

THE HERO ACADEMY

The Hero's Quest for Knowledge Curriculum

The Architect's Blueprint

Adult Teaching Guide

Mathematics

Veritas. Virtus. Scientia.

Truth. Virtue. Knowledge.

Brandon Mysliwiec

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MATH-K-01 | printable section

Includes MATH-K-01. These introductory sections do not constitute a complete kindergarten course or a finished K-12 curriculum.

The four companion books

The Student Book explains concepts through reading, examples, and diagrams. The Adult Teaching Guide provides modeling and supported practice. The Student Workbook holds activities and checks. The Answer and Assessment Guide supplies keys, criteria, and retry guidance.

The K-12 learning roadmap is the plan for future content, not a lesson book. These four growing books contain only the sections listed below.

Using this edition

A beginning reader needs an adult to read the explanatory passages aloud. Independent word reading is expected only for explicitly taught patterns in Reading. An adult supplies safe materials and supports access; oral responses, pointing, or drawings can demonstrate the same skill.

Lesson and activity IDs stay together across the four books. For example, a lesson ending L01 links to the activity ending W01 in the same unit. Each unit finishes with its A01 section check. Matching edition 0.3 components should be used together.

Contents

MATH-K-01 | Counting and quantities

MATH-K-01-L01 - One object, one count

MATH-K-01-L02 - The last number tells how many

MATH-K-01-L03 - Numerals record quantities

Learning at an individual pace

The learner revisits the relevant explanation after feedback, then tries a fresh example. Successful demonstration of each target is a suggested local progression rule, not a validated placement score. Personal beliefs and agreement with the author are never graded.

Counting and quantities

Before this section

No numeral writing or independent reading is required. The learner may point, move objects, or answer orally.

Materials

Five large blocks or other age-appropriate counting objects, paper for numeral cards, a pencil, and the workbook. An adult checks that objects are safe to handle.

MATH-K-01-L01

One object, one count

Count a small group without skipping or counting an object twice.

A count answers a question about how many objects are in a group. A counting word is said for each object. For a group of three blocks, the counting words are one, two, three. The last word, three, tells how many blocks are in the group.

An adult puts three blocks in a row. The adult touches the first block while saying one, the second while saying two, and the third while saying three. After the final touch, the adult says that the group contains three blocks. Touching or moving each block helps keep track of objects already counted.

The learner repeats with one block, then two, then three. The objects may be large or small, but each object receives one counting word. When an object is counted twice, the result no longer describes the

group accurately. The group can be counted again without blame; checking is part of mathematical work.

Model an example

Worked example: A row contains a cup, a spoon, and a plate. Counting each once gives one, two, three. The group contains three objects even though the objects have different names.

Supported practice

An adult presents groups of one, two, and three blocks in a new order. The learner touches each object while counting, then states the total.

Student and workbook links

The Student Book uses MATH-K-01-L01 and its accompanying visual. Then the learner completes MATH-K-01-W01, items 1-3. The answer guide uses that same activity ID.

Picture-reading support

Point to each of three real blocks while counting aloud once per block.

Read three aloud, then let the learner recount or point.

Move the same blocks; recount to check.

The last number tells how many

Recognize that rearranging an unchanged group does not change its quantity.

A group of four blocks can be placed in a row, a square, or a loose cluster. Moving the blocks does not add a block or take one away. The group still contains four blocks. Counting can check this.

The adult counts four blocks in a row, slowly and once per block. The learner watches as the adult spreads the same blocks farther apart. The adult asks whether a block was added or removed. None was. The learner counts again to check the total.

Space and quantity describe different things. A spread-out group can occupy more space without containing more objects. Before comparing totals, the learner counts the objects rather than using the length of a row alone. A careful explanation can be short: there are still four because no blocks were added or removed.

Model an example

Worked example: Three blocks are close together. The same three blocks are moved to the corners of a triangle. The shape of the arrangement changes; the count remains three.

Supported practice

The learner counts four blocks, rearranges them, and recounts. An adult then adds one block and models the words one, two, three, four, five.

Student and workbook links

The Student Book uses MATH-K-01-L02 and its accompanying visual. Then the learner completes MATH-K-01-W02, items 1-3. The answer guide uses that same activity ID.

Picture-reading support

Count four real blocks before moving them.

Rearrange the same four, matching the two rows of the diagram.

The picture shows four before and after moving. Add a fifth real block and count it; five is shown by the activity, not this unchanged diagram.

MATH-K-01-L03

Numerals record quantities

Match the numerals 0-5 to small quantities.

A numeral is a written symbol for a number. The symbols 1, 2, 3, 4, and 5 can record the totals of the groups practiced in this section. The symbol 0 records a quantity of none.

The adult shows a group of two blocks and the numeral 2. The blocks are objects that can be moved; the numeral is a written way to record their number. The adult repeats with 1, 3, 4, and 5, counting the corresponding group each time.

An empty space where blocks were placed contains no blocks. The numeral 0 can label that empty group. The learner may choose a numeral card instead of writing it. Forming a numeral neatly is a separate skill from understanding the quantity it represents.

Model an example

Worked example: A tray has five blocks. Its label is 5. After all blocks are removed, its label is 0 because no blocks remain.

Supported practice

The adult writes cards 0, 1, 2, 3, 4, and 5. The learner pairs the cards with groups and an empty space. Cards and groups are rearranged for a second attempt.

Student and workbook links

The Student Book uses MATH-K-01-L03 and its accompanying visual. Then the learner completes MATH-K-01-W03, items 1-3. The answer guide uses that same activity ID.

Picture-reading support

Introduce the printed numeral aloud and match two actual counters.

Introduce five aloud and count the five illustrated counters.

Point to the empty group labeled 0 and say zero; independent decoding is not assumed.

MATH-K-01-A01

Section check

After the lessons, the learner completes MATH-K-01-A01 in the workbook. The assessment guide supplies criteria. An adult reads the directions and records any access support.

Revisit and retry

Return to two or three objects, move each counted object into a second area, and retry with a new arrangement. Delay additional numerals until small quantities are secure.

Sources and content notes

Instruction, practice tasks, and illustrative examples were authored for this series. Invented scenes and diagrams are not historical evidence or measured research data. Source references support the specific concepts below, not a claim of complete topic coverage.

MATH-K-01

Editorial learning sequence: count and match concrete groups before joining, separating, and recording parts. Placement follows demonstrated understanding, with oral and object-based responses. This introductory section does not cover all elementary mathematics.

NAS-COUNTING-2001 | Adding It Up (2001), Chapter 5: The Mathematical Knowledge Children Bring to School

Research background for counting, matching quantities, and early arithmetic. The authored examples and pictures are original. This chapter does not prescribe this thirteen-level sequence or establish its completeness.

<https://www.nationalacademies.org/read/9822/chapter/7>

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