

Grade 3 Student Resource Contents

Resource Title:

The title of the resource relates to an Overall Expectation of the Math Curriculum.

Activity List:

The learning outcome for each activity is listed here. This makes it easier for teachers to target specific concepts for teaching, diagnostic or formative assessment purposes.

SOLVE PROBLEMS INVOLVING ADDITION, SUBTRACTION, MULTIPLICATION, AND DIVISION OF SINGLE AND MULTI-DIGIT WHOLE NUMBERS

Student Activities

<p>Represent, compose, and decompose numbers to 1000</p> <ul style="list-style-type: none"> ■ Connect each base 10 model to its three-digit number.....1 ■ Connect each three-digit number to its base 10 model.....2 ■ Connect each number composition to its decomposition in expanded form.....3 ■ Relate each value to its place in a three- or four-digit number.....4 ■ Relate the position of each digit to its value.....5 <p>Solve problems using addition and subtraction of whole numbers using a variety of tools and strategies</p> <ul style="list-style-type: none"> ■ Relate each addition problem to its corresponding solution.....6 ■ Relate each subtraction problem to its corresponding solution.....7 ■ Connect each problem to its solution.....8 ■ Relate each sum or difference to the two numbers that equal it.....9 ■ Relate each amount of money to its corresponding amount using fewer coins or bills.....10 ■ Connect the cost of each set of items to the amount of change owed.....11 	<p>Represent multiplication and division in a variety of ways</p> <ul style="list-style-type: none"> ■ Compare each quantity to its representation as a number sentence.....12 ■ Connect each set of equal groups to its set of multiplication statements.....13 ■ Connect each array with its multiplication number sentence.....14 ■ Relate each repeated addition sentence to its multiplication number sentence.....15 ■ Connect each picture to its fair share division number sentence.....16 ■ Relate each division number sentence to its fraction statement.....17 ■ Relate each fair share array to its fraction statement.....18 ■ Relate each division sentence to its representation as repeated subtraction.....19 <p>Solve problems using multiplication and division of whole numbers using a variety of tools and strategies</p> <ul style="list-style-type: none"> ■ Connect each problem with its solution.....20 ■ Connect each strategy with its multiplication problem.....21 ■ Relate each multiplication array to its inverse division representation.....22 ■ Connect each problem with its solution.....23 ■ Relate each problem to its solution.....24
---	--

Teacher Section

<p>How to Use QUICKCHECK Math and Tips for Success.....25</p>	<p>Learning Connection Activity Suggestions</p> <ul style="list-style-type: none"> ■ Mathematical Process Expectations: Problem Solving, Representing, and Communicating.....26
--	---

GETTING READY TO USE QUICKCHECK
You need a Student Resource and a case with six tiles.

- Open the Student Resource to Activity 1.
- Put the empty tile case over the Student Resource.
- The CHECKMARK will cover the answer key.
- There are six squares in the top section.
- Place each tile on the square that has the same icon.
- Lift each tile to reveal the image underneath.
- Transfer each tile to its corresponding image below.
- Close the cover of the tile case.
- Flip the tile case up.
- The answer key will appear.
- The tile pattern should match the answer key.

* Watch students using QUICKCHECK Math on our website at www.sbbp.ca Click on QUICKCHECK Math in Motion.

Big Ideas:

Groups of activities are organized around key Math concepts as they relate to the expectation noted in the title.

Teacher Section:

Teachers will find helpful tips and Learning Connections Activity Suggestions at the back of each resource.

Grade 3 Student Resource Activity Page

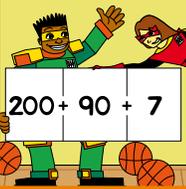
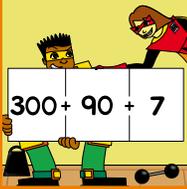
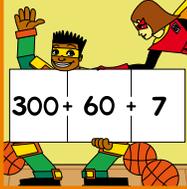
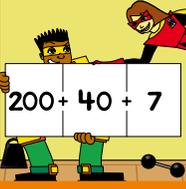
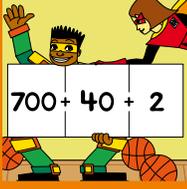
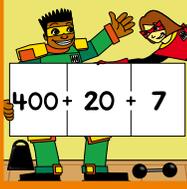
Activity Title:
States the targeted learning outcome:
Teachers know the purpose of the activity at a glance.

Activity Extension:
Provides new information for teachers or, ideas for further development of the activity.

3 Connect each number composition to its decomposition in expanded form.

For the numbers in the top grid, it may help students to think of each digit as representing that number of groups of ones, tens, or hundreds, depending on its place within each number.

 4 2 7	 2 4 7	 7 4 2
 2 9 7	 3 9 7	 3 6 7

 200 + 90 + 7	 300 + 90 + 7	 300 + 60 + 7
 200 + 40 + 7	 700 + 40 + 2	 400 + 20 + 7



1. Match:
Students begin each activity by matching the shape icons on the tiles, to those in the squares of the top grid of the resource.

2. Think & Play:
Students move each tile from the top grid to the correct square in the bottom grid until all the tiles have been transferred.

3. Check:
Students close the cover of the plastic case and flip it up to see if the pattern revealed on the back of the tiles matches this answer key.

Grade 3 Teacher Section

Learning Connection Activity Suggestions: These suggestions are organized around the same key math concepts addressed in the 24 activities. They relate to some of the Mathematical Process Expectations used in the Math Curriculum.

26
TEACHER SECTION

LEARNING CONNECTION ACTIVITY SUGGESTIONS

Mathematical Process Expectations: Problem Solving, Representing, and Communicating

- **Represent, compose, and decompose numbers to three digits**
Flash a base 10 model of a three-digit number on an overhead or whiteboard. Students write the three-digit numeral on a mini whiteboard or paper, or type it into a calculator. Some numbers you might model with the base 10 models are 413, 302, 135, and 560.
Ask students to decompose the following numbers: 730, 828, 107, and 409. Ask: "What number values are there in the number _____? Show me by using or drawing base 10 blocks, or by using expanded form." Place value mats may also be helpful for some students. Students can work on their own, in pairs, or in small groups.
Students can also use coins to represent and compose three-digit numbers. E.g. When using coins, say: "Show me an amount of money that is greater than \$1.00 and less than \$2.00," or, "Show me an amount of money that is almost \$1.75 but not \$1.75. How do you know?"
- **Solve problems using addition and subtraction of whole numbers using a variety of tools and strategies**
Take a look at student-generated algorithms in a problem-solving situation. Pose some problems to students where they are asked to explain their solutions. Look and listen for their strategies. Have paper, pencils, and a hundreds chart available for this activity.
 - The use of any of the following strategies is appropriate for addition: known facts; doubles facts; partitioning (chunking by 100s, 50s or 25s), making tens (decade numbers); adding hundreds, tens and ones; grouping by 10; using an understanding of the associative property of addition. E.g.: "Javed drove for 107 km and his mom drove 204 km. How far did they drive altogether? Show me. Explain how you figured this out."
 - The use of any of the following strategies is appropriate for subtraction: count down to the next friendly number, use known facts, subtraction as adding up, subtraction as the inverse of addition. E.g.: "There were 146 people in the audience at the school play out of which fifty of them were parents. How many were students? Show me. Explain how you figured this out."
- **Represent division in a variety of ways**
Give students opportunities to represent fractions in a variety of ways.
Question 1: Show students a 2 by 4 array of real chocolate bars (being aware of allergies) and ask:
a) "How could I share this chocolate bar with a friend in a fair way?"
b) "Where should I cut/divide the chocolate bar?" Do students say that you would need to cut the chocolate bar in half?

TEACHER SECTION

- **Represent division in a variety of ways (cont'd)**
 - c) "How would I know that I had shared the chocolate bar fairly?" Do students suggest counting the number of squares each person would get to ensure that they get the same amount? 4 is half of 8.
 - d) "What if we wanted to share the chocolate bar with four people? How would we divide the chocolate bar? How many pieces would we have? What fraction name is each piece?" Do students say: "1 out of 4, or one quarter, or one fourth?"
- Question 2:** Now pose the same questions from above using a larger picture of a pizza divided into eight equal-sized pieces.
Pose two more questions.
 - "Which is larger, a half a pizza or half a cookie?" Emphasize that a half or a quarter does not have a constant value. The size/amount it represents is larger or smaller depending on the size of the whole.
 - "If the pizza pieces were different sizes, would it be fair?" Emphasize with students that fair sharing and fractions represent a part of equal-sized pieces.
 - Now can students use a number line or tiles to represent one half of 8 and one fourth of 8?
A cooking activity is a fun way of using the above line of questioning with your students.
- **Solve problems using multiplication and division of whole numbers, using a variety of tools and strategies**
Students have counters, tiles, a hundreds chart, paper, and pencils available as tools to help them solve the following types of problems. What strategies do students use?
Question 1: "There are six tables. Each table has six chairs. What is the total number of students that can sit at the tables? How do you know? Show me/tell me."
Some appropriate strategies:
 - Students know that 6 x 5 is 30. They add one more 6 to 30 to get the answer to 6 x 6: 36 students (partitioning and using known facts).
 - Students count by 6s (6, 12, 18, 24, 30, 36) using a hundreds chart.
 - Students use an open number line and/or repeated addition (6 + 6 + 6 + 6 + 6 = 36), or they chunk 6 + 6 = 12, three times and know 12 + 12 = 36, or 3 groups of 12 = 36.
- Question 2:** "Keyshawn spent \$30.00 for lunch at school one week. He spent the same amount every day. How much did he spend each day on lunch? How do you know? Show me/tell me."
Some appropriate strategies:
 - Students use an open number line and/or repeated subtraction (30 - 5 = 25, 25 - 5 = 20, 20 - 5 = 15, 15 - 5 = 10, 10 - 5 = 5, 5 - 5 = 0). Therefore, he spent \$6.00 per day.
 - Students use their knowledge of basic facts and the understanding that division is the inverse operation to multiplication. E.g., 6 x 5 = 30, so 30 divided by 5 days = 6 (\$6.00).