QUICKCHECK™ MATH

GEOMETRY AND SPATIAL SENSE

Compose and Decompose Shapes and Figures

Strand

KINESIS EDUCATION

QUICKCHECK™ MATH

Book title

KINESIS EDUCATION

Grade level
Grade 2

KINESIS EDUCATION

K/E

COMPOSE AND DECOMPOSE SHAPES AND FIGURES

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

Student Activities

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

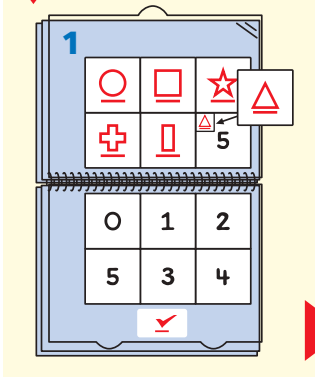
Teacher Section

How to use KINESIS EDUCATION

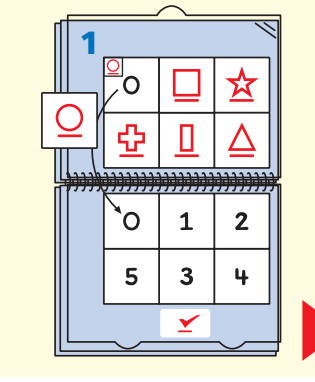
Teachers will find helpful tips and Learning Connections Activity Suggestions at the back of each resource. KINESIS EDUCATION

GETTING READY TO USE QUICKCHECK

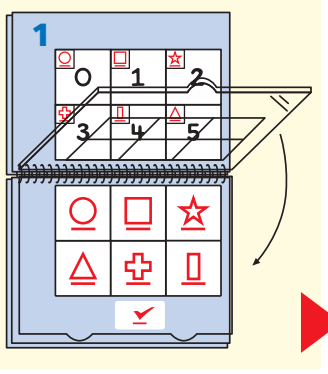
You need a Student Resource and a case with six tiles



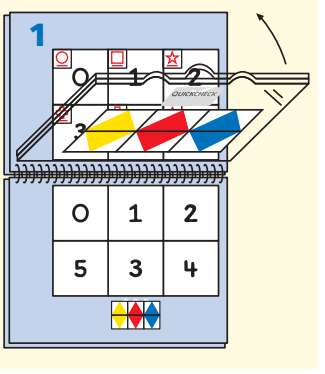
- Open the Student Resource to Activity **1**.
- **Put the empty tile case over the Student Resource.**
- The CHECKMARK will cover the answer key.
- There are six squares in the top section.
- Place each tile on the square that has the same icon.



- 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 Match polygons with the same geometric properties.

■ Have students label each pair of polygons. Throughout this book, help your students distinguish which attributes of shapes and figures are geometric and which are not.

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

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

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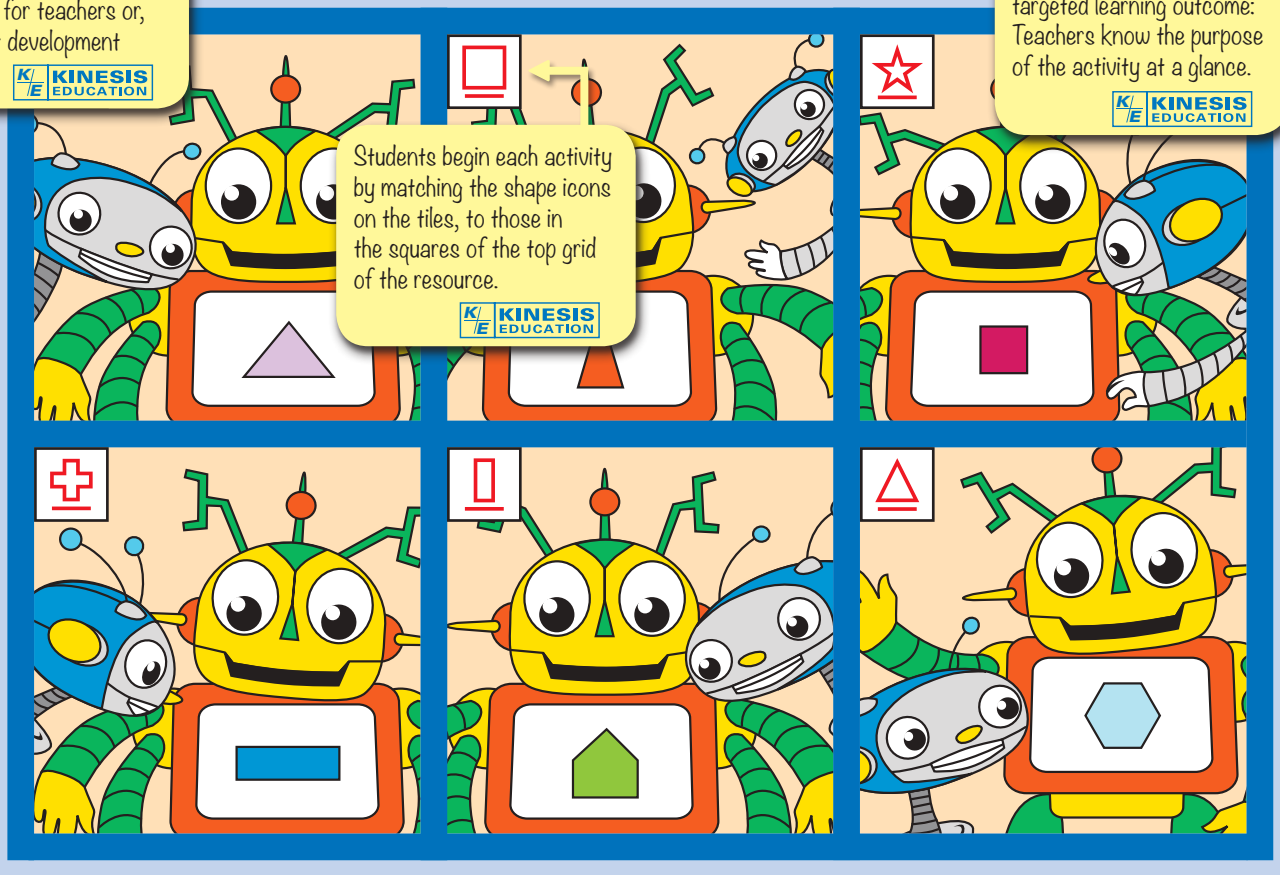

Students begin each activity by matching the shape icons on the tiles, to those in the squares of the top grid of the resource.

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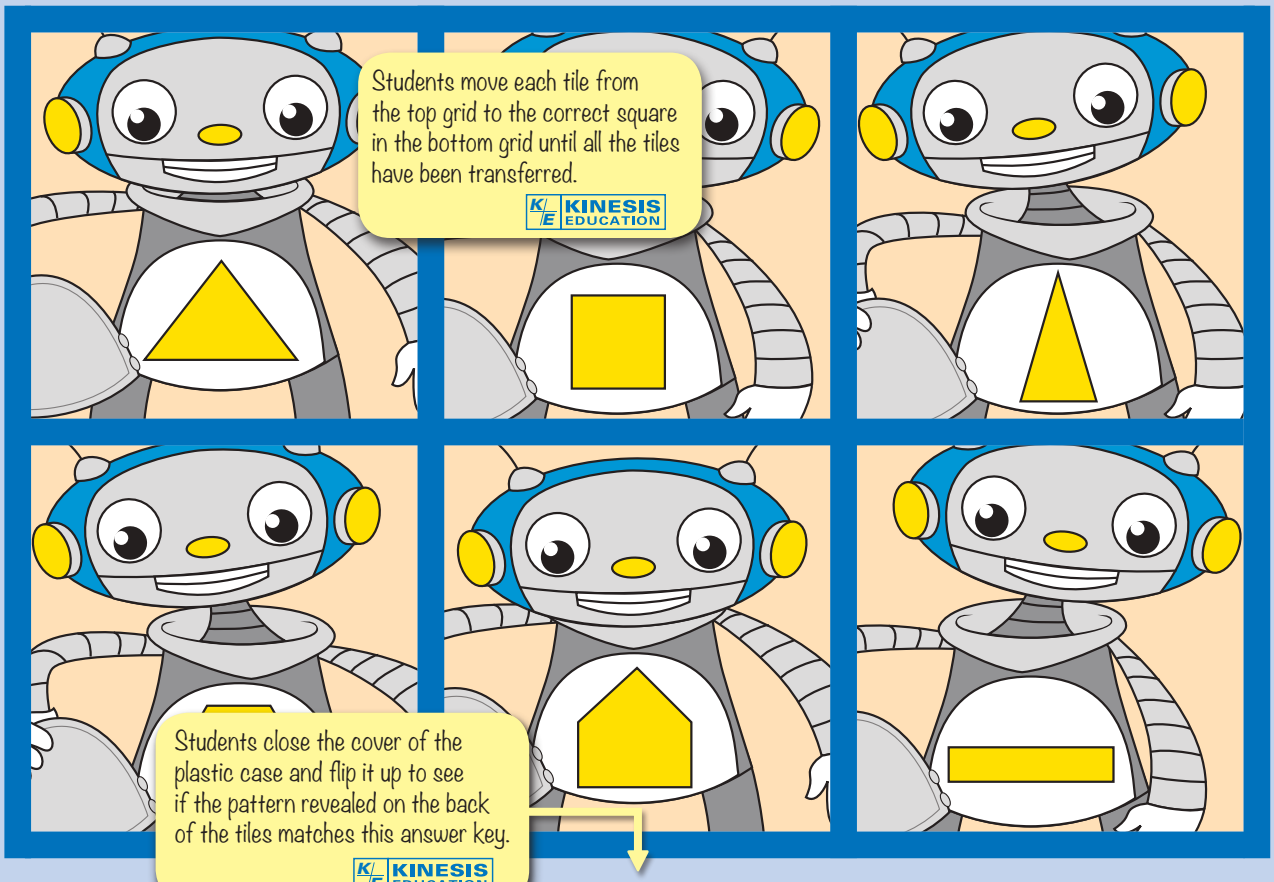

Students move each tile from the top grid to the correct square in the bottom grid until all the tiles have been transferred.

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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.

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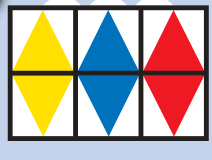

If ■ appears below the activity title:

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

+ 23 activities

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How to Use QUICKCHECK Math

Additional proposals for the teacher

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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 2 Ongoing Assessment Teacher Resource.

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 15

LEARNING CONNECTION ACTIVITY SUGGESTIONS

Mathematical Process Expectations: Reflecting, Connecting 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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Sort and classify various polygons by their geometric properties

Have students fold a piece of paper in half. Then have them draw one polygon on one side of the fold and a different polygon on the other side.

Now have students draw polygons on each side that have the same number of vertices as the first two that they drew. Have students look at one side at a time and identify whether or not there are different shapes represented. Now have the students count the number of sides of each shape. "What do you notice about the number of vertices and the number of sides of the shapes you drew? Are you surprised? Why or why not?" Finally, have your students look at the polygons they drew on the other half and repeat the tasks they followed for the polygons on the first half. "What can we say that is true about all polygons?"

Compose patterns, pictures and designs using two-dimensional shapes

Have students compose a symmetrical design using pattern blocks. Ask students to describe how their design is symmetrical.

Can they create the same pattern using a geoboard? Have students identify lines of symmetry using a different colour of elastic.

TEACHER SECTION

Compose and decompose shapes within other shapes

Make an equilateral triangle template (each side 7.5 cm long) for your students with six triangles per page.

Photocopy enough so that students can have two pages if they need them. Using pattern blocks, how many different ways can your students cover the triangle?

Challenge

How many different ways can your students find to cover the template using only two smaller pattern blocks? Make a graph that shows the decomposition of each way. For help with the graph, have your students review Activity 18 from this book.

Sort, classify, compose and decompose three-dimensional figures according to their geometric properties

Using three-dimensional figures, have partners or small groups build a structure no more than 30 cm high and 50 cm wide. Each group must include figures that roll and slide in their structure. Give the groups a time limit for building.

Have each group identify each figure used and define it according to one of its geometric properties, e.g. number of straight sides, vertices, faces or surfaces. A T-chart could be used to summarize this information.

Next, ask groups to create a graph that describes the number and type of each figure used in the structure. Referring to its geometric properties, each group needs to explain why they used the figures they did for the base, top, etc. of their structure.

Challenge

Give each group a chance to change their structure and make it better. Once changes are completed, provide time for groups to share with their classmates their thought process at the beginning of the task, and how their thoughts changed as they continued building. As well, students need to describe why they made the changes they did and whether or not they improved their structures.

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The 5 mathematical strands for the Grade 2 level

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