

Galway Math Curriculum Guide
1st Grade

Problem Solving Strand

Students will build new mathematical knowledge through problem solving.

- 1.PS.1 Explore, examine, and make observations about a social problem or mathematical situation
- 1.PS.2 Interpret information correctly, identify the problem, and generate possible solutions

Students will solve problems that arise in mathematics and in other contexts.

- 1.PS.3 Act out or model with manipulatives activities involving mathematical content from literature and/or story telling
- 1.PS.4 Formulate problems and solutions from everyday situations(e.g., counting the number of children in the class or using the calendar to teach counting)

Students will apply and adapt a variety of appropriate strategies to solve problems.

- 1.PS.5 Use informal counting strategies to find solutions
- 1.PS.6 Experience teacher-directed questioning process to understand problems
- 1.PS.7 Compare and discuss ideas for solving a problem with teacher and/or students to justify their thinking
- 1.PS.8 Use manipulatives (e.g., tiles, blocks) to model the action in problems
- 1.PS.9 Use drawings/pictures to model the action in problems

Students will monitor and reflect on the process of mathematical problem solving.

- 1.PS.10 Explain to others how a problem was solved, giving strategies and justifications

Reasoning and Proof Strand

Students will recognize reasoning and proof as fundamental aspects of mathematics.

- 1.RP.1 Understand that mathematical statements can be true or false
- 1.RP.2 Recognize that mathematical ideas need to be supported by evidence

Students will make and investigate mathematical conjectures.

- 1.RP.3 Investigate the use of knowledgeable guessing as a mathematical tool
- 1.RP.4 Explore guesses, using a variety of objects and manipulatives

Students will develop and evaluate mathematical arguments and proofs.

- 1.RP.5 Justify general claims, using manipulatives
- 1.RP.6 Develop and explain an argument verbally or with objects
- 1.RP.7 Listen to and discuss claims other students make

Students will select and use various types of reasoning and methods of proof.

- 1.RP.8 Use trial and error strategies to verify claims

Communication Strand

Students will organize and consolidate their mathematical thinking through communication.

- 1.CM.1 Understand how to organize their thought processes with teacher guidance
- 1.CM.2 Verbally support their reasoning and answer

Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

- 1.CM.3 Share mathematical ideas through the manipulation of objects, drawings, pictures, charts, and symbols in both written and verbal explanations

Students will analyze and evaluate the mathematical thinking and strategies of others.

- 1.CM.4 Listen to solutions shared by other students
- 1.CM.5 Formulate mathematically relevant questions

Students will use the language of mathematics to express mathematical ideas precisely.

- 1.CM.6 Use appropriate mathematical terms, vocabulary, and language

Connections Strand

Students will recognize and use connections among mathematical ideas.

- 1.CN.1 Recognize the connections of patterns in their everyday experiences to mathematical ideas
- 1.CN.2 Understand the connections between numbers and the quantities they represent
- 1.CN.3 Compare the similarities and differences of mathematical ideas

Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

- 1.CN.4 Understand how models of situations involving objects, pictures, and symbols relate to mathematical ideas

- 1.CN.5 Understand meanings of operations and how they relate to one another
- 1.CN.6 Understand how mathematical models represent quantitative relationships

Students will recognize and apply mathematics in contexts outside of mathematics.

- 1.CN.7 Recognize the presence of mathematics in their daily lives
- 1.CN.8 Recognize and apply mathematics to solve problems
- 1.CN.9 Recognize and apply mathematics to objects, pictures, and symbols

Representation Strand

Students will create and use representations to organize, record, and communicate mathematical ideas.

- 1.R.1 Use multiple representations including verbal and written language, acting out or modeling a situation, drawings, and/or symbols as representations
- 1.R.2 Share mental images of mathematical ideas and understandings
- 1.R.3 Use standard and nonstandard representations

Students will select, apply, and translate among mathematical representations to solve problems.

- 1.R.4 Connect mathematical representations with problem solving

Students will use representations to model and interpret physical, social, and mathematical phenomena.

- 1.R.5 Use mathematics to show and understand physical phenomena (e.g., estimate and represent the number of apples in a tree)
- 1.R.6 Use mathematics to show and understand social phenomena (e.g., count and represent sharing cookies between friends)
- 1.R.7 Use mathematics to show and understand mathematical phenomena (e.g., draw pictures to show a story problem, show number value using fingers on your hand)

Number Sense and Operations Strand

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

- 1.N.1 Count the items in a collection and know the last counting word tells how many items are in the collection (1 to 100)
- 1.N.2 Count out (produce) a collection of a specified size (10 to 100 items), using groups of ten
- 1.N.3 Quickly see and label with a number, collections of 1 to 10
- 1.N.4 Count by 1's to 100
- 1.N.5 Skip count by 10's to 100
- 1.N.6 Skip count by 5's to 50
- 1.N.7 Skip count by 2's to 20
- 1.N.8 Verbally count from a number other than one by 1's
- 1.N.9 Count backwards from 20 by 1's
- 1.N.10 Draw pictures or other informal symbols to represent a spoken number up to 20
- 1.N.11 Identify that spacing of the same number of objects does not affect the quantity (conservation)
- 1.N.12 Arrange objects in size order (increasing and decreasing)
- 1.N.13 Write numbers to 100
- 1.N.14 Read the number words *one, two, three...ten*
- 1.N.15 Explore and use place value
- 1.N.16 Compare and order whole numbers up to 100
- 1.N.17 Develop an initial understanding of the base ten system: 10 ones = 1 ten 10 tens = 1 hundred
- 1.N.18 Use a variety of strategies to compose and decompose one-digit numbers
- 1.N.19 Understand the commutative property of addition
- 1.N.20 Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)
- 1.N.21 Use before, after, or between to order numbers to 100 (with or without the use of a number line)
- 1.N.22 Use the words higher, lower, greater, and less to compare two numbers
- 1.N.23 Use and understand verbal ordinal terms, first to twentieth

Students will understand meanings of operations and procedures, and how they relate to one another.

- 1.N.24 Develop and use strategies to solve addition and subtraction word problems
- 1.N.25 Represent addition and subtraction word problems and their solutions as number sentences
- 1.N.26 Create problem situations that represent a given number sentence

- 1.N.27 Use a variety of strategies to solve addition and subtraction problems with one- and two-digit numbers without regrouping
- 1.N.28 Demonstrate fluency and apply addition and subtraction facts to and including 10
- 1.N.29 Understand that different parts can be added to get the same whole

Students will compute accurately and make reasonable estimates.

- 1.N.30 Estimate the number in a collection to 50 and then compare by counting the actual items in the collection

Algebra Strand

Students will recognize, use, and represent algebraically patterns, relations, and functions.

- 1.A.1 Determine and discuss patterns in arithmetic (what comes next in a repeating pattern, using numbers or objects)

Geometry Strand

Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.

- 1.G.1 Match shapes and parts of shapes to justify congruency
- 1.G.2 Recognize, name, describe, create, sort, and compare two-dimensional and three-dimensional shapes

Students will apply transformations and symmetry to analyze problem solving situations.

- 1.G.3 Experiment with slides, flips, and turns of two-dimensional shapes
- 1.G.4 Identify symmetry in two-dimensional shapes

Students will apply coordinate geometry to analyze problem solving situations.

- 1.G.5 Recognize geometric shapes and structures in the environment

Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

- 1.M.1 Recognize length as an attribute that can be measured
- 1.M.2 Use non-standard units (including finger lengths, paper clips, students' feet and paces) to measure both vertical and horizontal lengths
- 1.M.3 Informally explore the standard unit of measure, inch

Students will use units to give meaning to measurements.

- 1.M.4 Know vocabulary and recognize coins (penny, nickel, dime, quarter)
- 1.M.5 Recognize the cent notation as ¢
- 1.M.6 Use different combinations of coins to make money amounts up to 25 cents
- 1.M.7 Recognize specific times (morning, noon, afternoon, evening)
- 1.M.8 Tell time to the hour, using both digital and analog clocks
- 1.M.9 Know the days of the week and months of the year in sequence
- 1.M.10 Classify months and connect to seasons and other events

Students will develop strategies for estimating measurements.

- 1.M.11 Select and use non-standard units to estimate measurements

Statistics and Probability Strand

Students will collect, organize, display, and analyze data.

- 1.S.1 Pose questions about themselves and their surroundings
- 1.S.2 Collect and record data related to a question
- 1.S.3 Display data in simple pictographs for quantities up to 20 with units of one
- 1.S.4 Display data in bar graphs using concrete objects with intervals of one
- 1.S.5 Use Venn diagrams to sort and describe data
- 1.S.6 Interpret data in terms of the words: most, least, greater than, less than, or equal to
- 1.S.7 Answer simple questions related to data displayed in pictographs (e.g., category with most, how many more in a category compared to another, how many all together in two categories)

Students will make predictions that are based upon data analysis.

- 1.S.8 Discuss conclusions and make predictions in terms of the words likely and unlikely
- 1.S.9 Construct a question that can be answered by using information from a graph