Establish classroom routines, ensure table readiness, and greet students.	Interactive Conversation	Classroom Setup	5 min
2. Engagement & Hook	-	Ask: <i>"What is the difference between a straight line on a road and the light coming out of a flashlight?"</i>	Guided Inquiry (Q&A)	Flashlight, Ruler	5 min
3. Topic & Aim	-	Introduce topic: <i>"Today we are going to become Geometry Explorers and investigate lines, angles, and symmetry!"</i>	Direct Lecture	Board / Visual Anchors	5 min
4. Activating Prior Knowledge	O1	Recall basic concepts of points and straight lines through a quick mental warm-up.	Brainstorming	Chalkboard	5 Min.
5. Explicit Teaching & Demonstration	O1, O2	Demonstrate line types (Line, Ray, Line Segment) and angle types (Right = 90 degrees, Acute, Obtuse) using physical models and classroom objects (clock hands, book).	Demonstration & Hands-on Modeling	Geometric Rods, Set-Square	30 min
6. Performance & Guided Practice	O1, O2, O3, O4	Distribute worksheet. Students complete Task 1 (Line Detective), Task 2 (Angle Hunters), and Task 3 (Robot Drawing & Symmetry Exercise).	Formative Individual Practice	Worksheet, Ruler, Crayons	20 min
7. Closure & Self-Evaluation	O2, O4	Summarize angle and line properties. Students fill out their smiley self-evaluation rubric.	Reflection & Summary	Self-Evaluation Section	10 min

Part IV: Associated Worksheet Details & Scaffolding Breakdown

Worksheet Material: **"3rd Grade - Worksheet: Geometry Explorers"** follows a 3-stage progressive structure:

Level 1: Line Detective (Recognition & Real-Life Matching Level)

Objective: Identifying line types by endpoint symbols (arrows vs. points) and providing real-world examples.

Content: Matching A (Ray), B (Line), C (Line Segment). Writing real-life examples (Ray: Flashlight beam / Sunbeam; Line Segment: Pencil / Ruler).

Pedagogical Function: Low-cognitive-load structure to solidify geometric line concepts.

Level 2: Angle Hunters (Classification Level)

Objective: Classifying angles on daily objects using 90 degrees as a reference point.

Content: Identifying 1. Clock hands at 3:00 (Right Angle), 2. Pizza slice tip (Acute Angle), 3. Open book (Obtuse Angle). Answering which angle is exactly 90 degrees (Right Angle / Clock hands).

Pedagogical Function: Connects abstract angle definitions to familiar visual objects.

Level 3: Design Your Own Robot & Symmetry Exercise (Production & Spatial Level)

Objective: Drawing straight line segments with a ruler, marking right angles, and completing mirror symmetry.

Content:

Robot Area: Drawing a robot using line segments, marking right angles in red, and counting them.

Symmetry Task: Completing the missing right half of Figure A (circle) and Figure B (polygon) along the dashed mirror line. Writing a real-life symmetrical object (Butterfly / Leaf / Human Face).

Pedagogical Function: Combines fine motor technical drawing, spatial reflection, and structural analysis.

Part V: Assessment & Verification Framework

Formative Assessment: Check accuracy in line type matching (Level 1) and angle classification on daily objects (Level 2).

Performance Assessment: Evaluate ruler precision, right angle identification in red, and mirror reflection accuracy in Level 3.

Self-Evaluation: Student self-check rubric (Good Great / Need help Need Help / Difficult Hard) at the bottom of the worksheet.

Teacher's Notes

Grade: 3rd Grade

Topic: Geometry - Line, Ray, Line Segment, and Angles (Geometry Explorers)

Learning objective(s):

- To differentiate the structural properties and differences between a line, a ray, and a line segment by displaying them through shapes.
- To identify angle models formed on everyday objects and classify angle types (right, acute, obtuse).
- To perform geometric drawings using line segments with a ruler and to correctly identify the right angles on the drawing.

The worksheet was designed by: CTA

Level 1: Line Detective	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	"Match each drawing to its name. Then write one real-life example for each."	• A: Ray • B: Line • C: Line Segment • Real-life example for a ray: Flashlight beam, sunbeam, or laser pointer. • Real-life example for a line segment: Pencil, ruler, or uncooked spaghetti piece. Under the line with points or no arrows on both ends: Line Segment	Understanding endpoint symbols (arrows vs. points) and connecting geometric concepts to concrete daily objects.	Student worksheet, lead pencil.	Support: Use a flashlight to demonstrate a "Ray" starting at a point and extending forward. Challenge: Ask students whether the edges of their desk represent lines or line segments and why.

Level 2: Angle Hunters	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	"Look at each picture. Name the angle type (Right, Acute, or Obtuse), then specify which angle is exactly 90 degrees."	• 1. Clock hands (at 3:00): Right Angle • 2. Pizza slice (tip): Acute Angle • 3. Open book: Obtuse Angle • Which angle is exactly 90 degrees?: Right Angle (or Picture 1 / Clock hands).	Identifying angle types on daily objects using 90 degrees (right angle) as a reference point.	Student worksheet, lead pencil.	Support: Show students how to test for 90-degree angles using the sharp corner of a piece of paper. Challenge: Ask students to find 3 additional items in the classroom that form right, acute, or obtuse angles.
Level 3: Design Your Own Robot	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	"Draw a robot using line segments and color every right angle red. Then complete the symmetrical figures across the mirror line."	• Robot Area: A robot drawn with a ruler using straight line segments, with all right angles marked in red and counted. • Symmetry A: Completing the missing right half of the circle along the dashed line. • Symmetry B: Drawing the mirror image of the polygon shape on the right side of the dashed line. • Real-life symmetry example: Butterfly, human face, leaf, or heart.	Precision in ruler usage, counting right angles, and spatial reflection along a line of symmetry.	Student worksheet, lead pencil, ruler, red colored pencil.	Support: Provide grid paper for students who struggle with drawing line segments or finding mirror points. Challenge: Have students count the total number of line segments and right angles created on their completed symmetrical drawing.



Name: _____



Grade: _____



Date: _____

Geometry Explorers

TASK 1: Line Detective	 What do I need to do?	 Materials Needed?
	Match each drawing to its name. Then write one real-life example for each.	Pencil.

[Task Design Area]

A 	B 	C 
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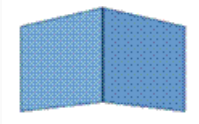
Write: Line / Ray / Line Segment

A: _____ **B:** _____ **C:** _____

Real-life example for a ray: _____

Real-life example for a line segment: _____

Look at each picture. Name the angle type (Right, Acute, or Obtuse).

 1. Clock hands	 2. Pizza slice	 3. Open book
---	---	---

1. _____ **2.** _____ **3.** _____

Which angle is exactly 90 degrees? _____

Self-Evaluation	Teacher's Comments
I finished the task.	
I checked my work.	

How did I do? (Circle one):

☐


TASK 2: Angle Hunters	 What do I need to do?	 Materials Needed?
	Draw a robot using only line segments. Color every right angle in red. Count them.	Pencil

[Task Design Area]

Draw your robot in the box. Use a ruler for straight line segments!

(Draw your robot here)

How many right angles did you color red? _____

How many line segments did you use? _____

Self-Evaluation	Teacher's Comments
I finished the task.	
I checked my work.	

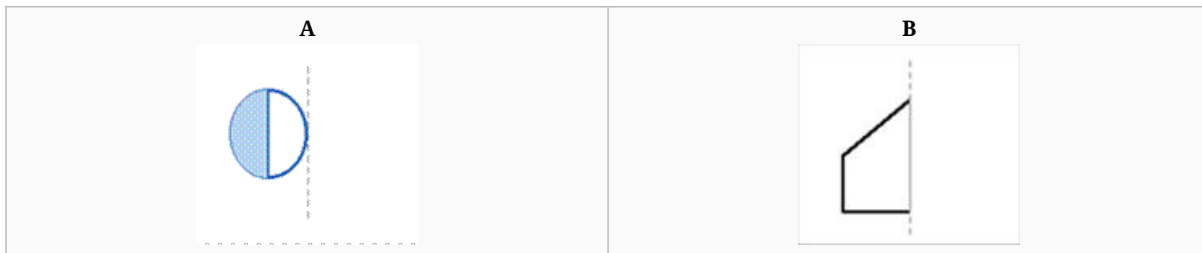
How did I do? (Circle one):



TASK 3: Design Your Own Robot	 What do I need to do?	 Materials Needed?
	Complete the other half of each figure so it is symmetrical. Use the dashed line as the mirror line.	Ruler, red colored pencil / crayon.

[Task Design Area]

Exercise



Draw the missing half of A and B above (on the blank side of the dashed line).

Name one thing in real life that has symmetry: _____

Self-Evaluation	Teacher's Comments
I finished the task.	
I checked my work.	

How did I do? (Circle one):





LESSON PLAN

Date:

Grade: IIIrd

Curricular area: Mathematics and Natural Sciences

Subject: Mathematics

Lesson topic: Multiplication Facts: Practising Multiplication Within 100 and Using Known Facts

Lesson type: Consolidation and practice

Duration: 50 minutes

Specific skills:

- Performing multiplication calculations within 100 using known multiplication facts.
- Applying multiplication facts to solve mathematical problems and explaining the strategy used.

Operational objectives:

By the end of the lesson, students will be able to:

- O1.** Calculate correctly at least **8 out of 10 multiplication facts within 100**, using previously learned multiplication facts.
- O2.** Use a known multiplication fact to determine an unknown fact by identifying and applying a relationship between products.
- O3.** Solve at least **two practical word problems involving multiplication within 100**, selecting an appropriate operation and explaining the solution.

Elements of Teaching Strategy

Methods: Conversation/questioning, Explanation, Demonstration, Guided practice, Independent practice, Problem solving, Learning through games

Means: Number/multiplication cards, Worksheets, Counters or manipulatives, Interactive board/board

Organizational forms: whole-class activity, individual activity.

References:

M.E.N., *Programa școlară pentru disciplina „Matematică”*, București 2014.

Moș, I., 2016, *Repere în educația matematică primară*, Editura Universității de Vest, Timișoara.

Petrovici, C., 2014, *Didactica matematicii pentru învățământul primar*, Editura Polirom, Iași.

Grigore, A., Costache, S., Tănase, I., Raicu, M., 2018, *Exerciții și probleme – Culegere de matematică clasa a III-a*, Editura Ars Libri, Costești.

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Lesson sequences	Op ob	Time	The Scientific Content of Learning	Teaching strategies			Evaluation
				Methods	Means	Organization	
1. Organizational Moment		2 min	The teacher greets the students, checks attendance, prepares the necessary materials, organizes students for the lesson, creates a positive and focused learning atmosphere	Conversation		Frontal	
2. Refreshing the knowledge previously acquired		8 min	The teacher activates students' prior knowledge through a short "Quick Facts" activity, displaying multiplication facts: $2 \times 6 = ?$ $5 \times 7 = ?$ $4 \times 8 = ?$ $3 \times 9 = ?$ $6 \times 6 = ?$ The teacher asks: "If you know that $5 \times 6 = 30$, how can you find 5×7 ?", "If $4 \times 5 = 20$, how could you find 4×6 ?". The teacher asks "Which multiplication facts do you already know?", "Can a known fact help us find a new fact?" "How did you find the answer?" "Can you solve it in another way?"	Didactic game	Smart board	Frontal	Oral questioning and observation.
3. Attention-grabbing moment		5 min	The teacher explains: "You have 60 seconds to solve as many multiplication facts as you can. Your goal is not only to be fast, but to explain how you know the answers." Students receive or see a series of multiplication facts: $3 \times 4 = \underline{\quad}$ $6 \times 5 = \underline{\quad}$ $7 \times 4 = \underline{\quad}$ $8 \times 3 = \underline{\quad}$ $9 \times 5 = \underline{\quad}$ After the activity, the teacher asks: "Which multiplication fact was easiest?" "Which one did you use another fact to solve?" The activity creates curiosity and prepares students for the main learning task.	Conversation	Notebooks whiteboard	Frontal	

Lesson sequences	Op ob	Time	The Scientific Content of Learning	Teaching strategies			Evaluation
4. Announcing the topic and the objectives		2 min	The teacher announces: "Today we are going to practise multiplication facts within 100 and learn how to use multiplication facts we already know to find facts that we do not remember immediately." The teacher presents the objectives in student-friendly language: Today I will be able to calculate multiplication facts accurately; use a known multiplication fact to find a new one; use multiplication to solve real-life problems.	Conversation		Frontal	
5. Guiding Learning	O1 O2	15 min	The pupils are given the Worksheet Level 1, and the teacher explains the tasks. They remember about repeated additions as a way to understand multiplying. Each exercise is solved and checked, with different pupils having the opportunity to answer. The teacher makes sure they understand the difference between SUM and PRODUCT.	Conversation Explanation	Smart board Pupils' notebooks	Frontal	Verbal appreciations Observing the pupils' behaviour Verbal appreciations
6. Working on improving the performance	O2 O3	15 min	The pupils receive Worksheet Level 2. The teacher explains that they have to work individually to solve the exercises. After several minutes, pupils are asked to share the results with their classmates. The teacher explains and corrects the possible errors, making sure that they understand how to solve the exercises.	Exercise	Smart board Worksheets	Frontal Independent	Verbal appreciations
8. Concluding the activity		3 min	The teacher praises the pupils for the way they've worked and set them their homework, worksheet Level 3.	Conversation		Frontal	Verbal assessment

Annex 1



Name: _____



Grade: _____

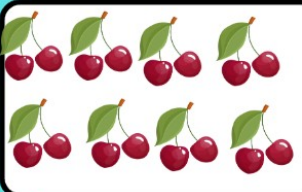
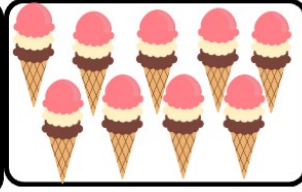
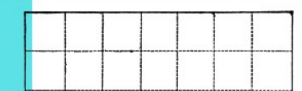
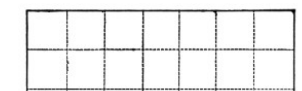


Date: _____

Multiplication facts: practising multiplication within 100 and using known facts

Level 1	 What do I need to do?	 What can I use to solve this task?
	- Remember what you know about repeated additions and multiplications, sums and products. - Look carefully at the images and try to understand what they represent. - Solve the operations and write down the results. - Check the results before going to the next exercise.	● A pencil or a pen ● An eraser

1. Write the multiplications represented by the drawings:

2. Write the repeated additions as multiplication and write the result:

$$7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = \boxed{} \times \boxed{} = \boxed{}$$

$$9 + 9 + 9 + 9 + 9 + 9 = \boxed{} \times \boxed{} = \boxed{}$$

$$4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = \boxed{} \times \boxed{} = \boxed{}$$

$$8 + 8 + 8 + 8 + 8 + 8 + 8 = \boxed{} \times \boxed{} = \boxed{}$$

3. Write the numbers as:

30	36	60	90

Product of two factors

Sum of two equal terms

Sum of three equal terms

4. Compare the products and write the appropriate sign:

$7 \times 9 \quad \square \quad 7 \times 6$

$4 \times 7 \quad \square \quad 3 \times 6$

$4 \times 4 \quad \square \quad 2 \times 9$

$8 \times 9 \quad \square \quad 6 \times 5$

$5 \times 9 \quad \square \quad 9 \times 9$

$8 \times 8 \quad \square \quad 7 \times 5$

5. Add twice the number 9 to three times the number 7. What is the result?

Level 2	 What do I need to do?	 What can I use to solve this task?
	- Remember what you know about multiplication. - Read the tasks of each problem carefully. - Write down the solutions. - Check the answers	- A pencil or a pen - An eraser

1. Calculate and fill in the table:

x	6	7	9	3	8	10	4
9							
7							
4							

2. Find out:

- the double of 9;

- the triple of 8;
- ten times of 7;
- four times of 5;

3. Write the number 54 as:

product of two factors	product of three factors	product of four factors

4. Write the numbers 18, 24, and 36 as a sum, a difference, and a product of two natural numbers:

5. Find the sum of three numbers, given that the first is twice the number 4, the second is seven times the first, and the last is the product of 9 and 8:

Level 3	 What do I need to do?	 What can I use to solve this task?
	- Remember what you know about factors and products. - Read the tasks carefully, so as to understand what you have to do. - Solve the problems. - Check the results.	● A pencil or a pen ● An eraser

1. Turn the products of two factors into products of three factors and write the correct result:

$$6 \times 8 = \square \times \square \times \square =$$

$$5 \times 9 = \square \times \square \times \square =$$

$$9 \times 8 = \square \times \square \times \square =$$

$$9 \times 8 = \square \times \square \times \square =$$

$$4 \times 6 = \square \times \square \times \square =$$

$$8 \times 8 = \square \times \square \times \square =$$

$$6 \times 7 = \square \times \square \times \square =$$

$$9 \times 9 = \square \times \square \times \square =$$

$$6 \times 8 = \square \times \square \times \square =$$

$$5 \times 9 = \square \times \square \times \square =$$

$$9 \times 8 = \square \times \square \times \square =$$

$$9 \times 8 = \square \times \square \times \square =$$

$$4 \times 6 = \square \times \square \times \square =$$

$$8 \times 8 = \square \times \square \times \square =$$

$$6 \times 7 = \square \times \square \times \square =$$

$$9 \times 9 = \square \times \square \times \square =$$

2. Write the given numbers as:

54	48	72	36	90

product of two factors

product of three factors

product of four factors

[illegible][illegible]

Teacher's Notes

Grade: III

Topic: Multiplication of natural numbers (practising the times table up to 100)

Learning objective(s):

- o To express repeated additions of equal terms as multiplication operations.
- o To use the relevant terminology correctly: factors, product, double, triple, quadruple, tenfold.
- o To break down given numbers into products of two, three or four factors.
- o To solve problems involving multiple operations and unknowns using the properties of multiplication.

The worksheet was designed by: LTGM

Level 1	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	<i>Focus on visual intuition and the basic algorithm for multiplication.</i> Analyse visually: Look at the groups of objects (cherries, socks, sweets) and write the multiplication operation that corresponds to the total number of objects Convert: Write repeated additions (e.g. $7+7+7...$) as a multiplication and find the correct answer Compare: Calculate the products on the left and right (e.g. 7×6 vs 6×5) and choose the correct symbol ($<$, $>$, $=$) Calculate in combination: Find three times 7, then twice 9, and add the two results together.	Pupils write the operations corresponding to the pictures shown. They will convert repeated additions into multiplication operations. Pupils will write the given numbers as the product of two factors, or as the sum of two or three terms; they will calculate and compare the results, using the appropriate signs.	The ability to identify groups of identical objects and to understand multiplication as repeated addition. It is assessed whether the pupil understands that the first factor represents the number of groups and the second the number of items in each group. The accuracy of mental calculations for the multiplication table is checked.	Worksheet (Level 1), appropriate images (cherries, candies), writing tools. Interactive board. Sets of elements.	Tangible materials (tokens) can be used for pupils who are unable to visualise the grouping. The task can be simplified by reducing the number of terms in the sum.

Level 2	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	<i>Focused on mathematical terminology and flexibility in calculation.</i> - Complete the table - Calculate twice 9, three times 8, ten times 7 and four times 5. - Write the number 54 as the product of two factors, then as the product of three factors - For the numbers 18, 24 and 36, write one example each of a sum, a difference and a product that gives these results. - Solve the problem shown, following the order of operations	Pupils complete the table correctly, are familiar with the relevant terminology (double, triple, tenfold, factor, product, etc.), and solve problems by following the steps involved in problem-solving and the correct order of operations.	The ability to work with unknowns and to use the properties of multiplication (associativity) for factorisation.	Worksheet (Level 2) Times table for verification Writing tools Interactive board.	A game called 'The Maths Detective' could be introduced, in which pupils have to find the missing factors in a given product. Pupils can work in pairs to find as many different products as possible for the same number.
Level 3	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	<i>Focused on analysis, logic and complex factorisation.</i> Calculation: Complete the multiplication table for the factors 9, 7 and 4 with the multiples from 6 to 10. Associativity: Transform a product of two factors (e.g. 6×8) into a product of three factors by breaking down one of them (e.g. 6 becomes 2×3) and calculate the result. Logical Thinking: Find the numbers 'a' and 'c' based on the given relationships Exploration: Identify all single-digit odd numbers and calculate the product of each with the number 9.	Pupils carry out the multiplication operations, complete the table by writing the numbers as the product of 2, 3 or 4 factors, and solve the given problem.	The aim is to ensure rigour in breaking down factors without altering the final product, and to develop the ability to reason logically in stages.	Worksheet Level 3, extended multiplication table, class workbook for auxiliary calculations.	Encourage pupils to explain verbally the logical steps used to find the unknowns. You could introduce similar exercises with multiple solutions.



Name:



Grade:

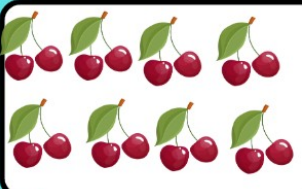


Date:

Multiplication facts: practising multiplication within 100 and using known facts

Level 1	 What do I need to do?	 What can I use to solve this task?
	- Remember what you know about repeated additions and multiplications, sums and products. - Look carefully at the images and try to understand what they represent. - Solve the operations and write down the results. - Check the results before going to the next exercise.	- A pencil or a pen - An eraser

1. Write the multiplications represented by the drawings:

																																																			
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2. Write the repeated additions as multiplication and write the result:

$$7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = \boxed{} \times \boxed{} = \boxed{}$$

$$9 + 9 + 9 + 9 + 9 + 9 = \boxed{} \times \boxed{} = \boxed{}$$

$$4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = \boxed{} \times \boxed{} = \boxed{}$$

$$8 + 8 + 8 + 8 + 8 + 8 + 8 = \boxed{} \times \boxed{} = \boxed{}$$

3. Write the numbers as:

30	36	60	90

Product of two factors

Sum of two equal terms

Sum of three equal terms

4. Compare the products and write the appropriate sign:

$7 \times 9 \quad \square \quad 7 \times 6$

$4 \times 7 \quad \square \quad 3 \times 6$

$4 \times 4 \quad \square \quad 2 \times 9$

$8 \times 9 \quad \square \quad 6 \times 5$

$5 \times 9 \quad \square \quad 9 \times 9$

$8 \times 8 \quad \square \quad 7 \times 5$

5. Add twice the number 9 to three times the number 7. What is the result?

Level 2	 What do I need to do?	 What can I use to solve this task?
	- Remember what you know about multiplication. - Read the tasks of each problem carefully. - Write down the solutions. - Check the answers	● A pencil or a pen ● An eraser

1. Calculate and fill in the table:

x	6	7	9	3	8	10	4
9							
7							
4							

2. Find out:

- the double of 9;
- the triple of 8;
- ten times of 7;
- four times of 5;

3. Write the number 54 as:

product of two factors	product of three factors	product of four factors

4. Write the numbers 18, 24, and 36 as a sum, a difference, and a product of two natural numbers:

5. Find the sum of three numbers, given that the first is twice the number 4, the second is seven times the first, and the last is the product of 9 and 8:

Level 3	 What do I need to do?	 What can I use to solve this task?
	1. Remember what you know about factors and products. 2. Read the tasks carefully, so as to understand what you have to do. 3. Solve the problems. 4. Check the results.	● A pencil or a pen ● An eraser

1. Turn the products of two factors into products of three factors and write the correct result:

$$6 \times 8 = \square \times \square \times \square =$$

$$5 \times 9 = \square \times \square \times \square =$$

$$9 \times 8 = \square \times \square \times \square =$$

$$9 \times 8 = \square \times \square \times \square =$$

$$4 \times 6 = \square \times \square \times \square =$$

$$8 \times 8 = \square \times \square \times \square =$$

$$6 \times 7 = \square \times \square \times \square =$$

$$9 \times 9 = \square \times \square \times \square =$$

2. Write the given numbers as:

54	48	72	36	90

product of two factors

product of three factors

product of four factors

3. Find the product of the number 9 and all single-digit odd numbers:

4. If $a + b + c = 23$, $b = 8$, and $b \times c = 48$, find the numbers a and c :

5. Emma is playing a number game. She needs to find **all the single-digit even numbers**. Then, for each odd number, she must **multiply it by 8**. Write down the results you obtained.

Teacher's notes

Grade: III

Topic : Natural numbers from 0 to 1 000: formation, reading, writing, comparison and putting in order

Learning objective(s):

- o To write and read natural numbers in the range 0–1,000.
- o To determine the successor and predecessor of a number.
- o To compare natural numbers in the range 0–1,000.
- o To order natural numbers using the appropriate symbols.
- o Identify even and odd numbers in a given sequence.
- o Break numbers down into hundreds, tens and units.

The worksheet was designed by: LTGM

Level 1	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	1. Write the sequence of numbers 2. Write consecutive numbers 3. Write numbers consisting of identical digits 4. Find the 'neighbours' (the predecessor and successor) for the given numbers 5. Arrange the numbers in ascending order. 6. Arrange the numbers in descending order.	The pupil correctly continues the number sequences, writes the neighbours of the given numbers, and puts the numbers in the correct order.	The ability to count correctly in increments of 1 and to understand the concept of ascending order.	Worksheet (Level 1), writing utensils Interactive board Any application that presents the axis of numbers/ the number line.	For pupils who are finding it difficult, the number line can be used to visualise the sequence.
Level 2	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	This level introduces concepts of classification (even/odd) and rigorous comparison. The focus is on logic, comparison and the properties of numbers (parity).	The pupil correctly continues the number sequences, uses comparison symbols without making any mistakes, identifies the largest and smallest numbers, and arranges the numbers in the correct order.	Identifying the units digit to determine the parity and applying the comparison algorithm (hundreds, then tens, then units).	Coloured pencils (green, blue), Worksheet (Level 2). Writing utensils Interactive board	Pupils can be encouraged to explain the rule they used to choose the relational symbol.

Level 3	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	This level requires analysis, breaking things down and logical thinking to find values within a range.	The pupil correctly continues the number sequences, uses comparison symbols without making any mistakes, identifies the largest and smallest numbers, and arranges the numbers in the correct order. Pupils will also identify the solutions for the unknown number in the inequality.	The ability to work with the internal structure of numbers and to solve inequalities with multiple solutions.	Worksheet (Level 3), Writing tools Number placement charts. Interactive screen	Encourage pupils to explain the pattern in the sequence verbally. Challenge them to create a similar sequence for a classmate, using an addition or subtraction rule of their choice.



Name: _____



Grade: _____



Date: _____

Numbers up to 1,000: reading, writing, counting, comparing and ordering numbers

Level 1	 What do I need to do?	 What can I use to solve this task?
	- Remember the meaning of units, tens, hundreds and a thousand. - Remember the ascending/ descending order of numbers, and the predecessor/ the successor of a number. - Read the tasks carefully. - Solve each exercise.	● A pencil or a pen ● An eraser

1. Write the numbers:

a) between 129 and 140: _____

b) from 399 to 411 _____

c) which are even between 495 and 509 _____

d) which are odd between 788 and 799 _____

2. Write the following five consecutive numbers, with the first one being:

• 499					
• 388					
• 700					
• 832					
• 910					

3. Write all the numbers containing three identical figures:

--	--	--	--	--	--	--	--	--

4. Write the predecessor and successor of the given numbers:

	456			998			699	
	112			768			800	

5. Sort the given numbers in ascending order: 900, 123, 679, 322, 120, 100, 78, 995, 1000, 134.

6. Sort the given numbers in descending order: 800, 1000, 456, 331, 100, 389, 14, 679, 345, 599.

Level 2	 What do I need to do?	 What can I use to solve this task?
	- Remember what you know about the comparison of two numbers. - Read the tasks of each problem carefully. - Write down the solutions. - Check the answers	- A pencil or a pen - An eraser

1. Write:

- the even numbers between 199 and 213: _____
- the odd numbers from 567 to 579: _____
- the even numbers between 395 and 409: _____
- the odd ones between 888 and 899: _____

2. Circle the even numbers with green and the odd ones with blue:

998 357 900 123 799

62 345 121 702 999 1000

3. Sort the given numbers in ascending, then in descending order: 777, 345, 129, 900, 678, 567, 667, 888.

4. Compare the numbers and write the corresponding sign:

456 ___ 457 556 ___ 557 888 ___ 888 345 ___ 345
890 ___ 789 222 ___ 722 321 ___ 123 357 ___ 678
999 ___ 888 789 ___ 808 909 ___ 908 459 ___ 549

5. Fill in the table:

the figures of the number	the smallest odd number	the smallest even number	the biggest odd number	the biggest even number
9 ; 8 ; 4				
4 ; 3 ; 1				
2 ; 7 ; 5				
9 ; 6 ; 3				

Level 3	 What do I need to do?	 What can I use to solve this task?
	- Remember how to use numbers using letters. - Read the tasks carefully. - Write down the solutions. - Check the answers.	● A pencil or a pen ● An eraser

1. Fill in the table:

The number written with figures	Writing the number with letters	Breakdown into hundreds, tens, and ones
799		
832		
925		

2. Write five natural numbers:

- each consisting of even digits, that are less than 789:

- each consisting of odd digits, that are greater than 357:

3. For each case, choose and circle the numbers that can replace X:

$383 < X < 509$ 529 399 456 892 400 372 493 500 925

$984 > X > 736$ 129 699 777 901 750 801 205 700 983

4. Using the figures 7, 4, 8 only once each, write:

- the biggest odd number :
- the biggest even number:
- the smallest even number:
- the smallest odd number:

5. Look at the sequence of numbers, figure out the pattern, and then fill in the blank boxes with numbers that follow the pattern for each sequence:

843 ; 839 ; 835 ; 831

875 ; 775 ; 675 ; 575

Teacher's Notes

Grade: 3

Topic: Multiplication by a one-digit number: multiplying two-digit and three-digit numbers by a one-digit number

Learning outcome: The pupil multiplies two-digit and three-digit numbers by a one-digit number using place-value partitioning and the written multiplication method. The pupil can use multiplication to solve word problems, compare products, find an unknown number, and create multiplication calculations with a given product.

The worksheets were designed by: LSpecPA cooperation partner, Rezekne Primary School – Development Centre

Level 2	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological notes
	Use the written multiplication method. Compare the results. Find the unknown number. Find factor pairs.	The pupil correctly: • uses the written multiplication method with regrouping to the next ten; • compares products; • finds the unknown number; • uses the relationship between multiplication and division; • creates multiplication calculations with a given product.	The teacher observes: Whether the pupil correctly carries the tens. Whether the pupil compares the results correctly. Whether the pupil uses division to find the unknown number. Whether the pupil can explain the strategy they used.	Visual materials Written multiplication reminder card Step-by-step worked examples Multiplication table Reminder card “Multiplicand, Multiplier, Product” Practical materials Number cards Magnetic numbers for work on the board Individual whiteboards Working materials Squared exercise book or squared worksheets Worksheets Self-check cards Digital resources Interactive whiteboard Wordwall or other interactive activities for practising multiplication	Review the layout and sequence of steps for the written multiplication method. Demonstrate written multiplication, emphasising that multiplication starts with the ones. Draw attention to writing the carried tens correctly and adding them in the next step. Encourage pupils to describe each step: “I write..., I carry..., I add...”. Make connections between multiplication and division when solving tasks with an unknown number. Encourage pupils to explain their choice of comparison symbols ($>$, $<$, $=$). Use visual reminder cards and worked examples to support independent work. Link word problems to everyday situations and encourage pupils to identify why multiplication is needed. Support Written multiplication reminder card. Step-by-step worked examples. Work in pairs. Individual reminder cards. Additional challenge Find several multiplication calculations with the same product. Create their own task with an unknown number. Explain their problem-solving strategy to a classmate.

Level 3	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological notes
	• Use the written multiplication method. • Use the reminder card. • Find the unknown number using division. • Create your own tasks.	The pupil correctly: • multiplies three-digit numbers by a one-digit number; • uses the written multiplication algorithm; • finds the unknown number; • checks the result; • creates and solves their own tasks.	The teacher observes: Whether the pupil follows the correct sequence of steps when multiplying. Whether the pupil correctly regroups into the hundreds. Whether the pupil uses division to check the answer. Whether the pupil can create a correct word problem. Whether the pupil can explain their reasoning.	Visual materials Multiplication algorithm poster Written multiplication reminder card Step-by-step worked examples Multiplication table Working materials Squared exercise book or squared worksheets Worksheets Self-check cards Practical materials Magnetic numbers for work on the board Number cards for making three-digit numbers Digital resources Interactive whiteboard Interactive activities for practising multiplication skills	Review the written multiplication algorithm, emphasising the order of the steps: ones, tens, hundreds. Demonstrate written multiplication with carried tens and hundreds. Encourage pupils to describe each step and explain their reasoning. Make connections between multiplication and division by using tasks in which pupils find an unknown number. Encourage pupils to check the answer using the inverse operation. Encourage the use of mathematical terminology and clear explanations of solutions. Use visual reminder cards and worked examples to support independent work. Encourage pupils to create their own multiplication calculations and word problems. Support Multiplication algorithm reminder card. Step-by-step worked examples. Work in pairs. Individual reminder cards. Additional challenge Create their own multiplication word problem. Find several possible factor pairs for a given product. Explain their problem-solving strategy to a classmate.



Name: _____



Grade: _____



Date: _____

Multiplication Adventures

Level 1	 What do I need to do?	 What can I use to solve this task?
	1. Complete tasks 1–5. Read each task carefully. 2. Show your working and check your answers.	Place value blocks (tens and ones), multiplication table (if support is needed), reminder card “ How to Multiply by Partitioning According to Place Value ”, reminder card “ Multiplicand, Multiplier, Product ”, place value chart (tens, ones), worked example, counting cubes or Lego bricks, buttons or bottle tops for making equal groups.

1. Calculate the expressions.

21×3

1.
= +

2.
 $\times 3 =$
 $\times 3 =$

3.
 + =

★ _____

32×2

1.
= +

2.
 $\times 2 =$
 $\times 2 =$

3.
 + =

★ _____

14×4

1.
= +

2.
 $\times 4 =$
 $\times 4 =$

3.
 + =

★ _____

Follow the steps:

- 1 – **Split** the number into tens and ones.
- 2 – **Multiply** each part separately.
- 3 – **Add the results.**

Write the answer.

23×2

1	2	3	4		
$23 = 20 + 3$ 20 3	<table border="1" style="width: 100%; text-align: center;"> <tr><td>$20 \times 2 = 40$</td></tr> <tr><td>$3 \times 2 = 6$</td></tr> </table>	$20 \times 2 = 40$	$3 \times 2 = 6$	$40 + 6 = 46$ 46	 $23 \times 2 = 46$
$20 \times 2 = 40$					
$3 \times 2 = 6$					

Remember the steps:

- 1 – Split the number into tens and ones.
- 2 – Multiply each part.
- 3 – Add the results.
- 4 – Write the answer.

2. Match each **calculation** with the correct answer.

Calculation **Answer**

22×3 84

42×2 66

33×2 64

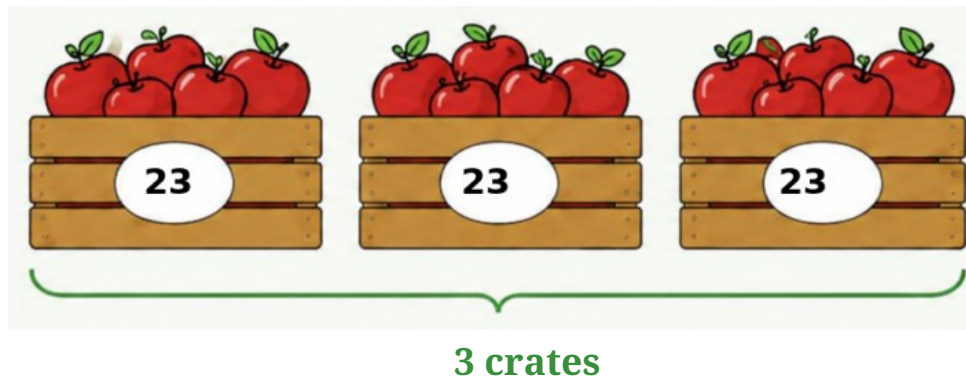
3. Complete the table.

Multiplicand	Multiplier	Product
12	3	_____
24	2	_____
31	3	_____
45	2	_____

REMINDER

MULTIPLICAND (number being multiplied)	×	MULTIPLIER (number you multiply by)	=	PRODUCT (result)
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4. Word problem



How many apples are there altogether? _____

Answer: _____

5. Find the mistake

Did Anna calculate correctly?

$$31 \times 2 = 52$$

Check: _____

Answer: _____

Self - check	Teacher's comments
I finished the task.	
I checked my work.	

How did I do (circle):   



Name: _____



Grade: _____



Date: _____

Multiplication Adventures

Level 2	 What do I need to do?	 What can I use to solve this task?
	1. Complete tasks 1–5. 2. Use the reminders to help you, show your working and check each answer. 3. See how many you can solve independently!	Column multiplication reminder, multiplication table (if support is needed), place value chart (tens and ones), worked example, factor-pair strategy reminder, squared paper, counting cubes or Lego bricks.
1	STEP 1 – MULTIPLY THE ONES Multiply the ones digit by the multiplier. $6 \times 4 = 24$ Write 4 in the ones place and carry 2 tens.	$\begin{array}{r} 2 \\ 36 \\ \times 4 \\ \hline 4 \end{array}$
2	STEP 2 – MULTIPLY THE TENS Multiply the tens digit by the multiplier and add the tens carried. $3 \times 4 = 12$ $12 + 2 = 14$ Write 4 in the tens place and carry 1 hundred.	$\begin{array}{r} 1 \\ 36 \\ \times 4 \\ \hline 44 \end{array}$
3	STEP 3 – ADD THE HUNDREDS If a hundred is formed, carry it to the hundreds place. Place the carried 1 in the hundreds place.	$\begin{array}{r} 1 \\ 36 \\ \times 4 \\ \hline 144 \end{array}$
4	STEP 4 – WRITE THE RESULT Write all the digits in the result row.	$\begin{array}{r} 36 \\ \times 4 \\ \hline 144 \end{array}$
5	STEP 5 – CHECK Check the multiplication by repeated addition.	$36 + 36 + 36 + 36 = 144$

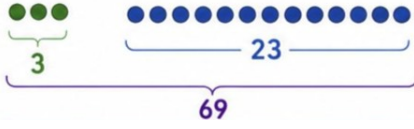
1. Calculate using column multiplication

TRY IT YOURSELF!

$47 \times 2 = \underline{\quad}$ $\begin{array}{r} \square \square \\ \times \square \\ \hline \square \square \square \end{array}$	$58 \times 3 = \underline{\quad}$ $\begin{array}{r} \square \square \\ \times \square \\ \hline \square \square \square \end{array}$	$64 \times 2 = \underline{\quad}$ $\begin{array}{r} \square \square \\ \times \square \\ \hline \square \square \square \end{array}$
---	---	---

5. Create an example

STRATEGY: Find factor pairs, starting with the smaller numbers.

1 START WITH 1 Divide 69 by 1. The other factor is 69. $1 \times 69 = 69$  1 and 69 are a factor pair of 69.	2 LOOK FOR THE NEXT PAIR Divide 69 by 2. $69 : 2 = 34,5$ 34.5 is not a whole number, so this pair does not work. Continue with 3.	3 FIND THE PAIR Divide 69 by 3. $69 \div 3 = 23$ – a whole number! So 3 and 23 are a factor pair of 69. $3 \times 23 = 69$ 
---	---	--

Create a multiplication problem where the product is:

- a) 96 _____
- b) 84 _____
- c) 144 _____

Self - check	Teacher's comments
I finished the task.	
I checked my work.	

How did I do (circle):





Name: _____



Grade: _____



Date: _____

Multiplication Adventures

Level 3	What do I need to do?	What can I use to solve this task?
	Take on the multiplication challenge! 1. Complete tasks 1–4, show your working and use division to check when needed. 2. Finish by creating and solving your own multiplication problems.	Column multiplication reminder, place value chart, worked example, squared paper, place value blocks, counting cubes or Lego bricks.

1. Calculate in columns.

$$\begin{array}{r} 286 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 153 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 359 \\ \times 2 \\ \hline \end{array}$$

1. STEP – MULTIPLY THE ONES

Look at 7.

$$7 \times 3 = 21$$

- ⇒ Write 1 in the ones place.
Carry 2 tens.

2. STEP – MULTIPLY THE TENS

Look at 4.

$$4 \times 3 = 12$$

$$12 + 2 = 14$$

- ⇒ Write 4 in the tens place.
Carry 1 hundred.

3. STEP – MULTIPLY THE HUNDREDS

Look at 1.

$$1 \times 3 = 3$$

$$3 + 1 = 4$$

- ⇒ Write 4.

One school has 248 pupils. There are 3 schools like this in the town.
How many pupils are there altogether?

Working:

Answer: _____ books.

Check:

3. Fill in the blank.

a) $\square \times 4 = 528$

b) $\square \times 3 = 441$

c) $\square \times 2 = 716$

$$\begin{array}{r} \overset{1}{} \overset{3}{} \overset{2}{} \\ 4 \overline{) 528} \\ \underline{- 4} \\ 12 \\ \underline{- 12} \\ 08 \\ \underline{- 8} \\ 0 \end{array}$$

$$\begin{array}{r} \overset{1}{} \\ 4 \overline{) 528} \\ \underline{- 4} \\ 12 \end{array}$$

$$\begin{array}{r} \overset{1}{} \overset{3}{} \\ 4 \overline{) 528} \\ \underline{- 4} \\ 12 \\ \underline{- 12} \\ 08 \end{array}$$

Use division

$$528 \div 4 = 132$$

Therefore: $132 \times 4 = 528$

4. Create your own

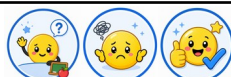
Create:

- one multiplication calculation with a two-digit number multiplied by 4;
- one multiplication calculation with a three-digit number multiplied by 3;
- one word problem about multiplication.

Solve all the tasks you created.

Self - check	Teacher's comments
I finished the task.	
I checked my work.	

How did I do (circle):



Teacher's Notes

Grade: 3

Topic: Place Value: Hundreds, tens and ones in three-digit numbers

Learning outcome: The pupil identifies hundreds, tens and ones in three-digit numbers, partitions numbers according to place value, forms numbers from given place values, compares three-digit numbers, makes the greatest and smallest possible numbers using given digits, and continues number sequences.

The worksheets were designed by: LSpecPA cooperation partner, Rezekne Primary School – Development Centre

Level 2	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological notes
	● Partition the numbers according to place value. ● Make numbers from the given hundreds, tens and ones. ● Compare the numbers. ● Calculate the expressions. ● Explain your solution.	The pupil correctly: ● partitions numbers according to place value; ● makes numbers from the given place values; ● compares numbers by looking at the hundreds, tens and ones; ● explains the reason for their answer. The pupil begins to understand: ● that when comparing numbers, start with the hundreds; ● that the ones are compared only if the hundreds and tens are the same; ● that a three-digit number can be written as a sum.	The teacher observes: Whether the pupil correctly partitions numbers according to place value. Whether the pupil understands the connection between a number and its place-value partition. Whether the pupil starts comparing numbers by looking at the hundreds. Whether the pupil can explain the reason for their choice. Whether the pupil uses mathematical terminology. Particular attention should be given to pupils: ● who compare only the last digits; ● who ignore the hundreds place; ● who confuse the symbols $>$ and $<$; ● who find it difficult to explain their reasoning.	● Place value sets ● Digit cards ● Number cards with three-digit numbers ● Magnetic numbers - Visual materials ● Reminder card “Partitioning a Three-Digit Number by Place Value” ● Reminder card “Comparing Numbers” ● Place value chart ● Number line up to 1000 - Practical materials ● Bundles of straws in groups of 10 ● Small stones ● Beans for grouping ● Coloured counters - Support materials ● Task cards at different levels of difficulty ● Worked examples ● Self-assessment sheets	At the beginning, review the place value chart together. Encourage pupils to say: “3 hundreds, 4 tens, 5 ones.” Use guiding questions: ● Where are the hundreds? ● What does the digit 0 mean? ● What number will we make? Demonstrate how to make numbers using concrete materials. Make connections between: ● concrete objects; ● pictures; ● mathematical notation. Support ● Work with a place value chart. ● Model hundreds, tens and ones. ● Work in pairs. Additional challenge ● The pupil makes a number independently and partitions it according to place value.

Level 3	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological notes
	● Identify the greatest number. ● Make the greatest and smallest possible numbers using the given digits. ● Continue the sequences. ● Write the missing digit. ● Explain your solution.	The pupil correctly: ● uses their knowledge of place value; ● makes the greatest and smallest possible numbers; ● identifies patterns in number sequences; ● writes the correct missing digit; ● explains their problem-solving strategy. The pupil begins to understand: ● that the greatest digit should be placed in the hundreds place; ● that a three-digit number cannot begin with 0; ● that number sequences can follow different patterns of increase.	The teacher observes: Whether the pupil uses logical reasoning. Whether the pupil can identify the pattern in a number sequence. Whether the pupil can make the greatest and smallest possible numbers. Whether the pupil understands the role of zero. Whether the pupil can explain their thinking. Particular attention should be given to pupils: ● who make numbers with 0 in the hundreds place; ● who cannot identify the step in a number sequence; ● who guess the answer instead of explaining their reasoning.	● Digit cards for making the greatest and smallest numbers ● Place value chart ● Number line up to 1000 Visual materials ● Reminder card “Comparing Numbers” ● Reminder card “Moving to the Next Hundred” ● Number sequence and pattern cards Digital resources ● Interactive whiteboard ● Kahoot quiz ● Wordwall games ● Liveworksheets worksheets Practical materials ● Digit cards for logic tasks ● Maths stations ● Laminated cards for repeated writing practice Differentiation materials ● Self-check cards ● Individual challenge tasks ● Additional number sequence tasks ● Logical thinking cards	Teach pupils to explain their reasoning: “Why did you choose this number?” Encourage discussions about different solutions. Link tasks to everyday situations. Support ● Work with digit cards. ● Make numbers using practical materials. ● Use visual reminder cards. Additional challenge ● Create their own number sequence. ● Make up a task for a classmate. ● Find several possible solutions.



Name: _____



Grade: _____



Date: _____

Fun with Place Value

Level 1	What do I need to do?	What can I use to solve this task?
	 Explore hundreds, tens and ones! Complete tasks 1–3, use place value to break numbers apart and build them again, and check that each digit is in the correct place.	 Place value blocks (hundreds, tens and ones), digit cards (0–9), place value chart (hundreds, tens and ones), reminder card about place value, worked example.

1. Fill in the place values

Reminder:

IN A THREE-DIGIT NUMBER:

- first digit → hundreds
- second digit → tens
- third digit → ones

Hundreds	Tens	Ones
4	2	6

EXAMPLE:

426 = 4 hundreds, 2 tens, 6 ones

Number	Hundreds	Tens	Ones
2 5 3			
4 8 1			
7 0 6			

2. Try it yourself!

In the number 395

In the number 731

In the number 580

hundreds = ____

hundreds = ____

hundreds = ____

tens = ____

tens = ____

tens = ____

ones = ____

ones = ____

ones = ____

Make the number:

4 hundreds

3 hundreds

5 hundreds

3 tens

4 tens

0 tens

5 ones

2 ones

7 ones

Answer: _____

Answer: _____

Answer: _____

3. Match!

$$426 = 400 + 20 + 6$$

4 hundreds = 400

2 tens = 20

6 ones = 6

Match each number with its correct expanded form.

Number

Expanded form

345

500 + 10 + 2

512

600 + 70 + 8

678

300 + 40 + 5

Self - check	Teacher's comments
I finished the task.	
I checked my work.	

How did I do (circle):





Name: _____



Grade: _____

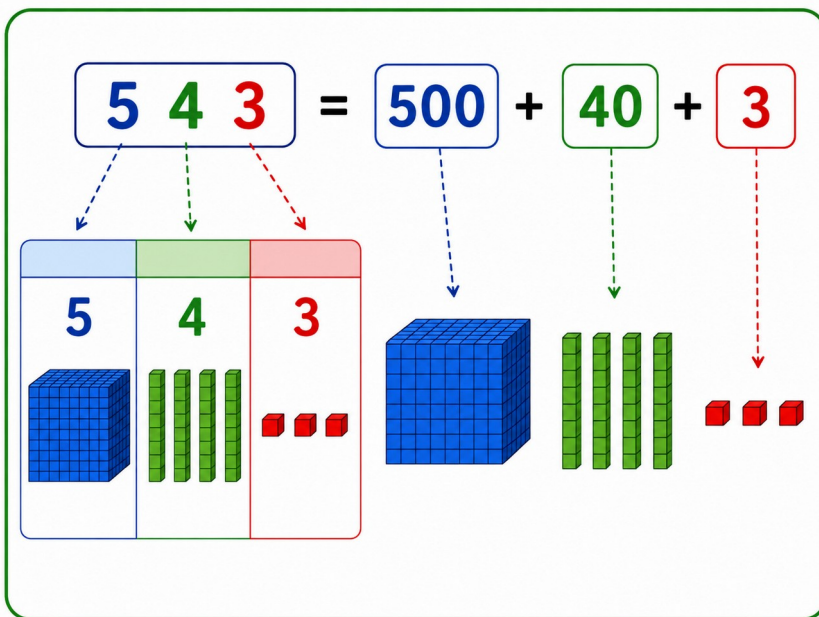


Date: _____

Fun with Place Value

Level 2	What do I need to do?	What can I use to solve this task?
	Explore how three-digit numbers are built! Partition numbers into hundreds, tens and ones, form numbers from place values, compare numbers carefully and put partitioned numbers back together. Use the example and place value reminder if you need help.	place value chart, place value reminder card, base-ten blocks or place value counters (if needed), pencil/pen, eraser

1.Partition the numbers!



A three-digit number is made up of **hundreds, tens and ones**.

543 means:

- **5 hundreds = 500**
- **4 tens = 40**
- **3 ones = 3**

So we can partition the number: **543 = 500 + 40 + 3**

364 = _____

902 = _____

715 = _____

2. Form the number!

3 hundreds, 4 tens, 2 ones = _____

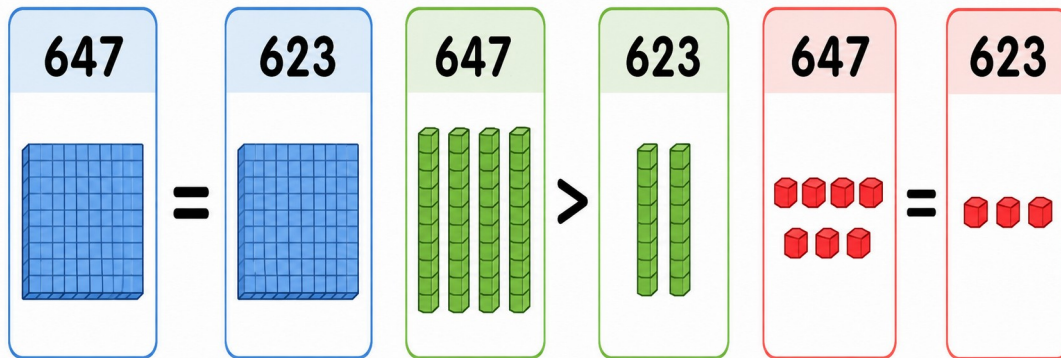
6 hundreds, 7 tens, 5 ones = _____

9 hundreds, 0 tens, 8 ones = _____

2 hundreds, 1 ten, 6 ones = _____

3. Compare the numbers!

EXAMPLE: 647 > 623



1. Compare the hundreds.

6 hundreds = 6 hundreds.

The hundreds are equal, so compare the tens.

2. Compare the tens.

4 tens > 2 tens.

Therefore, **647 > 623**.

3. The ones do not matter here.

Compare the ones only if the hundreds and tens are equal.

Write the sign >, <, or =.

452	_____	425
608	_____	680
799	_____	799

4. Solve it!

400 + 50 + 8 = _____

700 + 0 + 4 = _____

200 + 30 + 9 = _____

Self - check	Teacher's comments
I finished the task.	
I checked my work.	

How did I do (circle):   



Name: _____



Grade: _____



Date: _____

Fun with Place Value

Level 3	 What do I need to do?	 What can I use to solve this task?
	Explore three-digit numbers! 1. Complete the tasks by partitioning, comparing and continuing number sequences. 2. Look carefully at hundreds, tens and ones, use the reminders when you need help, and finish with the Super Challenge!	Place value blocks (hundreds, tens and ones), digit cards (0–9), place value chart (hundreds, tens and ones), reminder card “ Three-Digit Numbers and Place Value ”, reminder card “ How to Compare Three-Digit Numbers ”, worked example, number line.

1. Which is greater?

Circle the greater number.

When comparing numbers, compare the digits from left to right:

1. **hundreds** → 2. **tens** → 3. **ones**

398 or **389**

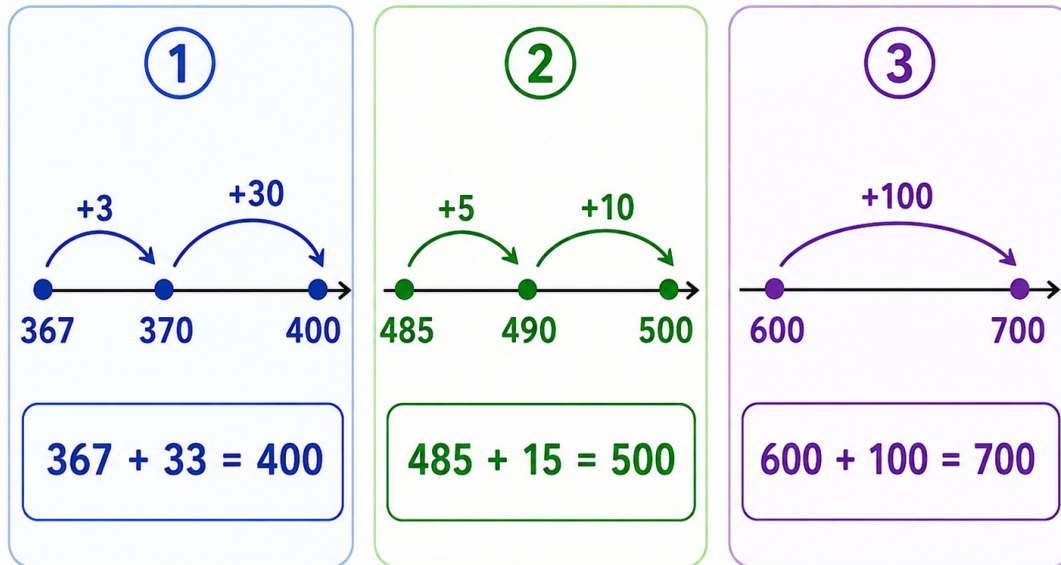
705 or 750

621 or 612

2. Make the numbers. Say them aloud.

- **greatest number** using the digits 4, 2, 9 = _____
- **smallest number** using the digits 8, 0, 5 = _____
- **greatest number** using the digits 3, 7, 1 = _____
- **smallest number** using the digits 9, 0, 4 = _____
- **greatest number** using the digits 6, 5, 2 = _____
- **smallest number** using the digits 7, 1, 0 = _____

3. Continue the sequences



1. 120, 130, 140, _____, _____, _____, _____
2. 405, 415, 425, _____, _____, _____, _____
3. 789, 798, 807, _____, _____, _____, _____

4. Fill in the missing digit

1. $4_8 > 438$
2. $62_ < 625$
3. $_95 > 795$

Super Challenge

Write:

- the greatest three-digit number = _____
- the smallest three-digit number = _____

Think of your own three-digit number and:

1. name the place values;
2. partition it by place value;
3. compare it with 500.

Self - check	Teacher's comments
I finished the task.	
I checked my work.	

How did I do (circle):



Lesson Plan

Subject: Mathematics

Grade: Grade 3

Topic: Place Value: Hundreds, Tens and Ones in Three-Digit Numbers

Lesson Duration: 40 minutes

Learning Outcomes

By the end of the lesson, the pupil will be able to:

identify the hundreds, tens and ones places in a three-digit number;

understand that the value of a digit depends on its position in a number;

partition a three-digit number into hundreds, tens and ones;

form a three-digit number from given hundreds, tens and ones;

compare three-digit numbers, starting with the hundreds place;

form the largest and smallest possible three-digit numbers using given digits;

continue number sequences by identifying the pattern;

explain and, according to their ability, justify their solution.

Note: These learning outcomes directly reflect the three levels of differentiation included in the teacher's worksheet: Level 1 focuses on understanding place value; Level 2 focuses on partitioning, forming and comparing numbers; and Level 3 focuses on applying place-value knowledge in logical and more challenging tasks.

Required Materials and Resources

For the teacher: place value chart (Hundreds–Tens–Ones), hundreds flats, tens rods and ones cubes, digit and number cards, magnetic digits, number line to 1,000, place value and number comparison reminder cards, interactive whiteboard.

For pupils: the appropriate level worksheet, pencil, eraser, individual place value reminder card; where necessary, a place value chart and practical modelling materials. These materials and visual supports are also included in the accompanying teacher instructions.

Introduction (10 min)

Lesson stage	Time	Teacher activity – what the teacher says and does	Expected pupil activity / responses	Materials / resources	Formative assessment / observation focus	Methodological notes / support
Opening routine	2 min	The teacher welcomes the pupils and invites them to get ready for the Mathematics lesson. “Good morning! Today we are going to explore three-digit numbers. We will find out why the same digit can have a completely different value depending on its position.” The teacher shows the digit card 5 and asks: “Does the digit 5 always represent the same amount?” After listening to the pupils’ answers, the teacher writes 5, 50, 500 on the board. “The digit is the same. What has changed?”	Pupils prepare their workspace, look at the numbers and express their ideas. Expected responses: “The position of the digit has changed.” “5 can mean 5 ones, 5 tens or 5 hundreds.” “5, 50 and 500 are not the same numbers.”	Digit card 5 , board / interactive whiteboard, magnetic digits.	Does the pupil notice that the value of a digit changes depending on its position in a number? Does the pupil participate in the discussion and make an initial assumption?	A precise definition is not required at this stage. Allow pupils to arrive at the principle of place value by comparing concrete examples.
Reviewing place value using a practical model	3 min	The teacher demonstrates 3 hundreds flats, 4 tens rods and 5 ones cubes. Asks: “How many hundreds can you see?” “How many tens?” “How many ones?” After the pupils respond, the teacher says: “Let’s say it all together: 3 hundreds, 4 tens and 5 ones. What number have I made?” The teacher writes 345 on the board and places the digits in the place value chart.	Expected responses: “3 hundreds.” “4 tens.” “5 ones.” “The number is 345.” Pupils name the number and observe how it is represented in the place value chart.	Hundreds flats, tens rods, ones cubes, place value chart.	✓ Distinguishes between hundreds, tens and ones. ✓ - Connects a concrete quantity with the corresponding digit. ✓ - Correctly names the number that has been formed.	This stage builds the recommended progression concrete object → picture/model → mathematical notation. Encourage pupils to use a complete statement: “3 hundreds, 4 tens and 5 ones.”

Lesson stage	Time	Teacher activity – what the teacher says and does	Expected pupil activity / responses	Materials / resources	Formative assessment / observation focus	Methodological notes / support
Reviewing prior knowledge	3 min	The teacher writes 426 on the board. “Read the number. Which digit is in the hundreds place? Which is in the tens place? Which is in the ones place?” After the pupils respond, the teacher asks: “What does the digit 4 represent in this number? What does 2 represent? What does 6 represent?” The teacher writes: $426 = 400 + 20 + 6$. The teacher then shows 580 . “Now look carefully at 580. How many hundreds? How many tens? How many ones? What does the zero tell us?”	426: 4 hundreds, 2 tens, 6 ones; $400 + 20 + 6$. 580: 5 hundreds, 8 tens, 0 ones. Expected response: “The zero shows that there are no ones.”	Place value chart, magnetic digits, reminder card “Hundreds, Tens and Ones” .	✓ Reads the number from left to right. ✓ Identifies the place of each digit. ✓ Distinguishes between a digit and its value. ✓ Understands the meaning of zero in a number.	Pay particular attention to pupils who confuse the digit itself with its value or have difficulty understanding the role of zero in a number. The accompanying material particularly emphasises that, for example, 5 in the tens place represents 50, not 5 , and that 0 can show that there are no units in a particular place .
Formulating the lesson objective	2 min	The teacher says: “Today we will work with three-digit numbers. We will learn to identify hundreds, tens and ones, form and partition numbers, and compare them. Some of you will also complete tasks where you will need to identify patterns and form the largest or smallest possible number.” The teacher asks: “What do we need to identify first when we look at a three-digit number?”	Expected responses: “Where the hundreds, tens and ones are.” “Look at the position of each digit.” Pupils formulate the lesson objective in their own words, for example: “I will correctly identify the place of each digit in a number.”	Visual reminder of the lesson objective, place value chart.	✓ Does the pupil understand the lesson objective? ✓ Can the pupil connect the new tasks with what has just been reviewed?	Differentiation is not presented to pupils as “easy, medium and difficult work.” The teacher emphasises that each pupil will receive tasks that allow them to use and develop their skills.

Part 2. Practical Work (20 min)

Lesson stage	Teacher activity – what the teacher says and does	Level	Expected pupil responses / answers	Materials / resources	Formative assessment / observation focus	Methodological notes	
Organising the work and giving instructions (2 min)	The teacher hands out the differentiated worksheets. “Now each of you will receive a worksheet. Before you begin, look at the task and the reminder. Work step by step – first read, then think, and only then write your answer. If necessary, use the place value chart or practical materials.” The teacher emphasises: “It is important to me not only whether your answer is correct, but also whether you can explain how you found it.”	Level 1 Looks at the “Hundreds – Tens – Ones” reminder and prepares the place value chart. Level 2 Looks at the reminder on partitioning a three-digit number and prepares the worksheet. Level 3 Looks at the reminder on comparing numbers and the sequence of tasks.	—	Three differentiated worksheets, individual reminder cards, place value chart, pencil.	Instructions are broken down into short steps: “Read. Look at the example. Do the task. Check.” If necessary, the teacher completes the first task together with the pupil.	Understands the instructions. Begins the work independently. Selects the necessary support material. Follows the sequence of tasks.	Differentiation is not presented as an assessment of pupils’ ability. Each pupil is provided with support appropriate to their needs. The teacher materials include individual reminder cards, worked examples and practical materials.

Lesson stage	Teacher activity – what the teacher says and does	Level	Expected pupil responses / answers	Materials / resources	Formative assessment / observation focus	Methodological notes	
Task Block 1 - Place value, partitioning and comparing numbers (5 min)	“Let’s start with the first task. Remember – when we analyse a three-digit number, we work from left to right: first the hundreds, then the tens and then the ones.” The teacher moves around the classroom and asks individual pupils: “Which place is this digit in?” “What is its value?” “How did you work it out?” For Level 3 , the teacher asks: “When comparing two numbers, which place do we look at first?”	Level 1 - Task 1: Identify the place values. Pupils identify the hundreds, tens and ones in 253, 481, 706 . Level 2 - Task 1: Partition the number. Pupils partition 364, 902, 715 into hundreds, tens and ones. Level 3 - Task 1: Which is greater? Pupils compare 398 and 389; 705 and 750; 621 and 612 , circling the greater number.	Level 1: 253 → H = 2, T = 5, O = 3; 481 → H = 4, T = 8, O = 1; 706 → H = 7, T = 0, O = 6. Level 2: 364 = 300 + 60 + 4; 902 = 900 + 0 + 2; 715 = 700 + 10 + 5. Level 3: 398; 750; 621.	Level 1: The pupil places digit cards in a physical H–T–O chart. The teacher says: “Show me the hundreds place. Now show me the tens place.” Level 2: The pupil first models the number using hundreds, tens and ones materials. Level 3: The teacher asks: “Is the hundreds digit the same? If it is, which place do we compare next?”	Place value chart, digit cards, Base Ten / Dienes materials, individual reminder cards.	Correctly identifies H–T–O . Distinguishes a digit from its value. Recognises the tens place. Partitions a number according to place value. Begins comparison with the hundreds place. Explains their choice.	Pay particular attention to whether the pupil confuses the digit itself with its value . The teacher materials emphasise, for example, that 5 in the tens place represents 50, not 5 . When comparing numbers, guide the pupil through the sequence H → T → O .

Lesson stage	Teacher activity – what the teacher says and does	Level	Expected pupil responses / answers	Materials / resources	Formative assessment / observation focus	Methodological notes	
Task Block 2 - Identifying and forming numbers (5 min)	“Now we will use place value in reverse. Some of you will be given a number and will need to identify its hundreds, tens and ones, while others will be given hundreds, tens and ones and will need to form a number.” The teacher asks: “Which digit should come first in a three-digit number?” “What do we write if there are no units in a particular place?” For Level 3, the teacher asks: “If you need to form the largest possible number, where should you place the largest digit? Why?”	Level 1: Identify the hundreds, tens and ones in 395, 731, 580. Then form numbers from: 4 hundreds, 3 tens, 5 ones; 3 hundreds, 4 tens, 2 ones; 5 hundreds, 0 tens, 7 ones. Level 2 - Task 2: Form the number. Form numbers from the given place values: 3H 4T 2O; 6H 7T 5O; 9H 0T 8O; 2H 1T 6O. Level 3 - Task 2: Form the numbers. Using the digits 4, 2, 9; 8, 0, 5; 3, 7, 1; 9, 0, 4; 6, 5, 2; 7, 1, 0, form the largest or smallest possible three-digit number as instructed on the worksheet.	Level 1: 395 → H = 3, T = 9, O = 5; 731 → H = 7, T = 3, O = 1; 580 → H = 5, T = 8, O = 0. Numbers formed: 435; 342; 507. Level 2: 342; 675; 908; 216. Level 3: 942; 508; 731; 409; 652; 107.	Levels 1–2: Allow the pupil to physically place digit cards in an H–T–O chart before writing the number. If the pupil omits zero, ask: “What is in the tens place? Can we simply leave this place out?” Level 3: Allow the pupil to rearrange the digit cards. Ask: “Can a three-digit number begin with 0?” “Where should the largest digit be placed to make the number as large as possible?”	Place value chart, digit cards 0–9 , magnetic digits, Base Ten materials, worksheets.	✓ Forms a number from given place values. ✓ Uses 0 correctly. ✓ Understands the importance of hundreds place. ✓ At Level 3, uses a strategy rather than guessing. ✓ Explains why the number formed is the largest or smallest possible.	The teacher materials for Level 3 place particular emphasis on reasoning: the largest digit should be placed in the hundreds place when forming the largest possible number. When forming the smallest possible three-digit number, 0 cannot be placed in the hundreds place.

Lesson stage	Teacher activity – what the teacher says and does	Level	Expected pupil responses / answers	Materials / resources	Formative assessment / observation focus	Methodological notes	
Task Block 3 - Applying Knowledge in a New Situation (5 min)	“Now you will complete tasks where you need to use what you already know. Take your time. First, work out what the task requires.” Level 1: “What does 300 + 40 + 5 tell us?” Level 2: “When comparing numbers, which side do we start from?” Level 3: “We do not continue a sequence by guessing. First, work out how much each successive number changes.”	Level 1 – Task 3: Match. Match 345, 512, 678 with the correct expanded form: 300 + 40 + 5; 500 + 10 + 2; 600 + 70 + 8. Level 2 – Task 3: Compare the numbers. Insert >, < or =: 452 __ 425; 608 __ 680; 799 __ 799. Then, in Task 4, form the numbers: 400 + 50 + 8; 700 + 0 + 4; 200 + 30 + 9. Level 3 – Task 3: Continue the sequence. Continue: 120, 130, 140...; 405, 415, 425...; 789, 798, 807...	Level 1: 345 ↔ 300 + 40 + 5; 512 ↔ 500 + 10 + 2; 678 ↔ 600 + 70 + 8. Level 2: 452 > 425; 608 < 680; 799 = 799; 458; 704; 239. Level 3: First sequence: 150, 160, 170, 180, 190. Second sequence: 435, 445, 455, 465, 475. Third sequence: 816, 825, 834, 843, 852.	Level 1: The pupil models one number using practical materials, for example: 3 hundreds + 4 tens + 5 ones. Level 2: The pupil points in sequence to H → T → O and compares the digits aloud. Level 3: The teacher helps the pupil find the difference between the first two terms of the sequence: “130 – 120 = ? So, what is the step of the sequence?”	Worksheets, number line to 1,000 , place value chart, Base Ten materials, comparison symbol cards >, <, =.	✓ Matches a number to its expanded form. ✓ Correctly compares three-digit numbers. ✓ Uses >, <, = correctly. ✓ Identifies the step of a sequence. ✓ Continues a sequence according to its pattern. ✓ Can explain the rule in words.	At Level 3, assess not only whether the answer is correct, but also whether the pupil can formulate the pattern, for example: “Each successive number is 10 greater.” The teacher materials also include creating their own number sequence as an additional challenge.

Lesson stage	Teacher activity – what the teacher says and does	Level	Expected pupil responses / answers	Materials / resources	Formative assessment / observation focus	Methodological notes
Self-check and additional challenge (3 min)	The teacher says: “Before we finish the practical work, choose at least one of your answers and check it. Ask yourself: How do I know that my answer is correct?” The teacher asks individual pupils: “Show me one task that you are confident about. Explain your solution.” For pupils who finish early: “Choose an additional challenge.”	Level 1: Checks the matching task and explains one number in words, for example: “345 is 3 hundreds, 4 tens and 5 ones.” Additional task – create a three-digit number and partition it according to place value. Level 2: Checks the comparison symbols and number formation. Additional task – create a three-digit number, write it as a sum and compare it with another number. Level 3: Checks the number sequences	Answers depend on the task created by the pupil. The teacher assesses whether the pupil’s own example follows the principles of place value and the specified pattern.	If the pupil is unable to check their work independently, the teacher suggests a specific strategy: “Place the number in the H–T–O chart.” “Check starting with the hundreds.” “Calculate the difference between two terms in the sequence.”	Individual reminder cards, place value chart, digit cards, additional challenge cards.	✓ Checks their work independently. ✓ Notices and corrects an error. ✓ Justifies at least one answer. ✓ Uses an appropriate checking strategy. ✓ Can create their own example according to the given conditions. At this stage, the focus is on self-directed learning. The teacher does not tell the pupil which answer is incorrect, but helps them choose a strategy for checking it. The accompanying teacher materials also include creating a task for a classmate as an additional challenge.

Teacher Questions During Practical Work

To ensure that practical work is not limited to mechanically completing the worksheet, the teacher uses short guiding questions with pupils at all three levels:

“Which place is this digit in?”

“What is the value of this digit?”

“How do you know these are tens, not ones?”

“What does the zero mean in this number?”

“Which place will we compare first?”

“How can you check your answer?”

“Can you show this number in another way?”

“What is the step in the sequence?”

“Why is this the largest/smallest possible number?”

Teacher observation focus in Part 2: During practical work, it is recommended not to assess only the number of correct answers. The accompanying teacher materials also emphasise understanding of place value, independence, strategy selection, reasoning, and the ability to notice and correct errors.

Skill observed	What the teacher specifically observes
Understanding place value	Correctly identifies hundreds, tens and ones; understands that the value of a digit changes depending on its position.
Understanding zero	Understands that, for example, 706 has 0 tens and 580 has 0 ones; does not omit zero when forming a number.
Partitioning numbers	Can move from 364 to 300 + 60 + 4 and vice versa.
Forming numbers	Correctly forms a three-digit number from given hundreds, tens and ones.
Comparing numbers	Begins comparison with the hundreds place and only moves on to the tens and ones if the hundreds are equal.
Identifying patterns	Identifies the step in a number sequence rather than continuing the sequence by guessing.
Mathematical language	Uses the terms hundreds, tens, ones, place value, greater than, less than, equal to .
Reasoning	Can explain, for example: “ I chose 942 because I placed the largest digit, 9, in the hundreds place. ”
Independence	Uses a reminder card, place value chart or practical materials before asking the teacher for help.
Self-checking	Checks their solution and, when prompted, can identify and correct an error.

Part 3. Lesson Conclusion (10 min)

Lesson stage	Time	Teacher activity – what the teacher says and does	Expected pupil activity / responses	Materials / resources	Formative assessment / observation focus	Methodological notes
Whole-class review and error analysis	3 min	The teacher asks pupils to finish the task they are working on and says: “Now we will not check every task one by one. Instead, we will review the most important skills we used today.” The teacher writes 706 on the board and asks: “How many hundreds are there in this number? How many tens? How many ones? What does 0 mean?” The teacher then shows 608 and 680 and asks: “Which number is greater? How did you work it out?” To conclude, the teacher says: “If you find a mistake in your worksheet, correct it. You can put a small ✓ next to it – this means: I found and corrected the mistake myself.”	Pupils check their work and justify their answers. 706 – 7 hundreds, 0 tens, 6 ones. Expected explanation: “The zero shows that there are no tens.” 608 < 680 , because both numbers have 6 hundreds, but 608 has 0 tens whereas 680 has 8 tens. Pupils correct any mistakes they notice.	Worksheets, interactive whiteboard, place value chart, magnetic digits.	Identifies H–T–O correctly. Understands the meaning of 0 . Compares numbers beginning with the hundreds place. Can explain their solution. Independently notices and corrects an error.	There is no need to check every example on the worksheet together. Select tasks that reveal pupils’ understanding of place value , rather than simply whether an answer is correct. If a pupil makes a mistake, ask: “At which place does our thinking differ?” rather than immediately giving the correct answer.
“Show that you understand!” – short exit task	2 min	The teacher writes 507 on the board. “Before the lesson ends, everyone has one small challenge. Think about the number 507.” The teacher asks in sequence: “How many hundreds?” “How many tens?” “How many ones?” “How can we write this number as a sum?” For pupils who need an additional challenge: “Name a number that is greater than 507 but less than 510.”	Main answers: 5 hundreds, 0 tens, 7 ones; $507 = 500 + 0 + 7$. Additional answers: 508 or 509. Pupils respond orally or write their answer on small cards.	Board, place value chart, small response cards if needed.	Does the pupil transfer what they have learnt to a new example? Does the pupil understand place value without relying on a worked example from the worksheet? Can the pupil apply their knowledge in a new situation?	The task is not intended for grading . It gives the teacher quick information about whether the intended learning outcome has actually been achieved. A pupil who needs more support may continue to use the H–T–O chart .

Lesson stage	Time	Teacher activity – what the teacher says and does	Expected pupil activity / responses	Materials / resources	Formative assessment / observation focus	Methodological notes
Self-assessment	2 min	The teacher says: “Now we will assess not how many tasks we completed, but what we can do.” The teacher reads three statements: “I can identify hundreds, tens and ones.” “I can form or partition a three-digit number.” “I can check and explain my answer.” Pupils are offered three self-assessment choices: Green “I can do it independently.” Yellow “I can do it, but sometimes I need a reminder or help.” Red “I still need to practise this.”	The pupil chooses the most appropriate self-assessment. When prompted by the teacher, the pupil explains their choice: “I can identify hundreds, tens and ones.” “I still find it difficult to compare numbers.” “The place value chart helps me.” “I still need to practise forming the smallest number.”	Green, yellow and red self-assessment cards or an individual self-assessment sheet.	Assesses their own progress realistically. Identifies a specific skill they have developed. Can identify where additional support is needed. Recognises a support tool that is useful to them.	Self-assessment is not linked to the differentiation level assigned to the pupil. A pupil may be independent in one skill while still requiring support in another.

Lesson stage	Time	Teacher activity – what the teacher says and does	Expected pupil activity / responses	Materials / resources	Formative assessment / observation focus	Methodological notes
Teacher feedback	2 min	The teacher summarises what has been observed: “Today you did more than just read three-digit numbers. You explored what each digit in those numbers represents.” The teacher gives specific examples: “I noticed that many of you are already beginning to compare numbers independently by looking at the hundreds place first.” “Several of you used the place value chart to check your own answers.” “Some of you were already able to explain why the number formed from the given digits was the largest or smallest possible number.” The teacher adds: “If you still needed the place value chart or Base Ten blocks today, that is a tool for learning. Your next goal will be to complete the same task more and more independently.”	Pupils listen and relate the teacher’s feedback to their own work. When invited, they name one achievement of their own: “I learnt to...”	Pupils’ worksheets, teacher’s observation notes.	✓ Progress is assessed, not only the final result. ✓ Feedback is specific and linked to the intended learning outcomes. ✓ The pupil understands their next step in learning.	Avoid general praise such as “Well done!” Instead, give feedback about a specific action, for example: “You correctly started the comparison with the hundreds place and then checked the tens independently.”
Lesson summary and transition to further learning	1 min	The teacher concludes: “Today we learnt that the value of a digit is determined by its position in a number. In a three-digit number, we look at the hundreds, tens and ones. This knowledge helps us form, partition and compare numbers, and identify patterns.” The teacher asks one final question: “What is the most important thing to remember about a three-digit number?”	Expected responses: “The value of a digit depends on its position.” “There are hundreds, tens and ones places.” “When comparing numbers, we start with the hundreds.” Pupils tidy their workspace.	Visual place value reminder.	✓ Can formulate the main idea of the lesson. ✓ Uses place value terminology correctly.	At the end of the lesson, pupils should leave with one clear key idea: the value of a digit is determined by its position in a number.

Assessment Summary

In the accompanying teacher materials:

Level 1 places particular emphasis on understanding place value, working independently, justifying answers and correcting errors;

Level 2 additionally focuses on partitioning numbers according to place value, forming numbers and using an appropriate comparison strategy;

Level 3 focuses on logical reasoning, justification and identifying patterns.

Skill being assessed	What the teacher specifically observes	Achieved	Partially achieved	Support needed
Identifies place value	Correctly identifies the hundreds, tens and ones places in a three-digit number.	[]	[]	[]
Understands the value of a digit	Understands that, for example, the digit 5 in the tens place represents 50 , not 5.	[]	[]	[]
Understands the role of zero	Correctly interprets 0 as showing that there are no units in a particular place and maintains that place in the number.	[]	[]	[]
Partitions a three-digit number	For example, independently partitions 364 into 300 + 60 + 4 .	[]	[]	[]
Forms a three-digit number	Forms the correct number from given hundreds, tens and ones.	[]	[]	[]
Compares numbers	Begins by comparing the hundreds place; if the hundreds are equal, moves on to the tens and then the ones.	[]	[]	[]
Forms the largest/smallest number	Arranges the digits purposefully according to place value and understands that a three-digit number cannot begin with 0 .	[]	[]	[]
Identifies a number sequence pattern	Identifies the step in the sequence and continues the sequence according to the pattern.	[]	[]	[]
Justifies the solution	Does not only state the answer, but explains how and why they arrived at it.	[]	[]	[]
Uses support materials	Independently chooses a place value chart, reminder card or practical materials when needed.	[]	[]	[]
Checks their own work	Checks their solution, notices an error and corrects it independently or after a prompt.	[]	[]	[]

Teacher Reflection After the Lesson

What went well?

Did pupils understand that the value of a digit is determined by its position in a three-digit number?

Did the practical materials and the H–T–O chart help pupils understand place value?

Were the differentiated tasks appropriate to pupils' actual skill levels?

Which pupils were able to move from practical modelling to abstract mathematical notation?

Were pupils able not only to find the answer, but also to justify it?

What caused difficulties?

Did pupils confuse a digit with its value?

Did 0 in the tens or ones place cause difficulties?

When comparing numbers, did pupils consistently begin with the hundreds place?

Were Level 3 pupils able to justify their strategy for forming the largest and smallest possible numbers?

In the number sequence tasks, did pupils identify the pattern or try to continue the sequence by guessing?

Next steps

For pupils who have not yet fully developed an understanding of place value, continue to use practical modelling with hundreds flats, tens rods and ones cubes in future lessons, and only gradually move towards abstract mathematical notation.

For pupils who have already mastered the basic skills, provide more tasks that require them to justify their thinking, find several possible solutions, create their own numbers and number sequences, or design a task for a classmate. This opportunity for additional challenge is also included in the accompanying teacher materials.

Online Mathematics Lesson Plan

1. Lesson Information

Lesson Title: Place Value in Three-Digit Numbers

Age / Grade Level: Grade 3

Duration:

☐ 30 minutes ☐ 40 minutes ☒ 45 minutes ☐ 60 minutes ☐ Other: _____

Lesson Format:

- ☐ Live online lesson
☐ Independent online lesson
☒ Combination of live and independent work

Online Platform:

- ☐ Microsoft Teams
☐ Google Meet
☐ Zoom
☒ Learning platform
☐ Other: _____

Maths Topic:

- ☒ Number ☐ Calculation ☐ Fractions ☐ Measurement
☐ Geometry ☐ Data ☐ Problem-solving ☐ Other: _____

2. Learning Focus

Learning Objective

By the end of the lesson, pupils will be able to **identify the place value of digits in three-digit numbers and use place value to compose, decompose and compare numbers.**

Success Criteria

Pupils can:

- ☒ complete the main Maths task;
- ☒ identify hundreds, tens and ones correctly;
- ☒ compose, decompose and compare three-digit numbers;
- ☒ explain or show their thinking;
- ☒ submit their work successfully.

3. Digital Resources

Lesson Link: Shared through the learning platform.

Main Resources

- ☐ Presentation
- ☐ Video explanation
- ☒ Digital worksheet
- ☐ Interactive Maths activity
- ☐ Online quiz
- ☒ Digital whiteboard
- ☒ Downloadable task sheet
- ☐ Other: _____

Resource Links:

Grade 3 worksheet: Three-digit numbers - Levels 1-3 (uploaded with the lesson).

4. Online Lesson Flow

Stage	Time	Online Activity
Connect	5 min	Welcome pupils and check access. Show the number 426 and ask pupils to identify the hundreds, tens and ones. Introduce the lesson objective.
Teach	10 min	Demonstrate how a three-digit number is built from hundreds, tens and ones and written in expanded form (e.g. $543 = 500 + 40 + 3$). Model comparing numbers from left to right: hundreds, then tens, then ones.
Practise	10 min	Complete selected Level 1 tasks together: identify place values, build numbers from hundreds/tens/ones and match numbers to expanded form. Pupils respond by microphone, chat or on the digital whiteboard.
Apply	15 min	Pupils complete the worksheet level suited to their readiness. Level 2 adds decomposition, composition and comparison; Level 3 adds greatest/smallest numbers, sequences and missing digits. Pupils may progress to the next level when ready.
Check	5 min	Review key answers. Complete the exit task: write 684 in expanded form and compare 684 with 648 using $>$, $<$ or $=$.

5. Pupil Interaction

Pupils will participate through:

- ☒ Microphone responses
- ☒ Chat responses

- ☒ Digital whiteboard
- ☐ Poll or quiz
- ☐ Breakout rooms
- ☒ Screen sharing
- ☒ Emoji or reaction buttons
- ☐ Other: _____

Main Discussion Question: How does the place of a digit change its value in a three-digit number?

6. Access and Support

- ☒ Give short, numbered instructions.
- ☒ Display one task at a time.
- ☐ Provide a recorded explanation.
- ☒ Use pictures, symbols or worked examples.
- ☒ Allow pupils to answer orally.
- ☒ Provide a downloadable or printable version.
- ☒ Reduce the number of tasks.
- ☒ Give additional completion time.
- ☒ Provide individual online support.
- ☒ Other: use Levels 1-3 for differentiated practice.

7. Assessment and Submission

How Will Understanding Be Checked?

- ☒ Oral questions
- ☒ Chat answers
- ☐ Online quiz
- ☒ Digital worksheet
- ☒ Photograph of completed work
- ☒ Screen sharing
- ☒ Short exit task
- ☐ Other: _____

Final Check Task

Write 684 as hundreds, tens and ones, then complete: 684 ____ 648.

How Will Pupils Submit Their Work?

- ☐ Upload a file
- ☒ Submit through the learning platform
- ☒ Send a photograph
- ☐ Complete an online form
- ☒ Show work during the lesson
- ☐ Other: _____

Submission Deadline: By the end of the lesson; additional time may be agreed when needed.

8. Technical Backup Plan

If a pupil cannot access the online lesson:

- ☐ Send the recording.
- ☒ Provide written instructions.
- ☒ Share a printable task.
- ☒ Send the materials by email or platform message.
- ☒ Allow later submission.
- ☒ Provide an alternative individual session.
- ☐ Other: _____

Complete this section after the lesson, based on pupils' participation, progress and performance throughout the lesson flow.

9. Quick Teacher Reflection

Pupils Were Able to:

- ☐ access the lesson successfully;
- ☐ participate in the online activities;
- ☐ complete the main task;
- ☐ submit their work;
- ☐ ask for help when needed.

What worked well?

What should be changed next time?

Teacher's Notes

Grade: 3

Topic: Numbers up to 1000: Addition with/without regrouping

Learning objectives: students to recall the algorithm for adding two-digit numbers; to be able to transfer old knowledge and perform the action of adding numbers up to 1000 without and with crossing; to be able to apply new knowledge in real-life situations

The worksheet was designed by: Asociacia Dyslexia - Bulgaria

Level 1	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	A/ Study the example carefully. Write the numbers one under the other, making sure to place the digits correctly – units under units, tens under tens, hundreds under hundreds. Add from units to tens and hundreds, writing the result in the appropriate column. Check. Each of the results corresponds to a letter. Write the letters in the squares of the same color. If you counted correctly, you will find out which is the national symbol of China. B/ Study the example. Remember: we find the unknown reducible by adding the reducible to the difference. Write the numbers one under the other. Perform the action. Check. Arrange the resulting numbers from smallest to largest to find out which animal lives in which cage at the zoo.	The student understands the instructions and the given example. Correctly writes the numbers one under the other. Correctly performs the addition operation by observing the direction from right to left and writes the result in the corresponding column. Can find the unknown addend. Correctly writes the numbers and is able to check.	The teacher observes: Did the student understand the task correctly? Did (s)he carefully examine and understand the given example? Is (s)he able to maintain the necessary concentration? Is (s)he able to work independently? Is (s)he able to arrange the numbers correctly one under the other? Is (s)he working at a good enough pace? Does (s)he need additional explanations? Is (s)he able to solve problems involving finding an unknown variable? Does (s)he perform the actions correctly? Is (s)he able to check.	A pencil or a pen An eraser The worksheet	Give instructions one at a time – wait for students to complete one action before giving instructions for the next. Go over the examples together and then discuss them with students. Pay attention to how they write the numbers one under the other correctly. Explain again the direction of the addition action. Allow enough time for the task to be completed. Note that it is important to check before moving on to the next task. Help students who are struggling with leading questions (e.g. What action should we use to find the unknown to be reduced?), or remind them of the steps again.

Level 2	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	Look carefully at the example. Write the numbers in the table one below the other, taking care to place the numbers correctly in the columns. – units under units, tens under tens, etc. When the sum of the units digits is a two-digit number, we write down the units digit and mentally transfer “1” to the tens place. We do the same when adding the tens, hundreds, etc. A/ Each of the resulting numbers corresponds to one of the five giants of the savannah. Arrange the animals according to the size of the resulting sums. B/ If you calculated correctly, you will learn how much each of the animals weighs.	The student correctly arranges the numbers one under the other Understands the meaning of the number depending on its place in the number. Correctly determines the units and tens. Understands the concepts of additive and sum Correctly transfers “one in mind” to the next row when necessary. Can self-correct by comparing with the example. Cope with tasks with two passes. Knows how to check	The teacher observes: Does the student understand the instructions. Is (s)he able to maintain the necessary concentration. Is (s)he able to work independently. Is (s)he aware of the meaning of the numbers depending on their place in the number. Understands the concepts of “units” and “tens” and “hundreds”. Can (s)he correctly perform the action of addition with one and two passes. Can (s)he perform a check. Maintains a steady pace of work.	A pencil or a pen An eraser The worksheet	Give the instructions one at a time – wait for the students to complete one action before giving the instruction for the next. Recall the meaning of the concepts of “units”, “tens” and “hundreds” and how the same digit can mean a different quantity depending on its place in the number... Provide enough time to complete the task. If a student has difficulty doing it independently, recall the concepts or help him with guiding questions: (e.g. If the sum of the units is two digits, what do we write in the column under the units and where do we write the digit of the tens?) Give the opportunity to students who are having difficulty to seek “help from a friend”.

Level 3	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	Read the problem statement carefully. Write down what is given. Write down what is required. If necessary, draw a diagram of the problem. Think about what arithmetic operation you will use to find the answer. Check.	The student reads the text problem independently; Is able to extract information from the text and correctly record it; Is able to create a diagram (if necessary) to help understand the problem. Correctly determines which arithmetic operation to use. Calculates correctly. Correctly records the result.	The teacher observes: Does the student understand the instructions? Is able to maintain the necessary concentration. Is able to work independently? Can (s)he extract key information important for solving the problem? Can (s)he correctly determine which arithmetic operation to use to solve the problem? Can (s)he make a diagram that will help him solve the problem? Is able to correctly record the result.	A pencil or a pen An eraser The worksheet	When working with text problems, advise students to: Carefully read the condition of the problem Determine what the key words in the text are. Correctly record what is given and what is sought To make a diagram or drawing / to try to visualize the task/ To correctly select the arithmetic operation or operations. To make a check

ZooMath

Name: _____ Grade: _____ Date: _____

Level 1 Task A Addition without regrouping

Level 1	What do I need to do? Study the example. Write hundreds under hundreds, tens under tens and ones under ones. Add from right to left and check by subtraction. Match each result to its letter to find the national symbol of China.	Materials needed Pencil or pen Eraser
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Example: $637 + 242 = 879$. Check: $879 - 242 = 637$.

$342 + 456 = \underline{\hspace{2cm}}$ Working: $\underline{\hspace{2cm}}$ $\underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}}$	$285 + 614 = \underline{\hspace{2cm}}$ Working: $\underline{\hspace{2cm}}$ $\underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}}$
$735 + 233 = \underline{\hspace{2cm}}$ Working: $\underline{\hspace{2cm}}$ $\underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}}$	$421 + 235 = \underline{\hspace{2cm}}$ Working: $\underline{\hspace{2cm}}$ $\underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}}$
$334 + 423 = \underline{\hspace{2cm}}$ Working: $\underline{\hspace{2cm}}$ $\underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}}$	

Code key: 798 → N 968 → P 656 → D 757 → A 899 → A

The national symbol of China is: ☐ ☐ ☐ ☐ ☐

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

ZooMath

Name: _____ Grade: _____ Date: _____

Level 1 Task B Find the unknown starting number

Level 1	What do I need to do? Find the unknown number by adding the number subtracted to the difference. Check each answer by subtraction. Order the resulting numbers from smallest to largest to work out the order of the animals in the zoo cages.	Materials needed Pencil or pen Eraser
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Example: $\square - 123 = 354$. Calculate $354 + 123 = 477$. Check: $477 - 123 = 354$.

 Deer $\square - 516 = 452 = \underline{\hspace{2cm}}$ Working: _____ Check: _____	 Kangaroo $\square - 521 = 147 = \underline{\hspace{2cm}}$ Working: _____ Check: _____
 Monkey $\square - 205 = 394 = \underline{\hspace{2cm}}$ Working: _____ Check: _____	 Fox $\square - 443 = 344 = \underline{\hspace{2cm}}$ Working: _____ Check: _____



Animal order from smallest result to largest:

1. _____ 2. _____ 3. _____ 4. _____

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

ZooMath

Name: _____ Grade: _____ Date: _____

Level 2 Task A Addition with regrouping

Level 2	What do I need to do? Align the digits by place value. Add the ones first. If a column totals 10 or more, write the ones digit and carry the tens to the next column. Check each calculation. Order the savannah giants by their sums, beginning with the largest.	Materials needed Pencil or pen Eraser
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Examples: one regrouping $476 + 315 = 791$; two regroupings $476 + 345 = 821$.

 Lion $327 + 348 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____	 Buffalo $445 + 326 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____
 Rhino $568 + 126 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____	 Leopard $204 + 317 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____
 Elephant $639 + 272 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____	

Largest sum first: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

ZooMath

Name: _____ Grade: _____ Date: _____

Level 2 Task B Animal weights

Level 2	What do I need to do? Add the numbers and check your results. Write the weight of each animal in kilograms.	Materials needed Pencil or pen Eraser
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 Bear $176 + 174 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____	 Tiger $155 + 145 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____
 Giraffe $432 + 368 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____	 Zebra $277 + 173 = \underline{\hspace{2cm}}$ Working: _____ _____ Check: _____

Bear: _____ kg Tiger: _____ kg Giraffe: _____ kg Zebra: _____ kg

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

ZooMath

Name: _____ Grade: _____ Date: _____

Level 3 The Boar family

Level 3	What do I need to do? Read the problem. Record what you know and what you need to find. Draw a diagram if it helps. Choose the operations, solve and check.	Materials needed Pencil or pen Eraser
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The Boar family consists of a mother, father and two children. The mother weighs 187 kg, and the father is 145 kg heavier than her. The Piglet Girl weighs 89 kg, and her brother weighs 68 kg more.

- How much does the father weigh?
- How much does Piglet Boy weigh?
- How much does the entire Piglet family weigh?

What I know	What I need to find
Solution and check	

Self-check	Teacher's comments
☐ I finished the task.	
☐ I checked my work.	

LESSON PLAN

GRADE:3

CURRICULAR AREA: Arithmetic

SUBJECT: Mathematics

LESSON TOPIC: Numbers up to 1000 – Subtraction with regrouping

LESSON TYPE: new knowledge

SPECIFIC SKILLS: revising the subtraction of 2-digit numbers with regrouping; improving algorithmic culture; acquiring skills for subtracting 3-digit numbers with regrouping

THE PURPOSE OF THE LESSON:

OPERATIONAL OBJECTIVES:

O1 review of the algorithm for performing the action subtraction of two-digit numbers

O2 familiarization with the algorithm for performing the action subtraction of numbers up to 1000 without and with regrouping

O3 skills for correctly performing the action subtraction of numbers up to 1000;

O4 skills for applying new knowledge in real-life situations

TEACHING STRATEGY:

Methods and techniques: lecture, brain storm; activating the previous knowledge; questions and answers, gamification, exercises.

Teaching aids: worksheet, pen or pencil, eraser, coloured pencils or markers

Organisational approaches: frontal, group, individual

Lesson segments/ steps	Op.Ob.	The scientific content of the lesson	Teaching strategy					Evaluation	
			Methods	Teaching aids	Forms of organisation				Timing
					F	G	I		
1. Organizational moment	-	Checking students' readiness for the lesson, Checking homework	-	-	F				3 – 4 min
2. Gaining attention	-	The teacher presents the following situation /or similar/: "You have a long journey ahead of you, several hundred kilometers. You know in advance that you will travel most of the way by bus, but in the last section the road is narrow and the bus cannot pass - you have to walk. How will you find the distance you will have to travel on foot?"	Brain storm	-	F				5 min
3. Announcing the topic and objectives of the lesson	-	Today we will work on subtracting numbers up to 1000 - how we write the numbers one under the other; when we need to “borrow” from the tens or hundreds, how we note the borrowing and how we perform the subtraction itself.	-	-	F				3 min
4. Updating one's knowledge	O1	Recalling the concepts of units, tens, hundreds; what does it mean and what is the value of each digit in the number depending on its place. The teacher writes down several tasks with subtracting two-digit numbers in sequence: first without borrowing; then with borrowing from the tens. Invites different students to perform the actions on the board while simultaneously “sounding out” each step.	Explanation; Questions and answers; exercise	Interactive/ white board; A scheme showing the steps in subtraction without and with borrowing;	F		I		7 min

Lesson segments/ steps	Op.Ob.	The scientific content of the lesson	Teaching strategy					Evaluation	
5. Directing learning	O2; O3	Transferring knowledge of subtracting two-digit numbers to the new topic – Subtracting three-digit numbers. The teacher recalls and explains the concept of “hundreds” as the sum of ten tens. Explains that subtracting multi-digit numbers follows the same steps as subtracting two-digit numbers. Students complete Task A/ from Level 1 of the worksheet (Subtraction without borrowing). The teacher asks questions to remind students of the rule for finding an unknown addendum. Students complete Task B/ from Level 1 of the worksheet. The teacher explains that when subtracting three-digit numbers, the action may require one borrowing (from the tens or from the hundreds) or two borrowings (from the tens and from the hundreds); gives an example. Together with the students, they review and discuss the proposed examples. Students complete the tasks from Level 2 of the worksheet.	Old knowledge – new knowledge; Questions and answers; Exercise	Worksheet, Level 1 and Level 2	F		I		10 min
6. Aiming for performance	O4	Applying new knowledge of subtracting three-digit numbers to solve word problems. Students work on the Level 3 problems on the worksheet. They can work individually or in pairs,	Exercise; Applying the new knowledge in real situation	Worksheet, Level 3		G	I		5 min

Lesson segments/ steps	Op.Ob.	The scientific content of the lesson	Teaching strategy				Evaluation	
7. Concluding the Activity/ Homework	O2, O3, O4	At the end of the lesson, the teacher can offer the students a competitive game to apply their new knowledge. The class is divided into groups of 4 students. Each student draws a number from 1 to 4. Each group receives a sheet with four problems - three for calculation (one without borrowing, one with one borrowing, one with two borrowings) and one word problem. Each student in the group must solve the problem corresponding to their number. If they decide, they can ask for help from the others in the group, after first trying to solve it on their own. The winner is the group that first solves all the problems correctly.	Exercises; gamification	A list with additional tasks; the same for all groups		G		5-6 min

F = frontal G = group I = individual

WORKSHEET Sample: Numbers up to 1000 – Subtraction with regrouping

These worksheets are prepared in 3 levels according to the principle "From easy to difficult":

Level 1: Subtracting numbers up to 1000 without going over (Easy)

- Calculate and check.
- Find the unknown; check.

Level 2: Subtracting three-digit numbers with one addition (Intermediate level)

- Subtracting with one addition (from the tens place).
- Subtracting with two additions (from the tens place and from the hundreds place).

Level 3: Word problems with application of new knowledge (Difficult)

Example: 827 children gathered in the schoolyard. Of these, 639 were in second, third and fourth grades, and the rest were first graders. How many were first graders?

Additional task:

A competitive game, in groups, including elements from all levels of the Worksheet.

Teacher's Notes

Grade: 3

Topic: Numbers up to 1000: Subtraction with/without regrouping

Learning objectives: review of the algorithm for subtracting two-digit numbers; transfer of knowledge in the action of subtracting three-digit numbers without borrowing, with one and two borrowings; formation of the ability to apply new knowledge when solving text problems based on real-life situations

The worksheet was designed by: Asociacia Dyslexia - Bulgaria

Level 1	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	A/ Study the example carefully. Remember how we do the subtraction. Write the numbers one under the other, taking care to place the digits correctly – units under units, tens under tens, and hundreds under hundreds. Perform the subtraction in the direction from the units to the tens and hundreds, writing the result in the appropriate column. Check. Connect the result obtained with the car with the corresponding number. /You can write the digits in different positions using different colours/. B/ 1. Study the example. 2. Remember: we find the unknown additive by subtracting the other additive from the sum. 3. Write the numbers one under the other. 4. Perform the actions. 5. Check. 6. In the circle, write the letter that corresponds to the resulting number. 7. Write the resulting word (each letter must be in the square with the corresponding colour).	The student understands the condition and the given example. Correctly writes the numbers one under the other. Correctly performs the subtraction operation, observing the direction from right to left and writes the result in the corresponding column. Is able to check the obtained result. Can find an unknown additive Correctly transfers information, following the instructions.	The teacher observes: Did the student understand the task correctly? Did (s)he carefully examine and understand the given example? Is (s)he able to maintain the necessary concentration. Is (s)he able to work independently? Does (s)he correctly write the numbers one under the other? Does (s)he work at a good enough pace? Does (s)he need additional explanations? Did (s)he understand the example from task B/ Is (s)he able to solve problems with finding an unknown addend? Does (s)he perform the operations correctly? Is (s)he able to check	A pencil or a pen Coloured pencils or pens An eraser The worksheet	Give the instructions one at a time - wait for the students to complete one operation before giving instructions for the next one. Review the examples given with the students and discuss them. Pay attention to how the numbers are written one under the other, following the rule – units under units, tens under tens, etc. Explain again the direction of the subtraction operation. Provide sufficient time to complete the task. Note that it is important to check before moving on to the next task. Help students who are having difficulty by reminding them of the steps again or asking guiding questions: “Where do we start subtracting?”, “How will we find the unknown additive?”, etc.

Level 2	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	A/ Write the numbers one under the other, taking care to arrange the digits correctly – units under units, tens under tens, etc. Carefully examine the minuend and the subtrahend. Since the number of units in the subtrahend is greater than the number of corresponding units in the subtrahend, you need to “borrow” from the tens, which means transferring one of the tens to the units and then performing the subtraction. Carefully examine the example and follow the steps. Don’t forget to check if you have worked correctly. B/ 1. Write the numbers one under the other, taking care to arrange the digits correctly – units under units, tens under tens, etc. 2. Carefully examine the minuend and the subtrahend: in this case, you need to make two borrowings!!! 3. Since the number of units in the numerator is greater than the number of corresponding units in the subtrahend, you must “borrow” from the tens, which means moving one of the tens to the ones. 4. Since the number of tens in the numerator is greater than the number of corresponding tens in the subtrahend, you must “borrow” from the hundreds, which means moving one of the hundreds to the ones. 5. Look carefully at the example and follow the steps. 6. Don’t forget to check	The student correctly arranges the digits one under the other Understands the meaning of the digit depending on its place in the number. Correctly identifies the units, tens and hundreds. Understands the concepts of subtrahend, minuend and difference Able to correctly subtract by borrowing from the tens and/or hundreds when the digit in the subtrahend is smaller than the digit in the minuend. Can self-correct by following the given example Copes with subtraction tasks with two borrowings – from tens and hundreds Knows how to check	The teacher observes: Does the student understand the instructions? Is (s)he able to maintain the necessary concentration? Is (s)he able to work independently? Is the student aware of the meaning of the digits depending on their place in the number. Understands the concepts of “units”, “tens” and “hundreds”. Can the student correctly perform the subtraction operation if he has to borrow from the tens or hundreds? Can (s)he perform a check? Does the student's pace of work slow down as time progresses?	A pencil or a pen The worksheet	Give the instructions one at a time - wait for the students to complete one action before giving the instruction for the next. Recall the meaning of the concepts of “units”, “tens” and “hundreds” and how the same digit can mean a different quantity depending on its place in the number. Examine and discuss the given example with the students. Provide enough time to complete the task. If a student is having difficulty doing it on his own, recall the concepts or help him with guiding questions: “Can we subtract the larger number from the smaller one? What should we do?”, “How do we note that we borrowed from the tens or hundreds?”, etc. Give the students who are having difficulty the opportunity to seek “help from a friend”.

Level 3	Instruction for a student	Expected answer	Assessment / observation focus	Materials / Resources	Methodological recommendations
	Read the problem statement carefully. Write down what is given. Write down what is required. If necessary, draw a diagram of the problem. Think about what arithmetic operation you will use to find the answer. Check.	The student reads the text problem independently; Is able to extract information from the text and write it down correctly; Is able to make a diagram (when necessary) to help understand and solve the problem. Correctly determines which arithmetic operation to use. Performs the calculation correctly.	The teacher observes: Does the student understand the instructions? Is (s)he able to maintain the necessary concentration. Is (s)he able to work independently? Can (s)he extract key information important for solving the task? Can (s)he correctly determine which arithmetic operation to use? Can (s)he, if necessary, make a diagram that will help him solve the task.	A pencil or a pen An eraser The worksheet	When working with word problems, advise students to: Carefully read the text of the problem (if necessary – more than once). Determine the key words in the text. Correctly write down what is given and what they need to find. In some cases, it is useful to make a diagram or drawing (to try to visualize the problem). Make sure that the students correctly select the arithmetic operation or operations – if necessary, ask a question in advance and comment on the answer. Remind them to check (if necessary – remind them how).

Subtraction Masters

Name: _____ Grade: _____ Date: _____

Level 1 Task A Subtract and check

Level 1	What do I need to do? Study the example. Align hundreds, tens and ones. Subtract from right to left. Check by addition. Match each result to the corresponding carriage number.	Materials needed Pencil or pen Eraser
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Example: $587 - 242 = 345$. Check: $345 + 242 = 587$.

$467 - 232 =$ _____ Working: _____ Check: _____	$749 - 125 =$ _____ Working: _____ Check: _____
$386 - 273 =$ _____ Working: _____ Check: _____	$658 - 150 =$ _____ Working: _____ Check: _____
$599 - 312 =$ _____ Working: _____ Check: _____	

Carriage numbers: 113 624 508 287 235

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

Subtraction Masters

Name: _____ Grade: _____ Date: _____

Level 1 Task B Find the unknown addend

Level 1	What do I need to do? Subtract the known addend from the total to find the missing number. Check by addition. Write the matching letter in the circle, then write the resulting word.	Materials needed Pencil or pen Eraser
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Example: $240 + \square = 354$. Calculate $354 - 240 = 114$. Check: $240 + 114 = 354$.

$\square + 560 = 870$ Letter: ○ Working: _____ _____ Check: _____	$351 + \square = 759$ Letter: ○ Working: _____ _____ Check: _____
$480 + \square = 999$ Letter: ○ Working: _____ _____ Check: _____	$\square + 163 = 574$ Letter: ○ Working: _____ _____ Check: _____
$\square + 205 = 488$ Letter: ○ Working: _____ _____ Check: _____	

Code key from the original worksheet: P → 408 O → 283 B → 310 B → 519 A → 411

Resulting word: ☐ ☐ ☐ ☐ ☐

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

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Level 2 Task A One regrouping

Level 2	What do I need to do? Align the digits by place value. If there are too few ones, exchange one ten for ten ones. Follow the steps and check each answer by addition.	Materials needed Pencil or pen Eraser
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Worked example: $496 - 258 = 238$.

1. Exchange one ten: $496 = 4$ hundreds, 8 tens, 16 ones.
2. Subtract ones: $16 - 8 = 8$; tens: $8 - 5 = 3$.
3. Subtract hundreds: $4 - 2 = 2$. Check: $238 + 258 = 496$.

$346 - 218 =$ _____ Working: _____ _____ Check: _____	$993 - 604 =$ _____ Working: _____ _____ Check: _____
$742 - 327 =$ _____ Working: _____ _____ Check: _____	$870 - 456 =$ _____ Working: _____ _____ Check: _____

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

Subtraction Masters

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Level 2 Task B Two regroupings

Level 2	What do I need to do? Align the digits by place value. Exchange a ten for ten ones and, when needed, a hundred for ten tens. Follow the steps and check each answer.	Materials needed Pencil or pen Eraser
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Worked example: $436 - 258 = 178$.

1. Exchange one ten: $436 = 4$ hundreds, 2 tens, 16 ones.
 2. Exchange one hundred: 3 hundreds, 12 tens, 16 ones.
 3. Subtract: $16 - 8 = 8$; $12 - 5 = 7$; $3 - 2 = 1$.
- Check: $178 + 258 = 436$.

$523 - 347 =$ _____ Working: _____ _____ Check: _____	$818 - 129 =$ _____ Working: _____ _____ Check: _____
$642 - 365 =$ _____ Working: _____ _____ Check: _____	$960 - 386 =$ _____ Working: _____ _____ Check: _____

Self-check	Teacher's comments
☐ I finished the task.	
☐ I checked my work.	

Subtraction Masters

Name: _____ Grade: _____ Date: _____

Level 3 Word problems

Level 3	What do I need to do? Read carefully. Record the given information and what you need to find. Draw a diagram if it helps. Choose the operations, solve and check.	Materials needed Pencil or pen Eraser
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Worked example: There are 827 pupils in the school yard. Of these, 639 are in Grades 2, 3 and 4. The rest are in Grade 1. How many Grade 1 pupils are there?

Given: 827 pupils in total; 639 in Grades 2-4.

Solution: $827 - 639 = 188$ Grade 1 pupils. Check: $188 + 639 = 827$.

A Spring party balloons

For the spring party at school, 670 balloons were bought. Of these, 235 were blue and 48 were yellow. The rest were green. How many green balloons were there?

What I know	What I need to find
Solution and check	

Self-check	Teacher's comments
[] I finished the task.	
[] I checked my work.	

Subtraction Masters

Name: _____ Grade: _____ Date: _____

Level 3 Word problem B

A three-day trip

Alex's family went on a three-day trip covering 700 km. On the first day, they covered 253 km. On the second day, they covered 67 km less than on the first day. How many kilometres did they have to cover on the third day?

What I know	What I need to find
Solution and check	

Self-check	Teacher's comments
☐ I finished the task.	
☐ I checked my work.	