

Mathletics

Tennessee Program of Studies

Skill Quests



Grades 1 – 2

January, 2023

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Grade 1

1 Operations & Algebraic Thinking

1.1 Represent and solve problems involving addition and subtraction.

| Outcome | Quests | Content |
|---|---|---|
| Add and subtract within 20 to solve contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem. | Add & subtract within 20, word problems | Creating addition & subtraction word problems |
| Add three whole numbers whose sum is within 20 to solve contextual problems using objects, drawings, and equations with a symbol for the unknown number to represent the problem. | Add 3 single-digit numbers | Adding 3 single-digit numbers |

1.2 Understand and apply properties of operations and the relationship between addition and subtraction.

| Outcome | Quests | Content |
|---|------------------------------------|--|
| Apply properties of operations (additive identity, commutative, and associative) as strategies to add and subtract. | Apply properties to add & subtract | Using the commutative property of addition |

1.3 Understand and apply properties of operations and the relationship between addition and subtraction.

| Outcome | Quests | Content |
|--|---|---|
| Add and subtract within 20 using strategies such as counting on, counting back, making 10, using fact families and related known facts, and composing/ decomposing numbers with an emphasis on making ten. | Relate counting to adding & subtracting | Relating counting to adding & subtracting |
| Fluently add and subtract within 20 using mental strategies. | Add & subtract within 20 | Adding & subtracting within 10 fluently |
| | | Subtracting numbers within 20 |
| | | Adding & subtracting zero within 20 |
| | | Adding doubles to 20 |
| | | Adding by making 10 |
| | | Subtracting using doubles |
| | | Adding & subtracting with fact families |

1.4 Work with addition and subtraction equations.

| Outcome | Quests | Content |
|--|--|--|
| Understand the meaning of the equal sign. Determine if equations involving addition and subtraction are true or false. | Recognize equality & inequality | Recognizing equality & inequality |
| Determine the unknown whole number in an addition or subtraction equation, with the unknown in any position. | Find the unknown number in an equation | Finding the unknown: addition/subtraction equation |

2 Number & Operations in Base Ten

2.1 Extend the counting sequence.

| Outcome | Quests | Content |
|--|------------------|--|
| Count to 120, starting at any number. Read and write numerals to 120 and represent a number of objects with a written numeral. Count backward from 20. | Count within 100 | Counting within 100 |
| | | Reading & writing 2-digit numerals |
| | | Representing 2-digit objects as numerals |

2.2 Understand place value.

| Outcome | Quests | Content |
|---|-------------------------|---------------------------|
| Know that the digits of a two-digit number represent groups of tens and ones. | Understand tens & ones | Understanding tens & ones |
| Compare two two-digit numbers based on the meanings of the digits in each place and use the symbols $>$, $=$, and $<$ to show the relationship. | Compare 2-digit numbers | Comparing 2-digit numbers |

2.3 Use place value understanding and properties of operations to add & subtract.

| Outcome | Quests | Content |
|--|-------------------------|--|
| Add a two-digit number to a one-digit number and a two-digit number to a multiple of ten (within 100). Use concrete models, drawings, strategies based on place value, properties of operations, and/or the relationship between addition and subtraction to explain the reasoning used. | Add within 100 | Adding a 2-digit number & a 1-digit number, models |
| | | Adding a 2-digit number & a 1-digit number |
| | | Adding a 2-digit number & a multiple of 10 |
| Mentally find 10 more or 10 less than a given two-digit number without having to count by ones and explain the reasoning used. | Find 10 more or 10 less | Finding 10 more or 10 less |

3 Measurement & Data

3.1 Measure lengths indirectly and by iterating length units.

| Outcome | Quests | Content |
|--|-----------------------------------|------------------------------------|
| Order three objects by length. Compare the lengths of two objects indirectly by using a third object. | Order & compare objects by length | Comparing & ordering lengths |
| Measure the length of an object using non-standard units and express this length as a whole number of units. | Express the length of an object | Expressing the length of an object |

3.2 Tell and write time.

| Outcome | Quests | Content |
|--|-----------|----------------------------------|
| Tell and write time in hours and half-hours using analog and digital clocks. | Tell time | Telling time with analog clocks |
| | | Telling time with digital clocks |

3.3 Represent and interpret data.

| Outcome | Quests | Content |
|--|--------------------------------------|--|
| Organize, represent, and interpret data with up to three categories. Ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. | Organize, represent & interpret data | Introducing & reading data in tables |
| | | Representing data in graphs |
| | | Interpreting tally charts & picture graphs |

4 Geometry

4.1 Reason with shapes and their attributes.

| Outcome | Quests | Content |
|--|---------------------------------|------------------------------------|
| Distinguish between attributes that define a shape versus attributes that do not define the shape; build and draw two-dimensional shapes to possess defining attributes. | Sort shapes based on attributes | Sorting shapes based on attributes |
| Create a composite shape and use the composite shape to make new shapes by using two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, rectangular prisms, cones, and cylinders). | Composite shapes: 2-D & 3-D | Composite shapes: 2-D & 3-D |

Grade 2

1 Operations & Algebraic Thinking

1.1 Represent and solve problems involving addition and subtraction.

| Outcome | Quests | Content |
|--|--|---|
| Add and subtract within 100 to solve one- and two-step contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem. | Add & subtract within 100, word problems | Creating addition & subtraction word problems |

1.2 Add and subtract within 20.

| Outcome | Quests | Content |
|--|--------------------------|---|
| Fluently add and subtract within 30 using mental strategies. | Add & subtract within 20 | Fluently adding & subtracting within 20 |

1.3 Work with equal groups of objects to gain foundations for multiplication.

| Outcome | Quests | Content |
|--|---------------------------|------------------------------|
| Determine whether a group of objects (up to 20) has an odd or even number of members by pairing objects or counting them by 2s. Write an equation to express an even number as a sum of two equal addends. | Odd & even numbers | Odd & even numbers up to 20 |
| Use repeated addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. | Connect addition & arrays | Connecting addition & arrays |

2 Number & Operations in Base Ten

2.1 Understand place value.

| Outcome | Quests | Content |
|---|----------------------------------|--|
| Know that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. | Understand hundreds, tens & ones | Understanding hundreds, tens & ones |
| Count within 1000. Skip-count within 1000 by 5s, 10s, and 100s, starting from any number in its skip counting sequence. | Skip-count within 1000 | Skip-counting by 10s Skip-counting by 5s Skip-counting by 100s Counting within 1000 |
| Read and write numbers to 1000 using standard form, word form, and expanded form. | Read & write numbers to 1000 | Reading & writing numbers to 1000 |
| Compare two three-digit numbers based on the meanings of the digits in each place and use the symbols $>$, $=$, and $<$ to show the relationship. | Compare 3-digit numbers | Comparing 3-digit numbers |

2.2 Use place value understanding and properties of operations to add and subtract.

| Outcome | Quests | Content |
|--|-----------------------------------|---|
| Fluently add and subtract within 100 using properties of operations, strategies based on place value, and/or the relationship between addition and subtraction. | Add & subtract within 100 | Using strategies to add & subtract within 100 Adding & subtracting using a 100 chart |
| Add up to four two-digit numbers using properties of operations and strategies based on place value. | Add 2-digit numbers, strategies | Adding 2-digit numbers, strategies |
| Add and subtract within 1000 using concrete models, drawings, strategies based on place value, properties of operations, and/or the relationship between addition and subtraction to explain the reasoning used. | Add & subtract within 1000 | Adding within 1000 Subtracting within 1000 |
| Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. | Add & subtract 10 or 100 mentally | Adding & subtracting 10 or 100 mentally |

3 Measurement & Data

3.1 Measure and estimate lengths in standard units.

| Outcome | Quests | Content |
|---|--------------------------------|-----------------------------------|
| Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | Select units of measure: m, cm | Selecting units of measure: m, cm |

3.2 Relate addition and subtraction to length.

| Outcome | Quests | Content |
|---|--|--|
| Add and subtract within 100 to solve contextual problems involving lengths that are given in the same units by using drawings and equations with a symbol for the unknown to represent the problem. | Addition & subtraction length problems | Solving addition & subtraction length problems |

3.3 Work with time and money.

| Outcome | Quests | Content |
|---|-----------|--|
| Tell and write time in quarter hours and to the nearest five minutes (in a.m. and p.m.) using analog and digital clocks. | Tell time | Telling time to the quarter hour, analog & digital |
| | | Telling time to 5 minutes, analog & digital |
| | | Using a.m. & p.m. notation |
| Solve contextual problems involving dollar bills, quarters, dimes, nickels, and pennies using ¢ and \$ symbols appropriately. | Money | Recognizing bills & coins |
| | | Solving money word problems |

3.4 Represent and interpret data.

| Outcome | Quests | Content |
|--|----------------------------|--------------------|
| Generate measurement data by measuring lengths of several objects to the nearest whole unit. | Introduction to line plots | Reading line plots |

| | | |
|---|-----------------------------|----------------|
| Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. | | |
| Draw a pictograph and a bar graph (with intervals of one) to represent a data set with up to four categories. Solve addition and subtraction problems related to the data in a graph. | Picture graphs & bar graphs | Picture graphs |
| | | Bar graphs |

4 Geometry

4.1 Reason about shapes and their attributes.

| Outcome | Quests | Content |
|--|-----------------------------|------------------------------|
| Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. Draw two-dimensional shapes having specified attributes (as determined directly or visually, not by measuring), such as a given number of angles or a given number of sides of equal length. | Recognize & identify shapes | Identifying & sorting shapes |
| | | Identifying quadrilaterals |
| | | Identifying pentagons |
| | | Identifying hexagons |
| | | Identifying cubes |



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