Waterford.org

Alignment
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Aligned

Waterford Early Learning: Math & Science

Arizona Mathematics Standards 2018 & Science 2021 for Kindergarten, 1st, and 2nd Grades

**Alignment content includes a sampling of Waterford Digital Activities and Resources*

Overview

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This document provides a detailed alignment of Waterford Early Learning to Arizona Mathematics & Science Standards for Kindergarten, 1st, and 2nd grades.

Alignment Description

This document aligns Arizona Mathematics Standards 2018 & Science 2021 Standards to Waterford.org's digital activities and supporting resources.

Waterford Digital Activities

Waterford programs include engaging, evidence-based digital activities anchored in the science of learning that progress through an adaptive learning path in reading, math, and science. These activities are also available for collaborative instruction at →teacher.waterford.org.

- **Classroom Playlists** enable teachers to harness learning technologies in whole-class instruction, flexible small groups, and personalized support for individual students.

Waterford Resources

Waterford provides an engaging, diverse collection of PDF resources tailored to boost children's learning experiences, empowering instruction in both classroom and home settings.

- **Teacher Resources** encompass class activities, reference materials, teacher guides, an array of books, and more.
- **Family Resources** encompass newsletters, activity sets, and reference materials, all available in both English and Spanish.

Waterford Curriculum Details

Waterford programs leverage the science of learning and evidence-based research to optimize reading development, accelerate learning, and target interventions for PreK–2nd grade learners.

Adaptive, Individualized Learning

Tailored instruction enables students to progress through the sequence at their own pace, offering multiple opportunities for practice as needed and more challenging activities when students are ready. This adaptation is automatic within the learning sequence. More information on the adaptive learning sequence can be found in →Waterford's Adaptive Learning Path in Action video.

Data-Informed Instruction

Administrators and teachers can use the program's reporting features to monitor progress in real-time, identify areas of difficulty, and utilize additional intervention tools in varied instructional settings. Examples of the reporting features can be found →here.

Research-Driven Development

Waterford is committed to ongoing development based on the latest research findings. Please note that this correlation is accurate as of the date on the cover.

Reading Sequence

Waterford's Reading Sequence is aligned to the Science of Reading, with explicit and systematic instruction. The sequence develops phonics; phonological awareness; comprehension and vocabulary; language concepts and writing; and fluency. More detailed information can be found in the →Reading Skills Scope & Sequence.

Math and Science Sequence

Waterford's Math and Science Sequence is designed around clear instructional principles. The math sequence develops numbers and operations (including counting and cardinality); operations and algebraic thinking; measurement and data; and geometry. The science sequence develops an understanding of physical, life, earth and space domains. More detailed information can be found in the →Math and Science Scope & Sequence.

SmartStart Sequence

Waterford's SmartStart Sequence is designed so learners are exposed to the foundational principles critical to kindergarten readiness. SmartStart combines the digital learning path with teacher resources to teach early reading, math, science, and social studies concepts as well as executive function, creative arts, health, and physical development. More detailed information can be found in the →SmartStart Scope & Sequence.

Table of Contents

Arizona Standards	Waterford Digital Resources	Waterford Resources
Mathematics		
Kindergarten		
Counting and Cardinality (CC)		
Know number names and count the sequence		
K.CC.A.1. Count to 100 by ones and by tens.	• Number Songs • Counting Songs • Number Counting • Number Instruction • Skip Counting	• Count 100 by Ones and Tens
K.CC.A.2. Count forward from a given number other than one, within the known sequence (e.g., "Starting at the number 5, count up to 11.").	• Songs: Counting On • Count On • Counting Songs	• Count Forward
K.CC.A.3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).	• Math Books • Counting Songs • Number Songs • Number Counting • Number Instruction	• Write Numbers 0-20
Count to tell the number of objects		
Understand the relationship between numbers and quantities; connect counting to cardinality. **K.CC.B.4a.** When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.	• Counting Songs • Number Songs • Number Counting • Order Numbers • One-to-one Correspondence • Make and Count Groups • Number Instruction	• Object Counting Basics

Arizona Standards	Waterford Digital Resources	Waterford Resources
Count to tell the number of objects *continued*		
K.CC.B.4b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.	• Make and Count Groups • Number Counting • Match Numbers • One-to-One Correspondence • Order Numbers	• Object Counting Grouping
K.CC.B.4c. Understand that each successive number name refers to a quantity that is one larger (hierarchical inclusion).	• Make and Count Groups • Number Counting • One-to-One Correspondence • Count On by 1	• Object Counting Succession
K.CC.B.5. Count to answer questions about "how many?" when 20 or fewer objects are arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.	• Counting Songs • Number Songs • Make and Count Groups • Number Counting • Number Instruction • One-to-one Correspondence	• How Many?
Compare numbers		
K.CC.C.6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. (Include groups with up to ten objects.)	• Songs: Greater Than, Less Than • Books: For the Birds • Greater Than, Less Than • More Than, Fewer Than • More Than • Fewer Than • Make and Count Groups	• Greater, Less, or Equal
K.CC.C.7. Compare two numbers between 0 and 10 presented as written numerals.	• Songs: Greater Than, Less Than • Books: For the Birds • Greater Than, Less Than • More Than, Fewer Than • More Than • Fewer Than	• Compare Two Numbers

Arizona Standards	Waterford Digital Resources	Waterford Resources
Operations and Algebraic Thinking (OA)		
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from		
K.OA.A.1. Represent addition and subtraction concretely.	• Songs: On the Bayou; Bakery Subtraction; Subtract Those Cars; Circus Subtraction • Books: Five Delicious Muffins • Make and Count Groups • Add Groups • Subtract Groups • Act Out Addition • Act Out Subtraction	• Represent Addition and Subtraction With Objects
K.OA.A.2. Solve addition and subtraction word problems, and add and subtract within 10.	• Songs: On the Bayou; Bakery Subtraction; Subtract Those Cars; Circus Subtraction • Books: Five Delicious Muffins • Add Groups • Subtract Groups • Minuends • Sums • Act Out Addition • Act Out Subtraction	• Addition and Subtraction Word Problems
K.OA.A.3. Decompose numbers less than or equal to 10 into pairs in more than one way (e.g., using fingers, objects, symbols, tally marks, drawings, expressions).	• Make and Count Groups • Add Groups • Subtract Groups • Act Out Subtraction • Make 10	• Decompose Numbers
K.OA.A.4. For any number from 1 to 9, find the number that makes 10 when added to the given number (e.g., using fingers, objects, symbols, tally marks, drawings, or equation).	• Make 10 • Missing Addends • Count On • Act Out Addition	• Numbers That Make 10

Arizona Standards	Waterford Digital Resources	Waterford Resources
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from *continued*		
K.OA.A.5. Fluently add and subtract within 5.	• Songs: On the Bayou; Bakery Subtraction; Subtract Those Cars; Circus Subtraction • Books: Five Delicious Muffins • Add Groups • Subtract Groups • Minuends • Sums • Act Out Addition • Act Out Subtraction	
Number and Operations in Base Ten (NBT)		
Work with numbers 11–19 to gain foundations for place value.		
K.NBT.A.1. Compose and decompose numbers from 11 to 19 into ten ones and some additional ones by using objects, drawings, and/or equations. Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones (e.g., 18 = 10 + 8).	• Place Value	• Tens and Ones
Use place value understanding and properties of operations to add and subtract.		
K.NBT.B.2. Demonstrate understanding of addition and subtraction within 10 using place value.	• Place Value	• Addition and Subtraction Word Problems

Arizona Standards	Waterford Digital Resources	Waterford Resources
Measurement and Data (MD)		
Describe and compare measurable attributes		
K.MD.A.1. Describe measurable attributes of a single object (e.g., length and weight).	• Songs: Measuring Plants • Length • Capacity	• Measurable Attributes
K.MD.A.2. Directly compare two objects with a measurable attribute in common, to see which object has "more of" or "less of" the attribute, and describe the difference. (e.g., directly compare the length of 10 cubes to a pencil and describe one as longer or shorter).	• Songs: Savanna Size, Measuring Plants • Capacity • Length • Big and Little • Tall and Short • Heavy and Light	• Comparing Objects
K.MD.B.3. Classify objects into given categories; count the number in each category and sort the categories by count. [Limit category counts to be less than or equal to 10.]	• Songs: Same and Different; All Sorts of Laundry • Books: Buttons, Buttons • Match • Sort • Make and Count Groups	• Classifying Objects

Arizona Standards	Waterford Digital Resources	Waterford Resources
Geometry (G)		
Identify and describe shapes.		
K.G.A.1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.	• Songs: Position Cat; Kites; Get Over the Bugs; Shapes, Shapes, Shapes • Books: The Shape of Things; Imagination Shapes; Up in the Air • Position • Over, Under, Above, Below • Inside, Outside, Between • Circle, Square, Triangle, Rectangle • Star, Semicircle, Octagon, Oval, Rhombus • Simple Shapes • Solid Shapes • World Shapes • Above, Below, Next to, On	• Describing Objects
K.G.A.2. Correctly name shapes regardless of their orientation or overall size (e.g., circle, triangle, square, rectangle, rhombus, trapezoid, hexagon, cube, cone, cylinder, sphere).	• Songs: Kites; Shapes, Shapes, Shapes • Books: The Shape of Things; Imagination Shapes • Circle, Square, Triangle, Rectangle • Star, Semicircle, Octagon, Oval, Rhombus • Simple Shapes • Solid Shapes • World Shapes	• Shape Recognition
K.G.A.3. Identify shapes as two-dimensional (lying in a plane, flat) or three-dimensional (solid).	• Solid Shapes • Space Shapes • Simple Shapes	• Two-Dimensional Shapes

Arizona Standards	Waterford Digital Resources	Waterford Resources
Analyze, compare, create, and compose shapes		
K.G.B.4. Analyze and compare two-dimensional and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/corners), and other attributes (e.g., having sides of equal length).	• Songs: Corners and Sides • Simple Shapes • Solid Shapes • Space Shapes • Congruence • Tangrams • Similar Figures	• Compare Shapes
K.G.B.5. Model shapes in the world by building shapes from components (e.g., use sticks and clay balls) and drawing shapes.	• Geoboard • Tangrams	• Model Shapes
K.G.B.6. Use simple shapes to form composite shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"	• Geoboard • Tangrams	• Form Larger Shapes
First Grade		
Operations and Algebraic Thinking (OA)		
Represent and solve problems involving addition and subtraction		
1.OA.A.1. Use addition and subtraction within 20 to solve word problems with unknowns in all positions (e.g., by using objects, drawings, and/or equations with a symbol for the unknown number to represent the problem).	• Songs: Fact Families; Doubles • Books: Facts About Families • Addition and Subtraction Fact Families • Addition and Subtraction Relationship	• Word Problems Using Subtraction Within 20

Arizona Standards	Waterford Digital Resources	Waterford Resources
Represent and solve problems involving addition and subtraction *continued*		
1.OA.A.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and/or equations with a symbol for the unknown number to represent the problem.	• Add 3 One-digit Numbers	• Word Problems Adding 3 Numbers
Understand and apply properties of operations and the relationship between addition and subtraction		
1.OA.B.3. Apply properties of operations (Commutative and associative properties of addition) as strategies to add and subtract within 20.	• Addition and Subtraction Relationship • Addition and Subtraction Fact Families • Subtraction Patterns • Commutative Property of Addition	• Strategies to Add and Subtract
1.OA.B.4. Understand subtraction as an unknown-addend problem within 20 (e.g., subtract 10 – 8 by finding the number that makes 10 when added to 8.	• Missing Addends • Subtraction Patterns • Addition and Subtraction Fact Families	• Understand Subtraction as An Unknown Addend Problem
Add and subtract within 10		
1.OA.C.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	• Songs: Counting On • Skip Count by 2 • Count On • Make and Count Groups • Add Groups • Subtract Groups	• Relate Counting to Addition and Subtraction

Arizona Standards	Waterford Digital Resources	Waterford Resources
Add and subtract within 10 *continued*		
1.OA.C.6. Fluently add and subtract within 10.	• Songs: Fact Families; Counting On • Books: Facts about Families • Addition and Subtraction Fact Families • Addition Sentences • Subtraction Sentences • Commutative Property of Addition • Addition and Subtraction Relationship • Missing Addends • Missing Minuends and Subtrahends • Subtraction Patterns	• Add and Subtract Within 20
Work with addition and subtraction equations		
1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. (e.g., Which of the following equations are true and which are false? 6 + 1 = 6 - 1, 7 = 8 - 1, 5 + 2 = 2 + 5.	• Songs: Fact Families • Books: Facts About Families • Addition and Subtraction Fact Families • Addition and Subtraction Relationship • Commutative Property of Addition • Addition Sentences • Subtraction Sentences • Greater Than, Less Than • More Than, Fewer Than	• Equal Sign
1.OA.D.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers (e.g., determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = ? – 3, 6 + 6 = ?).	• Addition Sentences • Subtraction Sentences • Addition and Subtraction Fact Families • Missing Addends	

Arizona Standards	Waterford Digital Resources	Waterford Resources
Number and Operations in Base Ten (NBT)		
Extend the counting sequence		
1.NBT.A.1. Count to 120 by 1's, 2's, and 10's, starting at any number less than 100. in this range, read and write numerals and represent a number of objects with a written numeral.	• Songs: Counting On; Skip Counting • Count On • Number Chart • Skip Count by 2 • Skip Count by 10	• Count to 120
Understand place value		
Understand that the two digits of a two-digit number represent groups of tens and ones. Understand the following as special cases: **1.NBT.B.2a.** 10 can be thought of as a bundle of ten ones—called a "ten."	• Songs: Place Value • Place Value of 2-digit Numbers	• Tens as A Bundle of Ones
1.NBT.B.2b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	• Songs: Place Value • Place Value of 2-digit Numbers	• 11-19 Broken Down
1.NBT.B.2c. The numbers 10, 20, 30, 40, 50**,** 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	• Place Value • Place Value of 2-digit Numbers	• Ten Groupings
1.NBT.B.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	• Place Value • Greater Than, Less Than (2-digit Numbers)	• Compare Two-Digit Numbers

Arizona Standards	Waterford Digital Resources	Waterford Resources
Use place value understanding and properties of operations to add and subtract		
1.NBT.C.4. Demonstrate understanding of addition within 100, connecting objects or drawings to strategies based on place value (including multiples of 10), properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written form.	• Addition • Add Tens • Add with Manipulatives • Add Vertical Squares • Add with Beads • Addition and Subtraction Relationship • Add with Regrouping Concept • Add 2-digit and 1-digit Numbers with Regrouping • Add 2-digit Numbers without Regrouping • Add 2-digit Numbers with Regrouping	• Adding Within 100
1.NBT.C.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count.	• Songs: Skip Counting • Books: Navajo Beads • Add • Subtract • Add Tens • Subtract Tens • Skip Count by 10 • Number Chart	• Ten More or Less
1.NBT.C.6. Subtract multiples of 10 in the range of 10–90 (positive or zero differences), using objects or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written form.	• Subtraction • Subtract Tens • Subtraction Patterns • Subtract • Place Value • Addition and Subtraction Relationship • Use Manipulatives	• Subtracting in 10s

Arizona Standards	Waterford Digital Resources	Waterford Resources
Measurement and Data (MD)		
Measure lengths indirectly and by iterating length units		
1.MD.A.1. Order three objects by length. Compare the lengths of two objects indirectly by using a third object.	• Length • Nonstandard Units of Length	• Order By Length
1.MD.A.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. (Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.)	• Length • Nonstandard Units of Length	• Length Measurement
Work with time and money.		
1.MD.B.3a. Tell and write time in hours and half-hours using analog and digital clocks.	• Songs: Clock Hands • Books: Mr. Romano's Secret: A Time Story • Tell Time to the Hour • Tell Time to the Half-Hour	• Hours and Half-Hours
1.MD.B.3b. Identify coins by name and value (pennies, nickels, dimes, and quarters).	• Songs: Money • Books: Bugs For Sale • Coin Identification • Coin Value • Quarters, Dimes, Nickels, Pennies • Quarters	

Arizona Standards	Waterford Digital Resources	Waterford Resources
Represent and interpret data		
1.MD.C.4. 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.	• Songs: Tallying; Graphing • Books: Painting by Number; One More Cat; The Booneville Nine • Tally Marks • Graphs • Make a Table	• Data Categorization
Geometry (G)		
Reason with shapes and their attributes		
1.G.A.1. Distinguish between defining attributes (triangles are closed and 3-sided) versus non-defining attributes (color, orientation, overall size) for two-dimensional shapes; build and draw shapes to possess defining attributes.	• Songs: Corners and Sides; Kites • Geoboard • Space Shapes	• Attributes
1.G.A.2. Compose two-dimensional shapes or three-dimensional shapes to create a composite shape.	• Songs: Kites • Space Shapes • Geoboard • Tangrams	• Form Larger Shapes
1.G.A.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters. Describe the whole as two of, or four of the shares. Understand that decomposing into more equal shares creates smaller shares.	• Songs: Fractions • Books: Halves and Fourths and Thirds; Half For You and Half For Me • Equal-part Fractions • Label Parts of Fractions	• Equal Shares

Arizona Standards	Waterford Digital Resources	Waterford Resources
Second Grade		
Operations and Algebraic Thinking (OA)		
Represent and solve problems involving addition and subtraction		
2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems. Represent a word problem as an equation with a symbol for the unknown.	• Books: Painting by Number • Addition • Subtraction • Missing Addends and Subtrahends • Subtraction Sentences • Addition and Subtraction Facts	• One- and Two-Step Word Problems Within 100
Add and subtract within 20		
2.OA.B.2. Fluently add and subtract within 20. By the end of Grade 2, know from memory all sums of two one-digit numbers.	• Songs: Fact Families; Doubles • Subtraction Patterns • Addition Facts to 20	• Adding and Subtracting Within 20
Work with equal groups of objects to gain foundations for multiplication		
2.OA.C.3. Determine whether a group of objects (up to 20) has an odd or even number of members (e.g., by pairing objects or counting them by 2s).	• Songs: Odd Todd and Even Steven • Skip Count by 2 • Addition Facts	• Odd and Even Recognition
2.OA.C.4. Use addition to find the total number of objects arranged in rectangular arrays (with up to 5 rows and 5 columns). Write an equation to express the total as a sum of equal addends.	• Addition • Multiply Using Repeated Addition • Multiply Using Arrays	

Arizona Standards	Waterford Digital Resources	Waterford Resources
Number and Operations in Base Ten (NBT)		
Understand place value		
Understand that the three digits of a three-digit number represent groups of hundreds, tens, and ones (e.g., 706 equals 7 hundreds, 0 tens, and 6 ones and also equals 70 tens and 6 ones). **2.NBT.A.1a.** 100 can be thought of as a bundle of ten tens—called a "hundred."	• Songs: Place Value • Place Value • Place Value of 3-digit Numbers	• Thinking of 100 as a Bundle of Ten 10s
2.NBT.A.1b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	• Songs: Place Value • Place Value • Place Value of 3-digit Numbers	• Grouping Hundreds
2.NBT.A.2. Count within 1,000; skip- count by 5s, 10s, and 100s.	• Songs: Skip Counting • Books: Jump Rope Rhymes • Skip Count • Skip Count by 10 • Skip Count by 5 • Number Sequences and Patterns	• Counting Within 1000
2.NBT.A.3. Read and write numbers up to 1,000 using base-ten numerals, number names, and expanded form.	• Sequences of 2-digit Numbers • Sequences of 3-digit Numbers • Number Chart • Place Value	• Read and Write Numbers to 1000
2.NBT.A.4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	• Greater Than, Less Than (3-digit Numbers) • Place Value of 3-digit Numbers	• Less Than, Equal To, or Greater Than

Arizona Standards	Waterford Digital Resources	Waterford Resources
Use place value understanding and properties of operations to add and subtract		
2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	• Place Value • Addition and Subtraction Relationship • Commutative Properties of Addition • Addition • Subtraction • Add without Regrouping • Add with Regrouping • Subtract without regrouping • Subtract with Regrouping	• Add and Subtract Within 100
2.NBT.B.6. Add up to three two-digit numbers using strategies based on place value and properties of operations.	• Add Two-digit Numbers with Regrouping • Commutative Properties of Addition • Place Value	• Adding Four 2-Digit Numbers
2.NBT.B.7. Demonstrate understanding of addition and subtraction within 1000, connecting objects or drawings to strategies based on place value (including multiples of 10), properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written form.	• Place Value • Addition and Subtraction Relationship • Commutative Properties of Addition • Addition • Subtraction • Add without Regrouping • Add with Regrouping • Subtract without regrouping • Subtract with Regrouping • Act Out Addition • Act Out Subtraction	• Add and Subtract Within 1000
2.NBT.B.8. Mentally add 10 or 100 to a given number in the range of 100 and 900, and mentally subtract 10 or 100 from a given number in the range of 100 and 900.	• Skip Count • Place Value • Number Chart • Number Patterns	• Mentally Adding or Subtracting 10 or 100

Arizona Standards	Waterford Digital Resources	Waterford Resources
Use place value understanding and properties of operations to add and subtract *continued*		
2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)	• Addition • Subtraction • Add with Regrouping Concept • Subtract with Regrouping Concept • Place Value • Number Line • Addition and Subtraction Relationship • Commutative Properties of Addition • Act Out Addition • Act Out Subtraction	• Explaining Addition and Subtraction Strategies
Measurement and Data (MD)		
Measure and estimate lengths in standard units		
2.MD.A.1. Measure the length of an object by selecting and using appropriate tools (e.g., ruler, meter stick, yardstick, measuring tape).	• Songs: Measuring Plants • Birds at My House • Length • Measurement Tools • Standard Units of Length	• Measurement Tools
2.MD.A.2. Measure the length of an object twice, using different standard length units for the two measurements; describe how the two measurements relate to the size of the unit chosen. Understand that depending on the size of the unit, the number of units for the same length varies.	• Length • Standard Units of Length • Measurement Tools	• Measuring The Same Object Two Ways
2.MD.A.3. Estimate lengths using units of inches, feet, centimeters, and meters.	• Songs: Measuring Plants • Length • Standard Units of Length • Measurement Tools	• Estimating Lengths

Arizona Standards	Waterford Digital Resources	Waterford Resources
Measure and estimate lengths in standard units *continued*		
2.MD.A.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	• Length • Standard Units of Length	• Measure Length
Relate addition and subtraction to length		
2.MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same unit.	• Books: Yangshi's Perimeter • Addition • Subtraction • Length • Standard Units of Length	• One- and Two-Step Word Problems Within 100
2.MD.B.6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	• Number Line • Length	
Work with time and money		
2.MD.C.7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	• Songs: Telling Time; Clock Hands • Tell Time • Tell Time to Five Minutes • Tell Time to the Quarter Hour • Tell Time to the Minute • Tell Time to the Hour • Tell Time to the Half-hour	• Tell and Write Time

Arizona Standards	Waterford Digital Resources	Waterford Resources
Work with time and money *continued*		
2.MD.C.8. Solve word problems involving collections of money, including dollar bills, quarters, dimes, nickels, and pennies. Record the total using $ and ¢ appropriately.	• Songs: Money; Save Your Pennies • Books: Bugs For Sale • Coin Identification • Coin Value • Quarters • Count Dimes, Nickels, and Pennies • Count Quarters, Dimes, Nickels, and Pennies • Count Nickels and Pennies or Dimes and Pennies • Make Change • Count Coins • Count Bills and Coins • Equivalent Sums of Money	• Solve Money Word Problems
Represent and interpret data		
2.MD.D.9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	• Measurement Tools	• Generating Measurement Data
2.MD.D.10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in the graph.	• Songs: Graphing • Graphing • Bar Graphs • Picture Graphs • Use Graphs and Tables	• Graphs

Arizona Standards	Waterford Digital Resources	Waterford Resources
Geometry (G)		
Reason with shapes and their attributes		
2.G.A.1. Identify and describe specified attributes of two-dimensional and three-dimensional shapes, according to the number and shape of faces, number of angles, and the number of sides and/or vertices. Draw two-dimensional shapes based on the specified attributes (e.g., triangles, quadrilaterals, pentagons, and hexagons).	• Songs: Shapes, Shapes, Shapes; Corners and Sides; Kites • Books: The Shape of Things • Space Shapes • World Shapes • Geoboard	• Draw Shapes
2.G.A.2. Partition a rectangle into rows and columns of same-size rectangles and count to find the total number of rectangles.	• Songs: Fractions • Fractions of Regions	
2.G.A.3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, fourths, half of, third of, fourth of, and describe the whole as two halves, three thirds, or four fourths. Recognize that equal shares of identical wholes need not have the same shape.	• Songs: Fractions • Books: Halves and Fourths and Thirds; The Fraction Twins • Fractions • Label Parts of Fractions • Fractions of Regions • Fractions of Groups	• Fractions

Arizona Standards	Waterford Digital Resources	Waterford Resources
Science		
Kindergarten		
Physical Science Standards		
K.P2U1.1 Investigate how senses can detect light, sound, and vibrations even when they come from far away; use the collected evidence to develop and support an explanation.	• Songs: Sound • Books: What Sounds Say • Sound Exploration • Sound Experiment • Sound Waves	• Sound • Pitch
K.P2U2.2 Design and evaluate a tool that helps people extend their senses.	• Songs: Inventing • Books: I Want to Be a Scientist Like Thomas Edison; Inventions All Around	
Earth and Space Standards		
K.E1U1.3 Observe, record, and ask questions about temperature, precipitation, and other weather data to identify patterns or changes in local weather	• Songs: Precipitation; Storms; Seasons • Books: That's What I Like: A Book About Seasons; Whatever the Weather • Weather • Weather Tools • Calendar/Graph Weather • Weather Patterns	• Weather • The Weather Around Us • Weather Cards
K.E1U1.4 Observe, describe, ask questions, and predict seasonal weather patterns; and how those patterns impact plants and animals (including humans).	• Songs: Precipitation; Seasons • Books: That's What I Like: A Book About Seasons; Whatever the Weather • Weather • Weather Tools • Calendar/Graph Weather • Weather Patterns • Spring • Summer • Fall • Winter	• Weather • The Weather Around Us • Weather Cards

Arizona Standards	Waterford Digital Resources	Waterford Resources
Earth and Space Standards *continued*		
K.E2U1.5 Observe and ask questions about patterns of the motion of the sun, moon, and stars in the sky.	• Songs: The Moon; Sun Blues • Books: Moon Song; Star Pictures • Sun • Moon • Constellations	• The Moon • The Sky Above Us
Life Science Standards		
K.L1U1.6 Obtain, evaluate, and communicate information about how organisms use different body parts for survival.	• Songs: Animal Bodies • Books: I Wish I Had Ears Like a Bat; Animal Bodies; Fawn Eyes • Animal Behavior • Animal Bodies • Deserts	
K.L1U1.7 Observe, ask questions, and explain how specialized structures found on a variety of plants and animals (including humans) help them sense and respond to their environment.	• Songs: Animal Bodies • Books: I Wish I Had Ears Like a Bat; Animal Bodies; Fawn Eyes; Everybody Needs to Eat • Animal Behavior • Animal Bodies • Animal Teeth • Animal Tracks • Deserts	
K.L2U1.8 Observe, ask questions, and explain the differences between the characteristics of living and non-living things.	• Songs: Living and Nonliving • Living or Nonliving	• Living or Nonliving?

Arizona Standards	Waterford Digital Resources	Waterford Resources
First Grade		
Physical Science Standards		
1.P2U1.1 Plan and carry out investigations demonstrating the effect of placing objects made with different materials in the path of a beam of light and predict how objects with similar properties will affect the beam of light.	• Books: My Family Campout • Light Properties • Light Sources • Properties of Light • Light Exploration • Light Experiment	
1.P2U1.2 Use models to provide evidence that vibrating matter creates sound and sound can make matter vibrate.	• Songs: Sound • Books: What Sounds Say • Sound Waves	• Sound
1.P3U1.3 Plan and carry out investigations which demonstrate how equal forces can balance objects and how unequal forces can push, pull, or twist objects, making them change their speed, direction, or shape.	• Songs: Push and Pull • Books: Mr. Mario's Neighborhood • Push and Pull • Magnets	• How It Works
1.P4U2.4 Design and evaluate ways to increase or reduce heat from friction between two objects.	Waterford encourages everyone to have writing, drawing, and art materials available for children's creations.	
Earth and Space Standards		
1.E1U1.5 Obtain, evaluate, and communicate information about the properties of Earth materials and investigate how humans use natural resources in everyday life.	• Songs: Natural Resources; I Am Part of All I See; Conservation; Water • Books: Mela's Water Pot; I Want to Be a Scientist Like Alexander von Humboldt • Natural Resources • Food From Plants • Care of Earth • Care of Water	

Arizona Standards	Waterford Digital Resources	Waterford Resources
Life Science Standards		
1.L1U1.6 Observe, describe, and predict life cycles of animals and plants.	• Books: A Seed Grows; The Old Maple Tree • Animal Life Cycle and Growth • Plant Life Cycle and Growth • Amphibians • Science Observation: From Egg to Chick	• Butterfly Life Cycle • Bird Life Cycle • Frog Life Cycle
1.L2U2.7 Develop and use models about how living things use resources to grow and survive; design and evaluate habitats for organisms using earth materials.	• Songs: Water; Food From Plants • Books: Mela's Water Pot; Everybody Needs to Eat; Animal Bodies • Sun • Plants • Water • Ecosystems • Plants and Animals Need Air • Healthy Plants' Needs • Deserts	• Water For Plants • Green and Growing
1.L2U1.8 Construct an explanation describing how organisms obtain resources from the environment including materials that are used again by other organisms.	• Books: A Seed Grows; The Bee's Secret • Pollution and Recycling • Worms • Pollution Experiment	• Recycling
1.L3U1.9 Obtain, evaluate, and communicate information to support an evidence-based explanation that plants and animals produce offspring of the same kind, but offspring are generally not identical to each other or their parents.	• Books: George and Jack; A Seed Grows • Build Knowledge: Mine • Sheep Video • Farm Animals Video	• Traits

Arizona Standards	Waterford Digital Resources	Waterford Resources
Life Science Standards *continued*		
1.L4U1.10 Develop a model to describe how animals and plants are classified into groups and subgroups according to their similarities.	• Songs: Invertebrates • Books: Guess What I Am; Creepy Crawlers • Animal Groups • Animal Tracks • Invertebrates • Social Insects	
1.L4U3.11 Ask questions and explain how factors can cause species to go extinct.		
Second Grade		
Physical Science Standards		
2.P1U1.1 Plan and carry out an investigation to determine that matter has mass, takes up space, and is recognized by its observable properties; use the collected evidence to develop and support an explanation.	• Songs: Solid or Liquid • Books: Pancakes Matter • Matter • Changes in Matter • States of Water • Solid and Liquid • Solid, Liquid, Gas • Matter Experiment	
2.P1U1.2 Plan and carry out investigations to gather evidence to support an explanation on how heating or cooling can cause a phase change in matter.	• Changes in Matter • Heat Changes Water • States of Water • Matter Experiment	• Temperature and Melting
2.P4U1.3 Obtain, evaluate and communicate information about ways heat energy can cause change in objects or materials.	• Changes in Matter • Heat Changes Water • States of Water • Matter Experiment	• Temperature and Melting

Arizona Standards	Waterford Digital Resources	Waterford Resources
Earth and Space Standards		
2.E1U1.4 Observe and investigate how wind and water change the shape of the land resulting in a variety of landforms.	• Songs: Rock Cycle • Soil • Rock Cycle	• Where Does Soil Come From?
2.E1U1.5 Develop and use models to represent that water can exist in different states and is found in oceans, glaciers, lakes, rivers, ponds, and the atmosphere.	• Songs: Precipitation; Water; I Am Part of All I See • Books: Water Is All Around; What Is a Cloud? • States of Water • Clouds • Oceans • Water Sources • Water Cycle	
2.E1U2.6 Analyze patterns in weather conditions of various regions of the world and design, test, and refine solutions to protect humans from severe weather conditions.	• Songs: Precipitation; Storms • Books: Whatever the Weather; Weather • Weather Tools • Weather Patterns • Weather Affects People and Animals • Weather Experiment • Calendar/Graph Weather	• Weather Patterns • Weather Tools
2.E1U3.7 Construct an argument from evidence regarding positive and negative changes in water and land systems that impact humans and the environment.	• Songs: Conservation; Pollution Rap • Pollution and Recycling • Care of Water • Care of Earth	• Recycling
2.E2U1.8 Observe and explain the Sun's position at different times during a twenty-four-hour period and changes in the apparent shape of the Moon from one night to another.	• Songs: Sun Blues; The Moon • Books: Moon Song • Moon Patterns • Sun • Sun, Moon, and Earth • Light Exploration	• The Moon

Arizona Standards	Waterford Digital Resources	Waterford Resources
Life Science Standards		
2.L2U1.9 Obtain, analyze, and communicate evidence that organisms need a source of energy, air, water, and certain temperature conditions to survive.	• Songs: Four Ecosystems • Books: Where in the World Would You Go Today?; Everybody Needs to Eat; Mela's Water Pot • Sun • Food From Plants • Oceans • Mountains • Deserts • Rainforests • Animals Need Water • Plants Need Water • Plants and Animals Need Air • Herbivores, Carnivores, and Omnivores	
2.L2U1.10 Develop a model representing how life on Earth depends on energy from the Sun and energy from other organisms.	• Songs: Food From Plants • Books: Everybody Needs to Eat; Great White Bird; Animal Teeth • Sun • Herbivores, Carnivores, and Omnivores • Food From Plants • Food Chain	

Books and Related Activities

Waterford.org

Pre-Math and Science

Math Books

Zero In My Toybox / One Day on the Farm / Two Feet / Look for Three / Four Fine Friends / Grandpa's Great Athlete: A Book About 5 / Hide and Seek Six / Just Seven / Eight at the Lake / 9 Cat Night / Ten for My Machine / The Search for Eleven / The Tasty Number Twelve / Thirteen in My Garden / Fourteen Camel Caravan / Fifteen on a Spring Day / Dinner for Sixteen / The Seventeen Machine / Eighteen Carrot Stew / Nineteen Around the World / Twenty Clay Children / Poor Wandering 1 / Snowy Twos Day / 1, 2, 3, 4 in the Jungle / Give Me 5 / Suzy Ladybug / 7 Train / 8 Octopus Legs / Highway 9 / 10 Astronauts / When I Saw 11 / I Love the Number 12 / 13 Clues / Fun 15 / 16 Ants / Counting to 17 / 18 Carrot Stew / 20 Fingers and Toes

Science Books

That's What I Like: A Book about Seasons / I Want to Be a Scientist Like Jane Goodall / Mr. Mario's Neighborhood / Mela's Water Pot / I Want to Be a Scientist Like Wilbur and Orville Wright / Follow the Apples! / I Want to Be a Scientist Like George Washington Carver / Guess What I Am / Where in the World Would You Go Today? / Star Pictures / I Wish I Had Ears Like a Bat / Creepy Crawlers

Counting Songs

Marching Band Counting / Flower Counting / Country Counting / Funky Counting / Reggae Counting / Salsa Counting / Techno Counting / Bagpipe Counting / Counting on the Mountain

Number Songs

Count to 31 / Hotel 100 / Zero Is a Big Round Hole / Poor Wandering 1 / Snowy Twos Day / 1, 2, 3, 4 in the Jungle / Give Me 5 / Suzy Ladybug / 7 Train / 8 Octopus Legs / Highway 9 / 10 Astronauts / When I Saw 11 / I Love the Number 12 / 13 Clues / 14 Fish to Catch / Fun 15 / 16 Ants / Counting to 17 / 18 Carrot Stew / 19 On the Beach / 20 Fingers and Toes

Basic Math and Science

Math and Science Books

One More Cat / Can You Guess? A Story for Two Voices / I Want to Be a Scientist Like Antoni van Leeuwenhoek / Whatever the Weather / I Want to Be a Mathematician Like Sophie Germain / Water Is All Around / Mr. Romano's Secret: A Time Story / A Seed Grows / How Long is a Minute? / Marty's Mixed-up Mom / I Want to Be a Scientist Like Louis Pasteur / Pancakes Matter / Jump Rope Rhymes / Facts About Families / Fifteen Bayou Band / Hooray, Hooray for the One Hundredth Day! / Symmetry and Me / Animal Bodies / Everybody Needs to Eat / The Circus Came to Town / I Want to Be a Mathematician Like Thales / Bugs for Sale / Heads or Tails / Your Backyard / The Birds, the Beasts and the Bat / Halves and Fourths and Thirds / We All Exercise / Circus 20 / Red Rock, River Rock / Painting by Number / Navajo Beads / Where in the World Would You Go Today? / I Want to Be a Scientist Like Wilbur and Orville Wright

Fluent Math and Science

Math and Science Books

The Snow Project / Chloe's Cracker Caper / What Sounds Say / Fossils Under Our Feet / The Boonville Nine / I Want to Be a Scientist Like Alexander von Humboldt / I Want to Be a Scientist Like Marie Curie / I Want to Be a Scientist Like Stephen Hawking / George and Jack / The Old Maple Tree / A Dinosaur's First Day / I Want to Be a Scientist Like Isaac Newton / My Family Campout / I Want to Be a Scientist Like Thomas Edison / Warm Soup for Dedushka / How Did the Chicken Cross the Road? / Inventions All Around / The Beginning of Numbers / I Want to Be a Mathematician Like Ada Byron Lovelace / Lightning Bells / Tyrannosaurus X 1 / Halves and Fourths and Thirds / Navajo Beads / Red Rock, River Rock / I Want to Be a Mathematician Like Srinivasa Ramanujan / The Fraction Twins / Yangshi's Perimeter / I Want to Be a Mathematician Like Archimedes / Birds at My House / Painting by Number / The Fable Fair

Research-Driven Development

Waterford is committed to ongoing development based on the latest research findings. Please note that this correlation is accurate as of the date on the cover.

Family Engagement Resources

Waterford.org

Spanish Family Engagement Resources

All Waterford books and many of the resources available to families at →family.waterford.org can be found in Spanish or with Spanish support.

Songs

Beginning Math Songs

Odd Todd and Even Steven / Salsa Counting / On the Bayou—Addition / Subtract Those Cars / More Than, Fewer Than / A Nice Addition / Marching Band Counting / Doubles 1–5 / Multiply by 0

Nursery Songs and Rhymes

Rhyming Words / A: The Apple Tree / B: Bluebird, Bluebird / C: Pat-a-Cake / D: Hey Diddle, Diddle / E: One Elephant Went Out to Play / F: The Farmer in the Dell / G: Ten Little Goldfish / H: All the Pretty Little Horses / I: Mother, Mother, I Am Ill / J: Jack and Jill / K: Three Little Kittens / L: Mary Had a Little Lamb / M: Little Miss Muffett / O: Polly, Put the Kettle On / P: This Little Pig / Q: Quack, Quack, Quack / R: Little Rabbit / S: Eensy, Weensy Spider / U: The Bus / V: My Valentine / W: Wee Willie Winkie / X: A-hunting We Will Go / Y: Yankee Doodle

Beginning Reading Songs

Comma, Comma, Comma / Homophone Monkey / Antonym Ant / Apples and Bananas / Old MacDonald's Vowels / ABC Show and Tell Sounds / ABC Tongue Twisters / ABC Picture Sounds / Sheep in the Shadows / C-K Rap / S Steals the Z / Blends / Blicky Licky Land / Apostrophe Pig / Capital Letters—Days / Charley Chick / Adjectives Describe / Lazy Letter Q / Nouns / Verbs / Adverbs / Irregular Verbs / Preposition Cat / Verbs that Link / Consonants / Pronouns, Sneaky Magic E / Silent Letters—G-H / Silent Letters—W / Drop Magic E / Bossy Mr. R / P-H and G-H Say Fff / Schwa Sound / Double the Fun / Strange Spelling / More Than One / Reading Detective—Peek at the Story

Many of these songs are available on the →Waterford.org YouTube channel.

Weekly Homelink Newsletters

Weekly newsletters (28 in all) are available for teachers to share with families. The newsletters explain what children are learning during the week and provide resources and activities to involve families.

Math Homelink Newsletters

Match, Position, Shapes, Counting, Patterns Sort, Size, Number Sense (1–10), Order (1–10), Count On, Measurement (length), Count Down, Addition (10), Numbers 11–15, Numbers 16–20

Science Homelink Newsletters

The World Around Us (5 senses), Living Things (living v. non-living), Plants, Vertebrates, Invertebrates, The Sky Above Us (sun, moon, stars), Our Earth (recycle, ecosystems), How it Works (push/pull, solid/liquid, magnets, materials)

Reading Homelink Newsletters

Alphabet Knowledge Comprehension and Vocabulary

Sum Up: Remember Order, Sum Up: Remember Details, Peek at the Story, Guess and Check, Connect to Me, Build Knowledge

Readiness Skills Letters

Naming Parts of the Body; First, Next, Last; One-to-One Correspondence; Opposites; Look at Details (identify same and different)

Phonological Awareness Letters

What Is Rhyming?, Which Words Rhyme?, Sentences Are Made Up of Words, Making Compound Words, Breaking Compound Words, What Is a Syllable?, Put Syllables Together to Make Words, Break Words into Syllables, The First Sound in a Word, Words with the Same First Sound, Making Words from First Sounds and the Rest

Waterford Family

***Waterford Family** is a secure website where families can log in to see their child's usage and learning achievements. Waterford families also receive short messages with ideas on how to engage in their child's learning and have access to hundreds of resources and activities. Waterford Family is available online and in the Waterford Family app (for iOS and Android).*