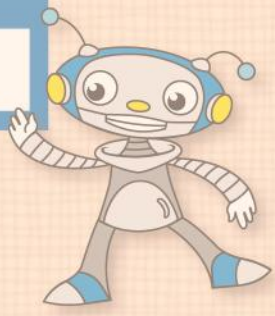
QUICKCHECK™ MATH



Grade level
Grade 3

KINESIS EDUCATION

NUMBER SENSE AND NUMERATION

Solve Problems Involving Addition, Subtraction, Multiplication, and Division of Single and Multi-Digit Whole Numbers

QUICKCHECK™ MATH

Strand

KINESIS EDUCATION

Book title

KINESIS EDUCATION

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

Student Activities

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

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

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

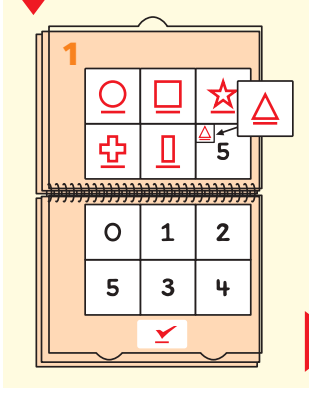
Teacher Section

How to use KINESIS EDUCATION

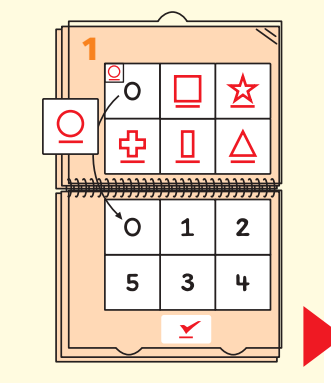
Teachers will find helpful tips and Learning Connections Activity Suggestions at the back of each resource. KINESIS EDUCATION

GETTING READY TO USE QUICKCHECK

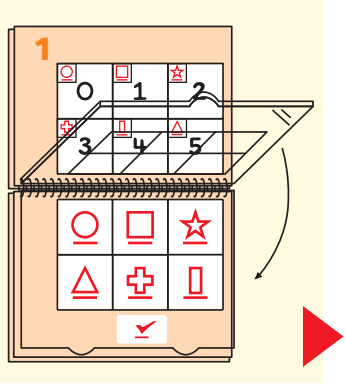
You need a Student Resource and a case with six tiles



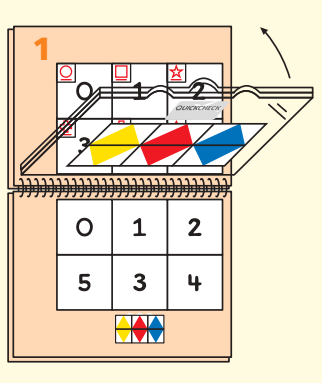
- Open the Student Resource to Activity **1**.
- **Put the empty tile case over the Student Resource.**
- The CHECKMARK will cover the answer key.
- There are six squares in the top section.
- Place each tile on the square that has the same icon.



- 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.

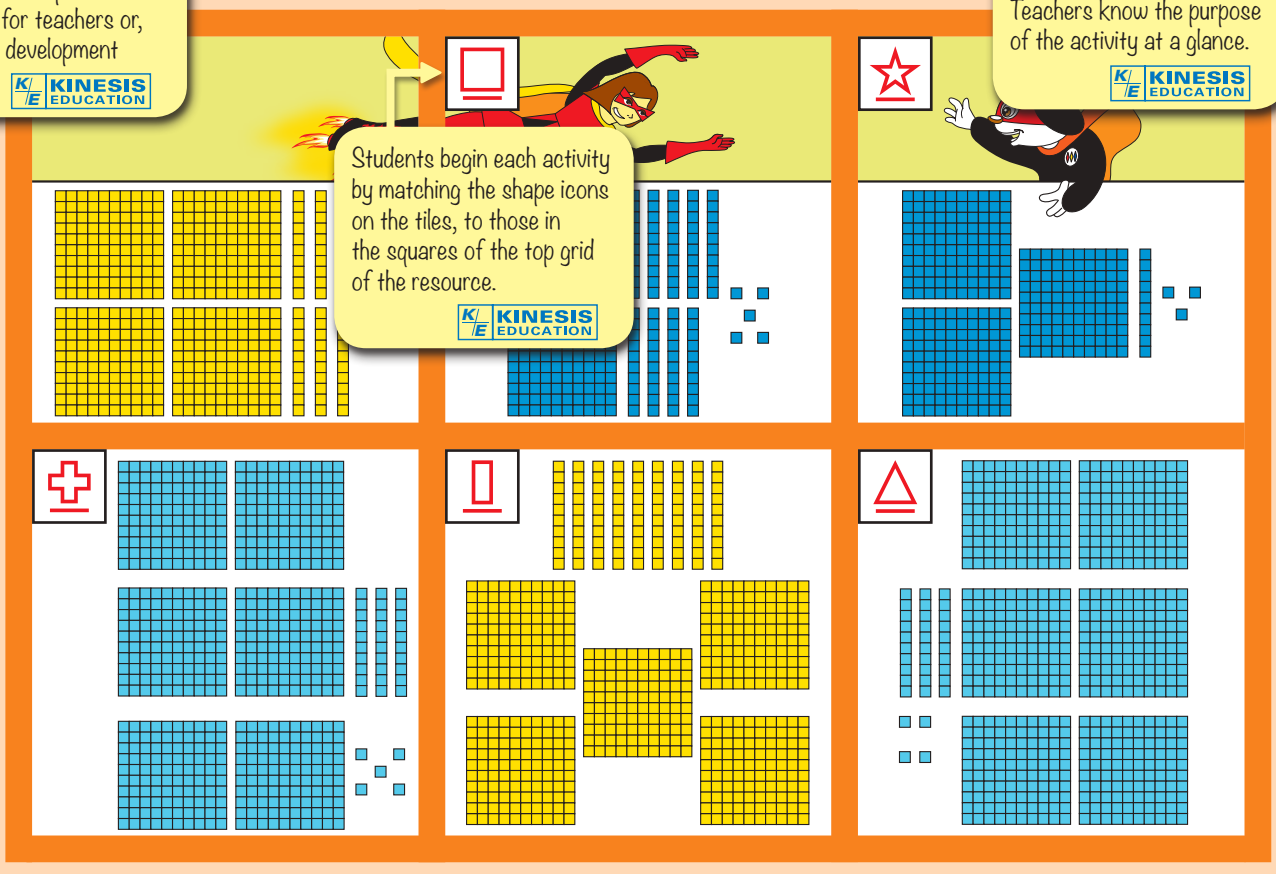
- **Watch students using *QUICKCHECK Math* on our website at www.ebbp.ca. Click on *QUICKCHECK Math in Motion.***

1 Connect each base 10 model to its three-digit number.

■ This activity is the first of five that deal with representing, composing, and decomposing three- and four-digit numbers.

The activity extension provides new information for teachers or, ideas for further development of the activity.

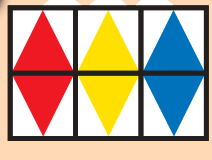
The activity title states the targeted learning outcome: Teachers know the purpose of the activity at a glance.



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

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

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.



If ■ appears below the activity title:

Educators will then find new information or ideas for further development of the activity.

+ 23 activities

How to Use QUICKCHECK Math

1. Use QUICKCHECK Math with your students whenever you would normally use a worksheet or workbook.

— Use it at any point in your math lesson:

Before/getting started
During/working on it
After/practice and consolidation.

— You can use QUICKCHECK Math as a small group or guided activity, in pairs to promote discussion, or as an independent activity in a Math Centre.

2. Use QUICKCHECK Math as an a

The Student Activities found on
cover list learning outcomes that will help target specific concepts for **diagnostic** or **formative** assessment purposes.

This Student Resource is used in conjunction with the QUICKCHECK Math Grade 3 Ongoing Assessment Teacher Resource.

Additional proposals for the teacher

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Activity Extension:

If ■ appears below the activity title:

Educators will then find new information or ideas for further development of the activity.

Tips for Success

Review "Getting Ready to Use QUICKCHECK" on the first page of this book.

The CHECKMARK ✓ at the bottom of the plastic tile case shows students how to orient the case as they place it on the book on top of each activity.

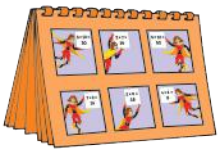
To teach your students how to use QUICKCHECK Math, try a three-step approach.

1. **Match**: Place all the tiles in the top grid by matching icons.
2. **Think and Play**: Lift each tile to reveal the image beneath and then transfer the tile to the corresponding image in the lower grid.
3. **Check**: Close the case cover. Flip the case up and check that the tile pattern matches the answer key.

When information appears below the title of an activity, use it to guide instruction and discussion, or to provide a hands-on extension of the activity.

Fold the Student Resource in half or stand it up and use the visual information as the stimulus for activities you create on your own.

See Activity 14



LEARNING CONNECTION ACTIVITY SUGGESTIONS

Mathematical Process Expectations: Problem Solving, Representing, and Communicating

These learning connection activity 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.

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Represent, compose, and decompose numbers to three digits

Flash a base 10 model of a three-digit number on an overhead or whiteboard. Studer
on a mini whiteboard or paper, or type it into a calculator. Some numbers you might
are 413, 302, 135, and 560.

Ask students to decompose the following numbers: 730, 828, 107, and 409. Ask: "Wh
number _____? Show me by using or drawing base 10 blocks, or by using expanded f
be helpful for some students. Students can work on their own, in pairs, or in small gr

Students can also use coins to represent and compose three-digit numbers. E.g. Whe
an amount of money that is greater than $1.00 and less than $2.00," or, "Show me ar
$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 or use 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?

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 + 6 = 36), or they chunk 6 + 6 = 12, three times and know 12 + 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).

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The 5 mathematical strands for the Grade 3 level

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NUMBER SENSE AND NUMERATION

Solve Problems Involving Addition, Subtraction, Multiplication, and Division of Single and Multi-Digit Whole Numbers

MEASUREMENT

Compare, Describe, and Order Objects, Temperature, and Time Using Standard Units

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