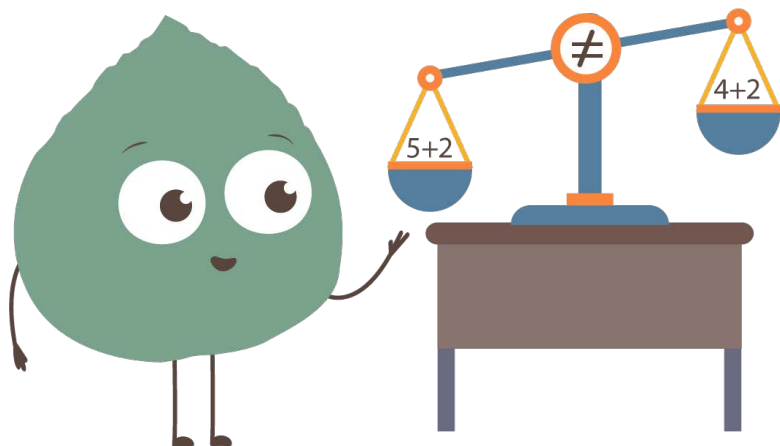


# MODEL

K - 3

To represent a concept or situation in a concrete, pictorial, or symbolic way.



**Modeling** requires that students represent a math concept or idea. Students need to select an idea to represent, identify the key elements and then produce a concrete, pictorial or symbolic representation. For example, using a balance scale to show that  $5 + 2$  is not equal to  $4 + 2$ .

The table below shows where **model** is included as student action within Alberta's K-3 Math curriculum.

Grade Level	Learning Outcomes	Skills & Procedures
Kindergarten		
Grade 1		<b>Model</b> addition and subtraction within 20 in various ways, including with a balance. <b>Model</b> two-dimensional shapes.
Grade 2		<b>Model</b> even and odd quantities by sharing and grouping. <b>Model</b> equality and inequality between two quantities, including with a balance. <b>Model</b> a unit fraction by partitioning a whole object or whole set into equal parts, limited to 10 or fewer equal parts.

# MODEL

To represent a concept or situation in a concrete, pictorial, or symbolic way.

Grade Level	Learning Outcomes	Skills & Procedures
Grade 3		<p><b>Model</b> regrouping by place value for addition and subtraction.</p> <p><b>Model</b> a quotient by partitioning a quantity into equal groups or groups of a certain size, with or without remainders.</p> <p>Visualize and <b>model</b> products and quotients as arrays.</p> <p><b>Model</b> fractions of a whole quantity, length, shape, or object, in various ways, limited to denominators of 12 or less.</p> <p><b>Model</b> equations that include an unknown value, including with a balance.</p>



To best support learners, student action verbs should be explicitly taught, modeled and practiced through multiple experiences. The illustrative examples can provide clarification about how student understanding might be developed. It is important to reference the curriculum to view the entire context of the Learning Outcome and related KUSPS.

## Illustrative Examples

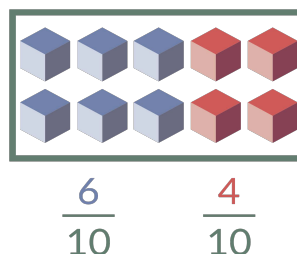
Skills and Procedures (2N1.3): **Model** even and odd quantities by sharing and grouping.



1. **Model** even and odd by having students line up in pairs. Ask, "Do we have an even number or an odd number of students here today? How do you know?"
2. Use a set of bear counters (any type of counter will work as well). In partners, students take turns taking a handful of counters, pairing them up to check, and then recording the results. Do you have an even or odd number of bears?

Skills and Procedures (3N1): **Model** fractions of a whole quantity, length, shape, or object, in various ways, limited to denominators of 12 or less.

1. **Model** and explain the meaning of numerator and denominator using coloured blocks (Eg. in the group of 10 blocks, what fraction is coloured blue? coloured red?)



2. **Model** fractions using pattern blocks. Use hexagons as wholes and green triangles as the parts.  
Have students show the fraction  $\frac{1}{6}$  and the fraction  $\frac{3}{6}$ .

## **Additional Resources**

[Manitoba Education's Grade 2 Mathematics: Number Instruction Suggestions \(page 15\).](#)

[Manitoba Education's Grade 2 Mathematics Support Document.](#)

[Manitoba Education's Grade 3 Mathematics: Number Instruction Suggestions \(page 100\).](#)

[Manitoba Education's Grade 3 Mathematics Support Document.](#)

[Mathigon Interactive Manipulatives.](#)

## **References**

Manitoba Education. (n.d.). *Education and Early Childhood Learning.*

Mathematics: <https://www.edu.gov.mb.ca/k12/cur/math/index.html>

Manitoba Education. (n.d.). *Grade 3 Mathematics: Number.* 15, 100.

[www.edu.gov.mb.ca/k12/cur/math/support\\_gr3/number.pdf#page=15](https://www.edu.gov.mb.ca/k12/cur/math/support_gr3/number.pdf#page=15)

[www.edu.gov.mb.ca/k12/cur/math/support\\_gr3/number.pdf#page=100](https://www.edu.gov.mb.ca/k12/cur/math/support_gr3/number.pdf#page=100)

Mathigon. (n.d.). *Mathigon Polypad.* <https://mathigon.org/polypad/>