

Indiana Academic Standard & Mathematics Pentathlon

GRADE 2 Alignment of Mathematics Pentathlon with the Indiana Academic Standards

Standard 1

Number Sense

2.1.1 Count by ones, twos, fives, and tens to 100.

Adventures in Problem Solving Book I – pp. 97-103

Note: Stress counting by tens, then twos and fives in Standard Configuration.

2.1.2 Identify the pattern of numbers in each group of ten, from tens through nineties.

Adventures in Problem Solving Book I – pp. 97-103

2.1.3 Identify numbers up to 100 in various combinations of tens and ones.

Adventures in Problem Solving Book I – pp. 97-103

2.1.4 Name the number that is ten more or ten less than any number 10 through 90

Adventures in Problem Solving Book I – pp. 97-103

2.1.5 Compare whole numbers up to 100 and arrange them in numerical order.

Adventures in Problem Solving Book I – pp. 97-103

2.1.6 Match the number names (*first, second, third, etc.*) with an ordered set of up to 100 items.

Adventures in Problem Solving Book I – pp. 97-103

Note: When teaching place value using Standard Configuration, place different values in a linear manner and ask students to identify which numbers are first, second, third, and so on. Also, place nonconsecutive values in a row and ask them to identify which values would come first, second, etc...

2.1.7 Identify odd and even numbers up to 100.

Adventures in Problem Solving Book I – pp. 97-103

Number Sense (continued)

2.1.8 Recognize fractions as parts of a whole or parts of a group (up to 12 parts).

Adventures in Problem Solving Book I – pp. 189-199

2.1.9 Recognize, name, and compare the unit fractions: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{10}$, and $\frac{1}{12}$.

Use pattern block model with two hexagons as a whole – model $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{6}$ and $\frac{1}{12}$. Ask students to explain if $\frac{1}{2}$ or $\frac{1}{12}$ is larger. What about $\frac{1}{4}$ and $\frac{1}{6}$, etc...

2.1.10 Know that, when all fractional parts are included, the result is equal to the whole and to one.

Adventures in Problem Solving Book I - pp. 189-199

Standard 2

Computation

2.2.1 Model addition of numbers less than 100 with objects and pictures.

Sum Dominoes and Dice game;

Adventures in Problem Solving Book I – pp.75-95;

Investigation Exercises Book I – pp. 5-18;

Ramrod game;

Adventures in Problem Solving Book I – pp. 141-157;

Investigation Exercises Book I – pp. 3-17;

Kwatro-Sinko game;

Adventures in Problem Solving Book I – pp. 213-222;

Investigation Exercises Book I – pp. 3-12;

Par 55 game;

Investigation Exercises Book I – pp. 20-33

2.2.2 Add two whole numbers less than 100 with and without regrouping.

Sum Dominoes and Dice game;

Adventures in Problem Solving Book I – pp. 75-95;

Investigation Exercises Book I – pp. 5-18;

Ramrod game;

Adventures in Problem Solving Book I – pp. 141-157;

Investigation Exercises Book I – pp. 3-17;

Kwatro-Sinko game;

Adventures in Problem Solving Book I – pp. 213-222;

Investigation Exercises Book I – pp. 3-12;

Par 55 game;

Investigation Exercises Book I – pp. 20-33

Computation (continued)

2.2.3 Subtract two whole numbers less than 100 without regrouping.

Sum Dominoes and Dice game;
Adventures in Problem Solving Book I – pp. 75-95;
Investigation Exercises Book I – pp. 5-18;
Ramrod game;
Adventures in Problem Solving Book I – pp. 141-157;
Investigation Exercises Book I – pp. 3-17;
Kwatro-Sinko game;
Adventures in Problem Solving Book I – pp. 213-222;
Investigation Exercises Book I – pp. 3-12

2.2.4 Understand and use the inverse relationship between addition and subtraction.

Sum Dominoes and Dice game;
Adventures in Problem Solving Book I – pp. 75-95;
Investigation Exercises Book I – pp. 5-18;
Ramrod game;
Adventures in Problem Solving Book I – pp. 141-157;
Investigation Exercises Book I – pp. 3-17;
Kwatro-Sinko game;
Adventures in Problem Solving Book I – pp. 213-222;
Investigation Exercises Book I – pp. 3-12

2.2.5 Use estimation to decide whether answers are reasonable in addition problems.

Sum Dominoes and Dice game;
Adventures in Problem Solving Book I – pp. 75-95;
Investigation Exercises Book I – pp. 5-18;
Ramrod game;
Adventures in Problem Solving Book I – pp. 141-157;
Investigation Exercises Book I – pp. 3-17;
Kwatro-Sinko game;
Adventures in Problem Solving Book I – pp. 213-222;
Investigation Exercises Book I – pp. 3-12;
Par 55 game;
Investigation Exercises Book I – pp. 20-33

2.2.6 Use mental arithmetic to add or subtract 0, 1, 2, 3, 4, 5, or 10 with numbers less than 100.

Sum Dominoes and Dice game;
Adventures in Problem Solving Book I – pp. 75-95;
Investigation Exercises Book I – pp. 5-18;
Ramrod game;
Adventures in Problem Solving Book I – pp. 141-157;
Investigation Exercises Book I – pp. 3-17;
Kwatro-Sinko game;
Adventures in Problem Solving Book I – pp. 213-222;
Investigation Exercises Book I – pp. 3-12;
Par 55 game;
Investigation Exercises Book I – pp. 20-33

Standard 3

Algebra and Functions

2.3.1 Relate problem situations to number sentences involving addition and subtraction.

Sum Dominoes and Dice game;
Adventures in Problem Solving Book I – pp. 75-95;
Investigation Exercises Book I – pp. 5-18;
Ramrod game;
Adventures in Problem Solving Book I – pp. 141-157;
Investigation Exercises Book I – pp. 3-17

2.3.2 Use the commutative and associative rules for addition to simplify mental calculations and to check results.

Sum Dominoes and Dice game;
Adventures in Problem Solving Book I – pp. 75-95;
Investigation Exercises Book I – pp. 5-18;
Ramrod game;
Adventures in Problem Solving Book I – pp. 141-157;
Investigation Exercises Book I – pp. 3-17;
Kwatro-Sinko game;
Adventures in Problem Solving Book I – pp. 213-222;
Investigation Exercises Book I – pp. 3-12;
Par 55 game;
Investigation Exercises Book I – pp. 20-33

Standard 4

Geometry

2.4.1 Construct squares, rectangles, triangles, cubes, and rectangular prisms with appropriate materials.

Par 55 game;
Adventures in Problem Solving Book I – 11-29

2.4.2 Describe, classify, and sort plane and solid geometric shapes (triangle, square, rectangle, cube, rectangular prism) according to the number and shape of faces, and the number of edges and vertices.

Par 55 game;
Adventures in Problem Solving Book I – 11-29

2.4.3 Investigate and predict the result of putting together and taking apart two- and three-dimensional shapes.

Adventures in Problem Solving Book I – pp. 164-165, 178, 181-185;
Hex-A-Gone Chapter of Investigation Exercises Book I – pp. 3-4

Geometry (continued)

2.4.4 Identify congruent two-dimensional shapes in any position.

Par 55 game;

Adventures in Problem Solving Book I – 11-29

2.4.5 Recognize geometric shapes and structures in the environment and specify their locations.

Par 55 game;

Adventures in Problem Solving Book I – 11-29

Standard 5

Measurement

2.5.4 Estimate area and use a given object to measure the area of other objects.

Hex-A-Gone game;

Investigation Exercises Book I – pp. 5-8

Standard 6

Problem Solving

2.6.1 Choose the approach, materials, and strategies to use in solving problems.

Support from

All Division II games (Par 55, Ramrod, Sum Dominoes & Dice, FIAR, and Kwatro-Sinko;

Adventures in Problem Solving Book I – all pages that relate to each of the Division II games;

Investigation Exercises Book I – all pages that relate to each of the Division II games

2.6.2 Use tools such as objects or drawings to model problems.

All Division II games (Par 55, Ramrod, Sum Dominoes & Dice, FIAR, and Kwatro-Sinko;

Adventures in Problem Solving Book I – all pages that relate to each of the Division II games;

Investigation Exercises Book I – all pages that relate to each of the Division II games

Problem Solving (continued)

2.6.3 Explain the reasoning used and justify the procedures selected in solving a problem.

All Division II games (Par 55, Ramrod, Sum Dominoes & Dice, FIAR, and Kwatro-Sinko;

Adventures in Problem Solving Book I – all pages that relate to each of the Division II games;

Investigation Exercises Book I – all pages that relate to each of the Division II games

2.6.4 Make precise calculations and check the validity of the results in the context of the problem.

All Division II games (Par 55, Ramrod, Sum Dominoes & Dice, FIAR, and Kwatro-Sinko;

Adventures in Problem Solving Book I – all pages that relate to each of the Division II games;

Investigation Exercises Book I – all pages that relate to each of the Division II games

2.6.5 Understand and use connections between two problems.

All Division II games (Par 55, Ramrod, Sum Dominoes & Dice, FIAR, and Kwatro-Sinko;

Adventures in Problem Solving Book I – all pages that relate to each of the Division II games;

Investigation Exercises Book I – all pages that relate to each of the Division II games

Note: All Mathematics Pentathlon games with the combined use of Adventures in Problem Solving and Investigation Exercises stress the use of a variety of strategies to solve problems as well as to explain their reasoning, justify procedures, and check the validity of results.