

A Correlation of

SCOTT FORESMAN ■ ADDISON WESLEY

Mathematics

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to the

**Tennessee Mathematics
Curriculum Standards,
Learning Expectations, and
Performance Indicators
(Student and Teacher
Performance Indicators)
Grades K-6**



T/M-146

Introduction

This document demonstrates the high degree of success students will achieve when using **Scott Foresman – Addison Wesley Mathematics** in meeting the objectives of the Tennessee Mathematics Curriculum Standards, Learning Expectations, and Performance Indicators. Correlation page references are to the Teacher’s Edition and associated Student Edition.

Scott Foresman – Addison Wesley Mathematics was carefully developed to reflect the specific needs of students and teachers at every grade level, while maintaining an overall primary goal: to have math make sense from every perspective. This program is based on scientific research that describes how children learn mathematics well and on classroom-based evidence that validates proven reliability.

● Reaching All Learners

Scott Foresman – Addison Wesley Mathematics addresses the needs of every student through structured instruction that makes concepts easier for students to grasp. Lessons provide step-by-step examples that show students how to think about and solve the problem. Built-in leveled practice in every lesson allows the teacher to customize instruction to match students’ abilities. Reaching All Learners, featured in the Teacher Edition, helps teachers meet the diverse needs of the classroom with fun and stimulating activities that are easy to incorporate directly into the lesson plan.

● Test Prep

Scott Foresman - Addison Wesley Mathematics builds understanding through connections to prior knowledge, math strands, other subjects and the real world. It provides practice for maximum results and offers assessment in a variety of ways. Besides carefully placed reviews at the end of each Section, an important Test Prep strand runs throughout the program. Writing exercises prepare students for open-ended and short-or extended-response questions on state and national tests. Spiral review in a test format help students keep their test-taking skills sharp.

● Priority on problem solving:

Problem-solving instruction is systematic and explicit. Reading connections help children with problem-solving skills and strategies for math. Reading for Math Success encourages students to use the reading skills and strategies they already know to solve math problems.

● Instructional Support

In the Teacher Edition, the Lesson Planner provides an easy, at-a-glance planning tool. It identifies objectives, math understandings, focus questions, vocabulary, and resources for each lesson in the chapter. Professional Development at the beginning of each chapter in the Teacher Edition includes a Skills Trace as well as Math Background and Teaching Tips for each section in the chapter.

Ancillaries help to reach all learners with practice, problem solving, hands-on math, language support, assessment and teacher support. Technology resources for both the student and the teacher provide a whole new dimension to math instruction by helping to create motivating and engaging lessons.

Table of Contents

Kindergarten - Grade Three.....	1
Grade Four.....	26
Grade Five.....	41
Grade Six	58

**Scott Foresman – Addison Wesley Mathematics
to the
Tennessee Mathematics Curriculum Standards,
Learning Expectations, and Performance Indicators**

Kindergarten – Grade Three

NUMBER AND OPERATIONS

Content Standard 1.0 The student will develop number and operation sense needed to represent numbers and number relationships verbally, symbolically, and graphically and to compute fluently and make reasonable estimates in problem solving.

Learning Expectations:

1.1 Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

K: 53A-53B, 53-54, 55A-55B, 55-56, 57A-57B, 57-58, 59A-59B, 59-60, 61A-61B, 61-62, 63A-63B, 63-64, 65A-65B, 65-66, 69A-69B, 69-70, 77A-77B, 77-78, 79A-79B, 79-80, 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 87A-87B, 87-88, 89A-89B, 89-90, 91A-91B, 91-92, 93A-93B, 93-94, 103A-013B, 103-104, 105A-105B, 105-106, 107A-107B, 107-108, 109A-109B, 109-110, 111A-111B, 111-112, 115A-115B, 115-116, 117A-117B, 117-118, 121A-121B, 121-122

1: 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-12, 91A-91B, 91-92, 125A-125B, 125-126, 127A-127B, 127-128, 183A-183B, 183-184, 185A-185B, 185-186, 243A-243B, 243-244, 247A-247B, 247-248, 255A-255B, 255-256, 257A-257B, 257-258, 281A-281B, 281-282, 283A-283B, 283-284, 285A-285B, 285-286, 287A-287B, 287-288

2: 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 95A-95B, 95-96, 97A-97B, 97-98, 99A-99B, 99-100, 101A-101B, 101-102, 391A-391B, 391-392, 393A-393B, 393-394, 395A-395B, 395-396, 397A-397B, 397-398, 399A-399B, 399-400, 401A-401B, 401-402

3: 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-9, 10A-10B, 10-11, 12A-12B, 12-13

1.2 Understand meanings of operations and how they relate to one another.

K: 225A-225B, 225-226, 227A-227B, 227-228, 229A-229B, 229-230, 231A-231B, 231-232, 235A-235B, 235-236, 237A-237B, 237-238, 245A-245B, 245-246, 247A-247B, 247-248, 265A-265B, 265-266, 267A-267B, 267-268, 269A-269B, 269-270

1: 45A-45B, 45-46, 47A-47B, 47-48, 49A-49B, 49-50, 51A-51B, 51-52, 53A-53B, 53-54, 61A-61B, 61-62, 63A-63B, 63-64, 65A-65B, 65-66, 67A-67B, 67-68, 69A-69B, 69-70, 141A-141B, 141-142

- 2:** 3A-3B, 3-4, 13A-13B, 13-14, 15A-15B, 15-16, 467A-467B, 467-478, 469A-469B, 469-470, 471A-471B, 471-472, 473A-473B, 473-474, 475A-475B, 475-476, 483A-483B, 483-484, 485A-485B, 485-486
- 3:** 66A-66B, 66-69, 70A-70B, 70-71, 260A-260B, 260-261, 262A-262B, 262-265, 266A-266B, 266-269, 370A-370B, 370-371, 372A-372B, 372-373, 374A-374B, 374-379, 384A-384B, 384-385

1.3 Solve problems, compute fluently, and make reasonable estimates.

- K:** 251A-251B, 251-253, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278
- 1:** 417A-417B, 417-418, 419A-419B, 419-420, 425A-425B, 425-426, 435A-435B, 435-436, 437A-437B, 437-438, 439A-439B, 439-440; 459A-459B, 459-460, 461A-461B, 461-462, 463A-463B, 463-464, 465A-465B, 465-466, 471A-471B, 471-472, 473A-473B, 473-474, 475A-475B, 475-476, 477A-477B, 477-478
- 2:** 135A-135B, 135-136, 137A-137B, 137-138, 139A-139B, 139-140, 141A-141B, 141-142, 145A-145B, 145-146, 147A-147B, 147-148, 149A-149B, 149-150, 175A-175B, 175-176, 177A-177B, 177-178, 179A-179B, 179-180, 181A-181B, 181-182, 185A-185B, 185-186, 187A-187B, 187-188, 189A-189B, 189-190, 191A-191B, 191-192, 193A-193B, 193-194
- 3:** 86A-86B, 86-89, 98A-98B, 98-101, 126A-126B, 126-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-155, 156A-156B, 156-157, 160A-160B, 160-161, 162A-162B, 162-165, 166A-166B, 166-167

Third Grade Benchmarks

Performance Indicators State:

As documented through state assessment –

at Level 1, the student is able to

3.1.spi.1. count by 10's, 100's, and 1000's;

- K:** 113A-113B, 113-114, 293A-293B, 293-294, 295A-295B, 295-296
- 1:** 255A-255B, 255-256, 257A-257B, 257-258
- 2:** 99A-99B, 99-100
- 3:** 25-27, 73, 261

3.1.spi.2. identify whole numbers as odd or even;

- K:** Preparation: 113-114
- 1:** 265A-265B, 265-266
- 2:** 101A-101B, 101-102
- 3:** 24, 258

3.1.spi.3. add and subtract efficiently and accurately with single-digit whole numbers.

- K:** 251A-251B, 251-252, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278
- 1:** 91A-91B, 91-92, 93A-93B, 93-94, 95A-95B, 95-96, 97A-97B, 97-98, 103A-103B, 103-104, 105A-105B, 105-106, 107A-107B, 107-108, 125A-125B, 125-126, 127A-127B, 127-128, 129A-129B, 129-130
- 2:** 3A-3B, 3-4, 13A-13B, 13-14, 15A-15B, 15-16, 43A-43B, 43-44, 45A-45B, 45-46, 47A-47B, 47-48, 49A-49B, 49-50, 51A-51B, 51-52, 53A-53B, 53-54, 57A-57B, 57-58, 61A-61B, 61-62, 63A-63B, 63-64, 65A-65B, 65-66
- 3:** 66A-66B, 66-69, 70A-70B, 70-71, 72A-72B, 72-75

at Level 2, the student is able to

3.1.spi.4. represent whole numbers to 9999 with models;

- K:** 55A-55B, 55-56, 59A-59B, 59-60, 81A-81B, 81-82, 85A-85B, 85-86, 105A-105B, 105-106, 107A-107B, 107-108, 109A-109B, 109-110, 111A-111B, 111-112, 115A-115B, 115-116
- 1:** 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-12, 281A-281B, 281-282, 283A-283B, 283-284, 285A-285B, 285-286, 287A-287B, 287-288
- 2:** 81A-81B, 81-82, 83A-83B, 83-84, 391A-391B, 391-392, 393A-393B, 393-394
- 3:** 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-9, 10A-10B, 10-11, 12A-12B, 12-13

3.1.spi.5. identify the place value of a given digit up to thousands;

- K:** Preparation: 117-118
- 1:** 281A-281B, 281-282, 283A-283B, 283-284, 285A-285B, 285-286, 287A-287B, 287-288
- 2:** 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 391A-391B, 391-392, 393A-393B, 393-394, 395A-395B, 395-396, 397A-397B, 397-398, 399A-399B, 399-400, 401A-401B, 401-402
- 3:** 6A-6B, 6-7, 8A-8B, 8-9, 10A-10B, 10-11

3.1.spi.6. recognize the value of combinations of coins and bills up to \$5;

- K:** 179A-179B, 179-180, 181A-181B, 181-182, 183A-183B, 183-184, 187A-187B, 187-188
- 1:** 345A-345B, 345-346
- 2:** 113A-113B, 113-114, 115A-115B, 115-116, 117A-117B, 117-118
- 3:** 36A-36B, 36-39

3.1.spi.7. compare and order whole numbers to 9999 using the appropriate symbol (i.e., <, >, =);

- K:** 63A-63B, 63-64, 65A-65B, 65-66, 87A-87B, 87-88, 89A-89B, 89-90, 91A-91B, 91-92, 121A-121B, 121-122
- 1:** 29A-29B, 29-30, 31A-31B, 31-32, 297A-297B, 297-298, 301A-301B, 301-302
- 2:** 399A-399B, 399-400, 409A-409B, 409-410
- 3:** 18A-18B, 18-21, 22A-22B, 22-23

3.1.spi.8. add two- and/or three-digit whole numbers;

- K:** Preparation: 251A-251B, 251-252, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258
- 1:** 459A-459B, 459-460, 461A-461B, 461-462, 463A-463B, 463-464, 465A-465B, 465-466
- 2:** 175A-175B, 175-176, 177A-177B, 177-178, 179A-179B, 179-180, 181A-181B, 181-182, 433A-433B, 433-434, 435A-435B, 435-436
- 3:** 126A-126B, 126-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 152A-152B, 152-155, 156A-156B, 156-157

3.1.spi.9. connect written and pictorial representations of fractions with denominators up to ten;

- K:** 213A-213B, 213-214, 215A-215B, 215-216
- 1:** 183A-183B, 183-184, 185A-185B, 185-186, 187A-187B, 187-188,
- 2:** 269A-269B, 269-270, 271A-271B, 271-272, 277A-277B, 277-278
- 3:** 498A-498B, 498-501, 502A-502B, 502-503, 512A-512B, 512-513

3.1.spi.10. solve real-world problems using addition or subtraction of whole numbers;

- K:** 252, 254, 256, 258, 272, 274, 276, 278
- 1:** 92, 94, 96, 98, 104, 106, 108, 126, 128, 130, 418, 420, 426, 436, 438, 440
- 2:** 43-44, 45-46, 47-48, 49-50, 51-52, 53-54, 57-58, 61-62, 63-64, 65-66, 135-136, 137-138, 139-140, 141-142, 145-146, 147-148, 149-150, 175-176, 177-178, 179-180, 181-182, 185-186, 187-188, 189-190, 191-192, 193-194
- 3:** 126-127, 128-131, 132-135, 136-139, 146-147, 148-149, 152-155, 156-157

3.1.spi.11. determine the correct change from a transaction that is less than \$1.00;

- K:** Preparation: 179A-179B, 179-180, 181A-181B, 181-182, 183A-183B, 183-184, 187A-187B, 187-188
- 1:** Preparation: 345-346
- 2:** 119A-119B, 119-120
- 3:** related material: 40A-40B, 40-41

3.1.spi.12. use estimation to select a reasonable solution in problem solving (addition and subtraction only).

- K:** related material: 253A-253B, 253-254, 255A-255B, 255-256, 273A-273B, 273-274, 275A-275B, 275-276
- 1:** 249A-249B, 249-250
- 2:** 175A-175B, 175-176, 177A-177B, 177-178, 179A-179B, 179-180, 181A-181B, 181-182, 185A-185B, 185-186, 187A-187B, 187-188, 189A-189B, 189-190, 191A-191B, 191-192, 193A-193B, 193-194, 227A-227B, 227-228
- 3:** 86A-86B, 86-89, 90A-90B, 90-91, 98A-98B, 98-101

at Level 3, the student is able to

3.1.spi.13. represent whole numbers up to 10,000 in expanded form (e.g, 1000's + 100's + 10's + 1's);

- K:** Preparation: 117-118
- 1:** 285A-285B, 285-286
- 2:** 395A-395B, 395-396
- 3:** 6A-6B, 6-7, 10A-10B, 10-11

3.1.spi.14. compare unit fractions with denominators up to ten;

- K:** Preparation: 213A-213B, 213-214, 215A-215B, 215-216
- 1:** Preparation: 183-184, 185-186
- 2:** 271A-271B, 271-272
- 3:** 506A-506B, 506-509

3.1.spi.15. subtract two- and/or three-digit whole numbers;

- K:** Preparation: 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278
- 1:** 471A-471B, 471-472, 473A-473B, 473-474, 475A-475B, 475-476, 477A-477B, 477-478
- 2:** 215A-215B, 215-216, 217A-217B, 217-218, 449A-449B, 449-450, 451A-451B, 451-452
- 3:** 146-147, 148A-148B, 148-149, 152A-152B, 152-155, 156A-156B, 156-157

3.1.spi.16. use the multiplication facts 0, 1, 2, 5, and 10 efficiently and accurately.

- K:** Preparation: 293-294, 295-296
- 1:** Preparation: 255-256, 257-258
- 2:** 473A-473B, 473-474, 475A-475B, 475-476
- 3:** 276A-276B, 276-279, 280A-280B, 280-281, 282A-282B, 282-283, 286A-286B, 286-287

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to**3.1.tpi.1. read and represent whole numbers to 9999;**

- K:** 55A-55B, 55-56, 59A-59B, 59-60, 81A-81B, 81-82, 85A-85B, 85-86, 105A-105B, 105-106, 107A-107B, 107-108, 109A-109B, 109-110, 111A-111B, 111-112, 117A-117B, 117-118
- 1:** 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-12, 281A-281B, 281-282, 283A-283B, 283-284, 285A-285B, 285-286, 287A-287B, 287-288
- 2:** 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 391A-391B, 391-392, 393A-393B, 393-394, 395A-395B, 395-396
- 3:** 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-9, 10A-10B, 10-11, 12A-12B, 12-13

3.1.tpi.2. create number sentences that describe real-world situations involving addition and subtraction.

- K:** 255A-255B, 255-256, 275A-275B, 275-276
- 1:** 57A-57B, 57-58
- 2:** 5A-5B, 5-8, 9A-9B, 9-10, 17A-17B, 17-18, 23A-23B, 23-24, 25A-25B, 25-26, 27A-27B, 27-28, 29A-29B, 29-30, 57A-57B, 57-58
- 3:** 76A-76B, 76-77

at Level 2, the student is able to**3.1.tpi.3. skip count by tens from any whole number less than 1000;**

- K:** 293A-293B, 293-294, 295A-295B, 295-296
- 1:** 243A-243B, 243-244
- 2:** 99A-99B, 99-100
- 3:** related material: 25-27, 73, 261

3.1.tpi.4. use concrete materials and pictorial and symbolic representations to show numbers to 9999;

- K:** 55A-55B, 55-56, 59A-59B, 59-60, 81A-81B, 81-82, 85A-85B, 85-86, 105A-105B, 105-106, 107A-107B, 107-108, 109A-109B, 109-110, 111A-111B, 111-112, 115A-115B, 115-116
- 1:** 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-12, 281A-281B, 281-282, 283A-283B, 283-284, 285A-285B, 285-286, 287A-287B, 287-288
- 2:** 81A-81B, 81-82, 83A-83B, 83-84, 391A-391B, 391-392, 393A-393B, 393-394
- 3:** 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-9, 10A-10B, 10-11, 12A-12B, 12-13

3.1.tpi.5. connect the spoken, written, concrete, and pictorial representations of fractions with denominators up to ten;**K:** 213A-213B, 213-214, 215A-215B, 215-216**1:** 183A-183B, 183-184, 185A-185B, 185-186, 187A-187B, 187-188, 189A-189B, 189-190**2:** 269A-269B, 269-270, 271A-271B, 271-272, 277A-277B, 277-278**3:** 498A-498B, 498-501, 502A-502B, 502-503, 512A-512B, 512-513**3.1.tpi.6. relate adding doubles to multiplying by two;****K:** Preparation: 253-254, 255-256**1:** Preparation: 103-104**2:** 469A-469B, 469-470**3:** 276A-276B, 276-279**3.1.tpi.7. use calculators in problem-solving situations.****K:** 75K**1:** 38, 84, 118, 150, 198, 234, 274, 324, 358, 410, 452, 488**2:** 36, 74, 128, 168, 204, 240, 284, 334, 384, 420, 460, 494**3:** 39, 89, 131, 195, 207, 231, 291, 327, 401, 449, 467, 501, 571, 621, 693*at Level 3, the student is able to***3.1.tpi.8. select an appropriate rounding strategy in problem-solving situations;****K:** Preparation: 119-120**1:** 249A-249B, 249-250**2:** 175A-175B, 175-176, 177A-177B, 177-178, 179A-179B, 179-180, 181A-181B, 181-182, 185A-185B, 185-186, 187A-187B, 187-188, 189A-189B, 189-190, 191A-191B, 191-192, 193A-193B, 193-194, 227A-227B, 227-228**3:** 28A-28B, 28-31, 86A-86B, 86-89, 98A-98B, 98-101**3.1.tpi.9. develop and apply a variety of thinking strategies for computation.****K:** 225A-225B, 225-226, 227A-227B, 227-228, 229A-229B, 229-230, 231A-231B, 231-232, 235A-235B, 235-236, 237A-237B, 237-238, 245A-245B, 245-246, 247A-247B, 247-248, 251A-251B, 251-252, 253A-253B, 253-254, 255A-255B, 255-256, 257A-257B, 257-258, 265A-265B, 265-266, 267A-267B, 267-268, 269A-269B, 269-270, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278**1:** 7A-7B, 7-8, 21A-21B, 21-22, 33A-33B, 33-34, 57A-57B, 57-58, 71A-71B, 71-72, 79A-79B, 79-80, 99A-99B, 99-100, 111A-111B, 111-112, 113-113B, 113-114, 133A-133B, 133-134, 143A-143B, 143-144, 145A-145B, 145-146, 431A-431B, 431-432, 445A-445B, 445-446, 447A-447B, 447-448, 467A-467B, 467-468, 481A-481B, 481-482, 483A-483B, 483-484

- 2:** 43A-43B, 43-44, 45A-45B, 45-46, 47A-47B, 47-48, 49A-49B, 49-50, 51A-51B, 51-52, 53A-53B, 53-54, 57A-57B, 57-58, 61A-61B, 61-62, 63A-63B, 63-64, 65A-65B, 65-66, 135A-135B, 135-136, 137A-137B, 137-138, 139A-139B, 139-140, 141A-141B, 141-142, 145A-145B, 145-146, 147A-147B, 147-148, 149A-149B, 149-150, 175A-175B, 175-176, 177A-177B, 177-178, 179A-179B, 179-180, 181A-181B, 181-182, 185A-185B, 185-186, 187A-187B, 187-188, 189A-189B, 189-190, 191A-191B, 191-192, 193A-193B, 193-194
- 3:** 86A-86B, 86-89, 98A-98B, 98-101, 126A-126B, 126-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-155, 156A-156B, 156-157, 160A-160B, 160-161, 162A-162B, 162-165, 166A-166B, 166-167, 276A-276B, 276-279, 280A-280B, 280-281, 282A-282B, 282-283, 286A-286B, 286-287, 288A-288B, 288-291, 292A-292B, 292-293, 316A-316B, 316-317, 318A-318B, 318-319, 320A-320B, 320-323, 324A-324B, 324-327, 328A-328B, 328-331, 386A-386B, 386-387, 388A-388B, 388-389, 390A-390B, 390-391, 392A-392B, 392-393, 396A-396B, 396-397, 402A-402B, 402-403

ALGEBRA

Content Standard 2.0 The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.

Learning Expectations:

2.1 Sort and classify objects by size, number, and other properties.

- K:** 11A-11B, 11-12, 13A-13B, 13-14, 15A-15B, 15-16, 17A-17B, 17-18
- 1:** 307A-307B, 307-308
- 2:** related material: 313A-313B, 313-314, 315A-315B, 315-316
- 3:** related material: 72-75, 344-345

2.2 Represent and analyze patterns and functions.

- K:** 35A-35B, 35-36, 37A-37B, 37-38, 39A-39B, 39-40, 41A-41B, 41-42, 43A-43B, 43-44, 45A-45B, 45-46, 95A-95B, 95-96, 297A-297B, 297-298
- 1:** 27A-27B, 27-28, 29A-29B, 29-30, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262
- 2:** 157A-157B, 157-158, 413A-413B, 413-414
- 3:** 8A-8B, 8-9, 24A-24B, 24-27, 72A-72B, 72-75, 340A-340B, 340-341, 344A-344B, 344-345

2.3 Use concrete, pictorial, and verbal representations to develop an understanding of the language and symbols of mathematics.

- K:** 27-28, 29-30, 31-32, 33-34, 53-54, 57-58, 77-78, 79-80, 83-84, 103-104, 125-126, 217-218, 247-248, 267-268, 291-292
- 1:** 11-12, 13-14, 15-16, 17-18, 25-26, 27-28, 47-48, 63-64, 75-76, 97-98, 125-126, 245-246, 291-292, 309-310, 311-312, 313-314, 431-432, 481-482
- 2:** 67A-67B, 67-68, 81A-81B, 81-82, 99A-99B, 99-100, 115A-115B, 115-116, 189A-189B, 189-190, 251A-251B, 251-252, 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316, 319A-319B, 319-320, 321A-321B, 321-322, 323A-323B, 323-324, 439A-439B, 439-440, 479A-479B, 479-480
- 3:** 140A-140B, 140-143, 204A-204B, 204-207, 208A-208B, 208-211, 226A-226B, 226-227, 228A-228B, 228-231, 232A-232B, 232-235, 236A-236B, 236-237, 270A-270B, 270-273

2.4 Illustrate general properties of operations.

- K:** 225A-225B, 225-226, 227A-227B, 227-228, 229A-229B, 229-230, 231A-231B, 231-232, 235A-235B, 235-236, 237A-237B, 237-238
- 1:** 45A-45B, 45-46, 47A-47B, 47-48, 49A-49B, 49-50, 51A-51B, 51-52, 53A-53B, 53-54, 61A-61B, 61-62, 63A-63B, 63-64, 65A-65B, 65-66, 67A-67B, 67-68, 69A-69B, 69-70
- 2:** 3A-3B, 3-4, 13A-13B, 13-14, 15A-15B, 15-16
- 3:** 66A-66B, 66-69, 70A-70B, 70-71, 260A-260B, 260-261, 262A-262B, 262-265

2.5 Analyze change in various contexts.

- K:** 35-36, 37-38, 39-40, 41-42, 43-44, 45-46, 95-96, 297-298
- 1:** 27A-27B, 27-28, 29A-29B, 29-30, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262
- 2:** 321A-321B, 321-322, 323A-323B, 323-324
- 3:** 208A-208B, 208-211, 212A-212B, 212-215, 228A-228B, 228-231, 232A-232B, 232-235

Third Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

3.2.spi.1. sort objects by two attributes.

- K:** 17A-17B, 17-18
- 1:** 307A-307B, 307-308
- 2:** related material: 313A-313B, 313-314, 315A-315B, 315-316
- 3:** related material: 72-75, 344-345

at Level 2, the student is able to

3.2.spi.2. extend repeating and growing numerical or geometric patterns;

- K:** 35A-35B, 35-36, 37A-37B, 37-38, 39A-39B, 39-40, 41A-41B, 41-42, 43A-43B, 43-44, 45A-45B, 45-46, 95A-95B, 95-96, 297A-297B, 297-298
1: 27A-27B, 27-28, 29A-29B, 29-30, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262
2: 157A-157B, 157-158, 413A-413B, 413-414
3: 24A-24B, 24-27, 340A-340B, 340-341

3.2.spi.3. represent repeating geometric patterns as repeating numerical patterns;

- K:** 39A-39B, 39-40
1: 27A-27B, 27-28
2: 157A-157B, 157-158
3: related material: 24-27

3.2.spi.4. determine the output for a particular input given the one operation function rule (i.e., addition, subtraction);

- K:** Preparation: 43A-43B, 43-44, 95A-95B, 95-96, 297A-297B, 297-298
1: Preparation: 27A-27B, 27-28, 29A-29B, 29-30, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262
2: 157A-157B, 157-158, 413A-413B, 413-414
3: 72A-72B, 72-75, 344A-344B, 344-345

3.2.spi.5. solve open sentences that involve addition and subtraction of whole numbers zero to twenty.

- K:** Preparation 255A-255B, 255-256, 275A-275B, 275-276
1: 261A-261B, 261-262
2: Preparation: 99A-99B, 99-100, 413A-413B, 413-414, 467A-467B, 467-468
3: 344A-344B, 344-345

at Level 3, the student is able to

3.2.spi.6. identify the rules by which objects or numbers have been sorted;

- K:** 11A-11B, 11-12, 13A-13B, 13-14, 15A-15B, 15-16, 17A-17B, 17-18
1: 307A-307B, 307-308
2: related material: 313A-313B, 313-314, 315A-315B, 315-316
3: 72A-72B, 72-75, 344A-344B, 344-345

3.2.spi.7. connect open sentences to real-world situations.

- K:** Preparation 255A-255B, 255-256, 275A-275B, 275-276
1: 261A-261B, 261-262
2: Preparation: 99A-99B, 99-100, 413A-413B, 413-414, 467A-467B, 467-468
3: 344A-344B, 344-345

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to**3.2.tpi.1. use manipulatives to demonstrate the commutative property of addition;**

- K:** Preparation: 245-246, 247-248
1: 93A-93B, 93-94
2: 5A-5B, 5-8, 9A-9B, 9-10
3: 66

3.2.tpi.2. demonstrate that subtraction is not commutative.

- K:** Preparation: 265-266, 267-268
1: Preparation: 125-126, 127-128
2: 13A-13B, 13-14
3: 70-71

at Level 2, the student is able to**3.2.tpi.3. describe a growing pattern;**

- K:** 41A-41B, 41-42, 43A-43B, 43-44, 45A-45B, 45-46, 95A-95B, 95-96, 297A-297B, 297-298
1: 27A-27B, 27-28, 29A-29B, 29-30, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262
2: 413A-413B, 413-414
3: 24A-24B, 24-27, 340A-340B, 340-341

3.2.tpi.4. determine the input for a particular output given the one operation function rule (i.e., addition, subtraction);

- K:** Preparation: 43A-43B, 43-44, 95A-95B, 95-96, 297A-297B, 297-298
1: Preparation: 27A-27B, 27-28, 29A-29B, 29-30, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262
2: 157A-157B, 157-158, 413A-413B, 413-414
3: 72A-72B, 72-75, 344A-344B, 344-345

3.2.tpi.5. create a function rule involving one operation;

- K:** Preparation: 43A-43B, 43-44, 95A-95B, 95-96, 297A-297B, 297-298
1: Preparation: 255-256, 257-258
2: 157A-157B, 157-158, 413A-413B, 413-414
3: 72A-72B, 72-75, 344A-344B, 344-345

3.2.tpi.6. use arrays to represent the commutative property of multiplication;

- K:** Preparation: 293-294, 295-296
1: Preparation: 255-256, 257-258
2: 471A-471B, 471-472
3: 262A-262B, 262-265

3.2.tpi.7. describe qualitative change (e.g., a student growing taller);

- K:** Preparation: 31-32, 33-34
1: 27A-27B, 27-28, 29A-29B, 29-30
2: 321A-321B, 321-322
3: 212A-212B, 212-215, 228A-228B, 228-231

3.2.tpi.8. describe quantitative change (e.g., a student growing two inches in one year).

- K:** Preparation: 31-32, 33-34
1: 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262
2: 323A-323B, 323-324
3: 208A-208B, 208-212, 232A-232B, 232-235

at Level 3, the student is able to

3.2.tpi.9. devise, carry out, and explain a sorting scheme for a group of objects;

K: 11A-11B, 11-12, 13A-13B, 13-14, 15A-15B, 15-16, 17A-17B, 17-18

1: 307A-307B, 307-308

2: related material: 313A-313B, 313-314, 315A-315B, 315-316

3: related material: 72-75, 344-345

3.2.tpi.10. describe, translate, and create patterns;

K: 35A-35B, 35-36, 37A-37B, 37-38, 39A-39B, 39-40, 41A-41B, 41-42, 43A-43B, 43-44, 45A-45B, 45-46, 95A-95B, 95-96, 297A-297B, 297-298

1: 27A-27B, 27-28, 29A-29B, 29-30, 255A-255B, 255-256, 257A-257B, 257-258, 261A-261B, 261-262

2: 157A-157B, 157-158, 413A-413B, 413-414

3: 8A-8B, 8-9, 24A-24B, 24-27, 72A-72B, 72-75, 340A-340B, 340-341, 344A-344B, 344-345

3.2.tpi.11. demonstrate understanding that an equation is a number sentence stating that two quantities are equal.

K: preparation 255A-255B, 255-256, 275A-275B, 275-276

1: preparation: 261A-261B, 261-262

2: preparation: 5A-5B, 5-8, 9A-9B, 9-10, 17A-17B, 17-18, 23A-23B, 23-24, 25A-25B, 25-26, 27A-27B, 27-28, 29A-29B, 29-30, 57A-57B, 57-58

3: 168A-168B, 168-169

GEOMETRY

Content Standard 3.0 The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one-, two-, and three-dimensional figures.

Learning Expectations:

3.1 Analyze characteristics and properties of geometric shapes.

K: 197A-197B, 197-198, 199A-199B, 199-200, 201A-201B, 201-202, 203A-203B, 203-204, 205A-205B, 205-206

1: 157A-157B, 157-158, 159A-159B, 159-160, 161A-161B, 161-162, 165A-165B, 165-166, 167A-167B, 167-168

2: 247A-247B, 247-248, 249A-249B, 249-250, 255A-255B, 255-256

3: 428A-428B, 428-431, 432A-432B, 432-435, 442A-442B, 442-443, 444A-444B, 444-445, 446A-446B, 446-449, 450A-450B, 450-453, 454A-454B, 454-455

3.2 Specify locations and describe spatial relationships.**K:** 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-10**1:** and describe spatial relationships.**1:** 173A**2:** 61A-61B, 61-62, 325A-325B, 325-326**3:** 218A-218B, 218-221, 512A-512B, 512-513**3.3 Recognize and apply flips, slides, and turns.****K:** 207A-207B, 207-208**1:** 173A-173B, 173-174**2:** 259A-259B, 259-260**3:** 456A-456B, 457-459**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**3.3.spi.1. name two-dimensional geometric figures (i.e., rectangle, square, triangle, circle).****K:** 203A-203B, 203-204, 205A-205B, 205-206**1:** 165A-165B, 165-166, 167A-167B, 167-168**2:** 249A-249B, 249-250**3:** 446A-446B, 446-449, 450A-450B, 450-453, 454A-454B, 454-455***at Level 2, the student is able to*****3.3.spi.2. name three-dimensional geometric figures (i.e., cube, cylinder, sphere, cone);****K:** 197A-197B, 197-198, 199A-199B, 199-200, 201A-201B, 201-202**1:** 157A-157B, 157-158, 159A-159B, 159-160**2:** 247A-247B, 247-248, 249A-249B, 249-250**3:** 428A-428B, 428-431, 432A-432B, 432-435**3.3.spi.3. recognize geometric figures that are the same size and shape;****K:** Preparation: 203A-203B, 203-204, 205A-205B, 205-206**1:** 169A-169B, 169-170**2:** 257A-257B, 257-258**3:** 456A-456B, 456-459

3.3.spi.4. use appropriate mathematical language to find a point on a grid using whole number coordinates.

- K:** Preparation: 29-30
- 1:** 315A-315B, 315-316
- 2:** 325A-325B, 325-326
- 3:** 218A-218B, 218-221

at Level 3, the student is able to

3.3.spi.5. identify the result of a transformation that has been applied to a simple two-dimensional geometric shape (i.e., flips or slides);

- K:** 207A-207B, 207-208
- 1:** 173A-173B, 173-174
- 2:** 259A-259B, 259-260
- 3:** 456A-456B, 457-459

3.3.spi.6. identify the line of symmetry in a two-dimensional design or shape.

- K:** 211A-211B, 211-212
- 1:** 171A-171B, 171-172
- 2:** 261A-261B, 261-262
- 3:** 460A-460B, 460-461

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

3.3.tpi.1. draw two-dimensional geometric figures;

- K:** 203B, 205B
- 1:** 165B, 167B
- 2:** 255A-255B, 255-256
- 3:** 447, 449, 453, 455

3.3.tpi.2. identify and draw horizontal and vertical lines.

- K:** Preparation: 203A-203B, 203-204, 205A-205B, 205-206
- 1:** Preparation: 165-166, 167-168
- 2:** Preparation: 255A-255B, 255-256
- 3:** 442A-442B, 442-443

at Level 2, the student is able to

3.3.tpi.3. construct three-dimensional geometric figures;

- K:** 197B, 199B, 201B
- 1:** 157B, 159B, 161B
- 2:** 247B, 249B
- 3:** 431

3.3.tpi.4. draw diagonal lines of geometric figures;

- K:** Preparation: 211-212
- 1:** Preparation: 171-172
- 2:** Preparation: 261A-261B, 261-262
- 3:** preparation: 446A-446B, 446-449

3.3.tpi.5. draw two-dimensional shapes showing lines of symmetry;

- K:** 211A-211B, 211-212
- 1:** 171A-171B, 171-172
- 2:** 261A-261B, 261-262
- 3:** 461

3.3.tpi.6. compare and contrast two- and three-dimensional geometric figures;

- K:** 99A-199B, 199-200
- 1:** 161A-161B, 161-162
- 2:** 247A-247B, 247-248, 249A-249B, 249-250, 255A-255B, 255-256
- 3:** 432A-432B, 432-435

3.3.tpi.7. use a variety of methods to show that two geometric figures are congruent.

- K:** Preparation: 203A-203B, 203-204, 205A-205B, 205-206
- 1:** 169A-169B, 169-170
- 2:** 257A-257B, 257-258
- 3:** 456A-456B, 456-459

at Level 3, the student is able to

3.3.tpi.8. predict and describe the results of sliding, flipping, and turning in two-dimensional shapes;

- K:** 207A-207B, 207-208
- 1:** 173A-173B, 173-174
- 2:** 259A-259B, 259-260
- 3:** 457-459

3.3.tpi.9. describe shapes that have more than one line of symmetry.

- K:** Preparation: 211-212
- 1:** 171A-171B, 171-172
- 2:** 261A-261B, 261-262
- 3:** 461

MEASUREMENT

Content Standard 4.0 The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.

Learning Expectations:

4.1 Demonstrate understanding of units of measure and measurable attributes of objects.

- K:** 133A-133B, 133-134, 135A-135B, 135-136, 137A-137B, 137-138, 139A-139B, 139-140, 141A-141B, 141-142, 145A-145B, 145-146, 147A-147B, 147-148, 149A-149B, 149-150, 151A-151B, 151-152, 153A-153B, 153-154, 171A-171B, 171-172, 173A-173B, 173-174, 175A-175B, 175-176
- 1:** 365A-365B, 365-366, 369A-369B, 369-370, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376, 383A-383B, 383-384, 385A-385B, 385-386, 387A-387B, 387-388, 389A-389B, 389-390, 391A-391B, 391-392, 393A-393B, 393-394, 397A-397B, 397-398
- 2:** 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348, 355A-355B, 355-356, 357A-357B-357-358, 365A-365B, 365-366, 367A-367B, 367-368, 369A-369B, 369-370
- 3:** 464A-464B, 464-467, 468A-468B, 468-471, 472A-472B, 472-473, 532A-532B, 532-533, 534A-534B, 534-535, 536A-536B, 536-537, 538A-538B, 538-539, 582A-582B, 582-583, 584A-584B, 584-587, 680A-680B, 680-683, 684A-684B, 684-687, 690A-690B, 690-693, 694A-694B, 694-695, 696A-696B, 696-697

4.2 Apply appropriate techniques and tools to determine measurements.

- K:** 139A-139B, 139-140, 141A-141B, 141-142, 151A-151B, 151-152, 153A-153B, 153-154
- 1:** 365A-365B, 365-366, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376, 383A-383B, 383-384, 385A-385B, 385-386, 387A-387B, 387-388, 389A-389B, 389-390, 391A-391B, 391-392, 393A-393B, 393-394, 397A-397B, 397-398
- 2:** 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348, 355A-355B, 355-356, 357A-357B-357-358, 365A-365B, 365-366, 367A-367B, 367-368, 369A-369B, 369-370
- 3:** 200-201, 464-467, 468-471, 472-473, 532-533, 534-535, 536-537, 538-539, 582-583, 584-587, 680-683, 684-687, 690-693, 694-695, 696-697

Third Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

3.4.spi.1. read and write time to the nearest hour, half-hour, and quarter-hour;

- K:** 173A-173B, 173-174, 175A-175B, 175-176
- 1:** 209A-209B, 209-210, 211A-211B, 211-212
- 2:** 291A-291B, 291-292, 293A-293B, 293-294, 295A-295B, 295-29
- 3:** 192A-192B, 192-195, 196A-196B, 196-197

3.4.spi.2. measure length to the nearest centimeter and inch;

- K:** 139A-139B, 139-140, 141A-141B, 141-142
- 1:** 371A-371B, 371-372, 375A-375B, 375-376
- 2:** 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348
- 3:** 536A-536B, 536-537, 582A-582B, 582-583

3.4.spi.3. solve real-world problems using a calendar.

- K:** 161A-161B, 161-162, 163A-163B, 163-164, 165A-165B, 165-166, 167A-167B, 167-168
- 1:** 225A-225B, 225-226, 227A-227B, 227-228
- 2:** 303A-303B, 303-304
- 3:** 200A-200B, 200-201

at Level 2, the student is able to

3.4.spi.4. solve real-world problems involving addition and subtraction of one- or two- digit measurements;

- K:** Preparation: 133A-133B, 133-134, 135A-135B, 135-136, 137A-137B, 137-138, 145A-145B, 145-146, 149A-149B, 149-150
1: Preparation: 371A-371B, 371-372, 375A-375B, 375-376
2: Preparation: 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348
3: 464A-464B, 464-467

3.4.spi.5. select an appropriate standard unit to measure length;

- K:** 139A-139B, 139-140, 141A-141B, 141-142
1: 365A-365B, 365-366, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376
2: 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348
3: 532A-532B, 532-533, 534A-534B, 534-535, 536A-536B, 536-537, 538A-538B, 538-539, 582A-582B, 582-583, 584A-584B, 584-587

3.4.spi.6. use estimation to determine if a length measurement is reasonable;

- K:** 141A-141B, 141-142
1: 365A-365B, 365-366, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376
2: 341A-341B, 341-342
3: 534A-534B, 534-535

3.4.spi.7. read thermometers with Fahrenheit and Celsius scales (positive whole number temperatures);

- K:** 153A-153B, 153-154
1: 395A-395B, 395-396
2: 369A-369B, 369-370
3: 696A-696B, 696-697

3.4.spi.8. read and write time at five-minute intervals.

- K:** 173A-173B, 173-174, 175A-175B, 175-176
1: 225A-225B, 225-226, 227A-227B, 227-228
2: 291A-291B, 291-292, 293A-293B, 293-294, 295A-295B, 295-296
3: 192A-192B, 192-195, 196A-196B, 196-197

at Level 3, the student is able to

3.4.spi.9. find the perimeter of a rectangle on a grid;

K: Preparation: 203-204

1: Preparation: 165-166, 167-168

2: Preparation: 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348

3: 464A-464B, 464-467

3.4.spi.10. solve real-world problems involving elapsed time to the half-hour.

K: Preparation: 173A-173B, 173-174, 175A-175B, 175-176

1: 221A-221B, 221-222

2: 299A-299B, 299-300

3: 198A-198B, 198-199

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to:

3.4.tpi.1. measure length to the nearest foot;

K: 139A-139B, 139-140, 141A-141B, 141-142

1: 373A-373B, 373-374

2: 343A-343B, 343-344, 345A-345B, 345-346

3: 536A-536B, 536-537

3.4.tpi.2. use a variety of non-standard units to estimate and/or measure length, area, and capacity.

K: 141-142, 151-152

1: 365A-365B, 365-366, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376, 383A-383B, 383-384, 385A-385B, 385-386, 387A-387B, 387-388

2: 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348, 355A-355B, 355-356, 357A-357B-357-358

3: 533, 535, 582-583, 618, 681, 682, 685, 691, 697

at Level 2, the student is able to:

3.4.tpi.3. explain when an estimate of a measurement is sufficient;

K: 141-142, 151-152

1: 365-366, 371-372, 373-374, 375-376, 383-384, 389-390

2: 341-342, 353-354, 363-364

3: 533, 535, 582-583, 618, 681, 682, 685, 691, 697

3.4.tpi.4. estimate the capacity of a container;

K: 147-148

1: 383A-383B, 383-384

2: 353-354

3: 681, 682

3.4.tpi.5. estimate the weight of an object;

K: 151-152

1: 389A-389B, 389-390

2: 363-364

3: 691, 697

3.4.tpi.6. measure the capacity of a container in liters, cups, pints, quarts, and gallons;

K: 147A-147B, 147-148

1: 375B, 375-376, 383A

2: 355A-355B, 355-356, 357A-357B, 357-358

3: 680A-680B, 680-683, 684A-684B, 684-687

3.4.tpi.7. measure to the nearest ounce, pound, kilogram, and gram.

K: 151A-151B, 151-152

1: 389A-389B, 389-390, 391A-391B, 391-392, 393A-393B, 393-394

2: 365A-365B, 365-366, 367A-367B, 367-368

3: 690A-690B, 690-693, 694A-694B, 694-695

at Level 3, the student is able to:

3.4.tpi.8. develop the formula for finding the area of a rectangle;

- K:** Preparation: 203-204
- 1:** Preparation: 165-166, 167-168
- 2:** Preparation: 343-344, 345-346
- 3:** 468A-468B, 468-471

3.4.tpi.9. explain the relationships among inches, feet, and yards.

- K:** 139A-139B, 139-140, 141A-141B, 141-142
- 1:** 371A-371B, 371-372, 373A-373B, 373-374
- 2:** 345A-345B, 345-346
- 3:** 536A-536B, 536-537, 538A-538B, 538-539

DATA ANALYSIS AND PROBABILITY

Content Standard 5.0 The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.

Learning Expectations:

5.1 Develop, select, and use appropriate methods to collect, organize, display, and analyze data.

- K:** 27A-27B, 27-28, 29A-29B, 29-30, 31A-31B, 31-32, 33A-33B, 33-34
- 1:** 309A-039B, 309-310, 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316
- 2:** 311A-311B, 311-312, 313A-313B, 313-314, 315A-315B, 315-316, 319A-319B, 319-320, 321A-321B, 321-322, 323A-323B, 323-324, 325A-325B, 325-326, 327A-327B, 327-328
- 3:** 204A-204B, 204-207, 208A-208B, 208-211, 212A-212B, 212-215, 222A-222B, 222-223, 226A-226B, 226-227, 228A-228B, 228-231, 232A-232B, 232-235, 236A-236B, 236-237

5.2 Apply basic concepts of probability.

- K:** Preparation: 213A-213B, 213-214, 215A-215B, 215-216
- 1:** 401A-401B, 401-402, 403A-403B, 403-404
- 2:** 373A-373B, 373-374, 375A-375B, 375-376
- 3:** 700A-700B, 700-701, 702A-702B, 702-703, 704A-704B, 704-707

Third Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

3.5.spi.1. interpret pictographs.

- K:** 31A-31B, 31-32
- 1:** 309A-309B, 309-310
- 2:** 319A-319B, 319-320
- 3:** 212A-212B, 212-215

at Level 2, the student is able to:

3.5.spi.2. interpret bar graphs;

- K:** 33A-33B, 33-34
- 1:** 311-311B, 311-312
- 2:** 321A-321B, 321-322
- 3:** 212A-212B, 212-215

3.5.spi.3. solve real-world problems in which data is represented in tables;

- K:** Preparation: 27-28
- 1:** 313A-313B, 313-314
- 2:** 311A-311B, 311-312, 313A-313B, 313-314
- 3:** 204A-204B, 204-207

3.5.spi.4. determine whether an event is certain, possible, or impossible.

- K:** Preparation: 213A-213B, 213-214, 215A-215B, 215-216
- 1:** 401A-401B, 401-402
- 2:** 373A-373B, 373-374
- 3:** 700A-700B, 700-701

at Level 3, the student is able to:

3.5.spi.5. determine the most likely, least likely, or equally likely outcomes in simple experiments (i.e., spinner, number or color cube);

- K:** Preparation: 213A-213B, 213-214, 215A-215B, 215-216
- 1:** 403A-403B, 403-404
- 2:** 373A-373B, 373-374
- 3:** 700A-700B, 700-701

3.5.spi.6. select all possible outcomes of a simple experiment (i.e., spinner, coin toss, number or color cube).

- K:** Preparation: 213A-213B, 213-214, 215A-215B, 215-216
1: 401A-401B, 401-402, 403A-403B, 403-404
2: 373A-373B, 373-374, 375A-375B, 375-376
3: 702A-702B, 702-703

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to:**3.5.tpi.1. create bar graphs and pictographs;**

- K:** 31A-31B, 31-32, 33A-33B, 33-34
1: 309A-309B, 309-310, 311A-311B, 311-312
2: 319A-319B, 319-320, 321A-321B, 321-322
3: 226A-226B, 226-227, 228A-228B, 228-231

3.5.tpi.2. create tables using tally marks.

- K:** Preparation: 27-28
1: 313A-313B, 313-314
2: 311A-311B, 311-312, 313A-313B, 313-314
3: 204A-204B, 204-207

at Level 2, the student is able to:**3.5.tpi.3. pose questions and gather data to answer questions;**

- K:** Preparation: 27-28
1: 313A-313B, 313-314
2: 313A-313B, 313-314
3: 204A-204B, 204-207

3.5.tpi.4. develop an appropriate method to collect data;

- K:** Preparation: 27-28
1: 313A-313B, 313-314
2: 313A-313B, 313-314
3: 204A-204B, 204-207

3.5.tpi.5. select an appropriate method to display data;

- K:** 29A-29B, 29-30, 31A-31B, 31-32, 33A-33B, 33-34
1: 309A-039B, 309-310
2: 319A-319B, 319-320, 321A-321B, 321-322, 323A-323B, 323-324
3: 226A-226B, 226-227, 228A-228B, 228-231

3.5.tpi.6. explain whether an event is certain, possible, or impossible;

- K:** Preparation: 213-214, 215-216
1: 401A-401B, 401-402
2: 373A-373B, 373-374
3: 700A-700B, 700-701

3.5.tpi.7. explain whether an event is likely or unlikely.

- K:** Preparation: 213-214, 215-216
1: 403A-403B, 403-404
2: 373A-373B, 373-374
3: 700A-700B, 700-701

at Level 3, the student is able to:

3.5.tpi.8. make conjectures based on data gathered and displayed;

- K:** 28, 30, 32, 34
1: 312, 314
2: 323-324
3: 222-223

3.5.tpi.9. predict outcomes of events based on data gathered and displayed.

- K:** 28, 30, 32, 34
1: 401-402, 403-404
2: 313A-313B, 313-314, 315A-315B, 315-316
3: 704A-704B, 704-707

**Scott Foresman – Addison Wesley Mathematics
to the
Tennessee Mathematics Curriculum Standards,
Learning Expectations, and Performance Indicators**

Grade Four

NUMBER AND OPERATIONS

Content Standard 1.0 The student will develop number and operation sense needed to represent numbers and number relationships verbally, symbolically, and graphically and to compute fluently and make reasonable estimates in problem solving.

Learning Expectations:

1.1 Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

4: 4A-4B, 4-7, 8A-8B, 8-9, 28A-28B, 28-29, 34A-34B, 34-37, 500A-500B, 500-501, 502A-502B, 502-503, 504A-504B, 504-507, 624A-624B, 624-627

1.2 Understand meanings of operations and how they relate to one another.

4: 62A-62B, 62-63, 64A-64B, 64-65, 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89, 124A-124B, 124-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-153

1.3 Solve problems, compute fluently, and make reasonable estimates.

4: 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89, 270A-270B, 270-273, 274A-274B, 274-277, 332A-332B, 332-335, 336A-336B, 336-337, 380A-380B, 380-383, 386A-386B, 386-389, 390A-390B, 390-391

Fourth Grade Benchmarks

Performance Indicators State:

As documented through state assessment –

at Level 1, the student is able to

4.1.spi.1. represent whole numbers to 9999;

4: 4A-4B, 4-7, 8A-8B, 8-9, 10A-10B, 10-11

4.1.spi.2. compare and order whole numbers to 9999 using the appropriate symbol (<, >, =);

4: 16A-16B, 16-19

4.1.spi.3. solve one-step real-world problems involving addition or subtraction of whole numbers.

4: 62A-62B, 62-63, 64A-64B, 64-65, 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89

at Level 2, the student is able to

4.1.spi.4. read and write numbers from hundred-thousands to hundredths;

4: 4A-4B, 4-7, 8A-8B, 8-9, 28A-28B, 28-29, 34A-34B, 34-35

4.1.spi.5. identify the place value of a given digit from hundred-thousands to hundredths;

4: 4A-4B, 4-7, 8A-8B, 8-9, 10A-10B, 10-11, 28A-28B, 28-29

4.1.spi.6. identify fractions as parts of whole units, as parts of sets, as locations on number lines, and as divisions of whole numbers;

4: 500A-500B, 500-501, 502A-502B, 502-503

4.1.spi.7. multiply efficiently and accurately with single-digit whole numbers;

4: 264A-264B, 264-265, 270A-270B, 270-273, 274A-274B, 274-277, 286A-286B, 286-287, 288A-288B, 288-289

4.1.spi.8. use estimation to select a reasonable solution to a whole number computation involving addition, subtraction, or multiplication;

4: 68A-68B, 68-71, 258A-258B, 258-261

4.1.spi.9. add and subtract decimals (includes monetary units);

4: 76A-76B, 76-79, 86A-86B, 86-89

4.1.spi.10. represent whole numbers up to 10,000 in expanded form (1000's + 100's + 10's + 1's);

4: 5-6, 9

4.1.spi.11. add and subtract fractions with like denominators.

4: 564A-564B, 564-567, 574A-574B, 574-577

*at Level 3, the student is able to***4.1.spi.12. represent numbers as both improper fractions and mixed numbers;**

4: 530A-530B, 530-533

4.1.spi.13. generate equivalent forms of whole numbers, commonly used fractions, and decimals;

4: 516A-516B, 516-517, 520A-520B, 520-521, 530A-530B, 530-531

4.1.spi.14. solve one-step real-world problems involving addition, subtraction, or multiplication of whole numbers and/or decimals.

4: 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89, 270A-270B, 270-273, 274A-274B, 274-277, 332A-332B, 332-335, 336A-336B, 336-337

Performance Indicators Teacher:

As documented through teacher observation –

*at Level 1, the student is able to***4.1.tpi.1. explain the relationship between of addition and subtraction;**

4: 6A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89

4.1.tpi.2. explain the relationship between multiplication and addition;

4: 264A-264B, 264-267

4.1.tpi.3. explain the relationship between multiplication and division.

4: 148A-148B, 148-149

*at Level 2, the student is able to***4.1.tpi.4. use concrete and pictorial representations to compare decimals;**

4: 28A-28B, 28-29, 34A-34B, 34-35

4.1.tpi.5. use various models to represent, order, and compare whole numbers and commonly used fractions and mixed numbers;

4: 16A-16B, 16-19, 522A-522B, 522-523, 524A-524B, 524-527, 534A-534B, 534-536, 630A-630B, 630-631

4.1.tpi.6 identify missing information or too much information in real-world problems

4: 696A-696B, 696-697

4.1.tpi.7. communicate and use mathematical symbols correctly.

4: 203, 301, 302-303, 421, 422-423, 603, 635, 651, 662A-662B, 662-663, 669, 675, 676-677, 715, 717, 719, 725, 726-727

at Level 3, the student is able to

4.1.tpi.8. select appropriate methods and tools for computing with whole numbers;

4: 62A-62B, 62-63, 64A-64B, 64-65, 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89, 124A-124B, 124-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-153

4.1.tpi.9. communicate the effects of addition, subtraction, multiplication, and division;

4: 62A-62B, 62-63, 64A-64B, 64-65, 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89, 124A-124B, 124-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-153

4.1.tpi.10. select the appropriate computational and operational methods to solve problems.

4: 86A-86B, 86-89, 338A-338B, 338-339

ALGEBRA

Content Standard 2.0 The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.

Learning Expectations:**2.1 Understand patterns, relations, and functions.**

4: 10A-10B, 10-11, 90A-90B, 90-91, 366A-366B, 366-367, 64

2.2 Represent and analyze mathematical situations and structures using algebraic symbols.

4: 94A-94B, 94-95, 96A-96B, 96-97, 98A-98B, 98-99, 100A-100B, 100-101, 160A-160B, 106-103, 166A-166B, 166-167, 690A-690B, 690-691, 692A-692B, 692-695

2.3 Illustrate general properties of operations.

4: 62A-62B, 62-63, 64A-64B, 64-65, 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89, 124A-124B, 124-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-153

2.4 Analyze change in various contexts.

4: 692A-692B, 692-695

Fourth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

4.2.spi.1. solve open sentences involving addition and subtraction.

4: 100A-100B, 100-101

at Level 2, the student is able to

4.2.spi.2. extend numerical and geometric patterns;

4: 10A-10B, 10-11, 90A-90B, 90-91, 366A-366B, 366-367, 641

4.2.spi.3. determine the function rule for data in a function table

4: 164A-164B, 164-165, 692A-692B, 692-695

4.2.spi.4. connect open sentences to real-world situations;

4: 100A-100B, 100-101, 166A-166B, 166-167, 692A-692B, 692-695

4.2.spi.5. solve open sentences involving multiplication and division.

4: 166A-166B, 166-167

*at Level 3, the student is able to***4.2.spi.6. apply basic function rules.**

4: 164A-164B, 164-165, 692A-692B, 692-695

Performance Indicators Teacher:

As documented through teacher observation –

*at Level 1, the student is able to***4.2.tpi.1. apply commutative, associate, zero, and identify properties**

4: 62A-62B, 62-63, 64A-64B, 64-65, 76A-76B, 76-79, 80A-80B, 80-81, 82A-82B, 82-85, 86A-86B, 86-89, 124A-124B, 124-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-139, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-153

*at Level 2, the student is able to***4.2.tpi.2. generalize geometric and numerical patterns. 5.2.tpi.2. represent and analyze patterns and functions using words, tables, and graphs;**

4: 10A-10B, 10-11, 90A-90B, 90-91, 366A-366B, 366-367, 641

4.2.tpi.3. demonstrate an understanding that an equation is a number sentence stating two quantities are equal;

4: 100A-100B, 100-101, 166A-166B, 166-167, 692A-692B, 692-695

4.2.tpi.4 identify and describe a function rule;

4: 164A-164B, 164-165, 692A-692B, 692-695

4.2.tpi.5 investigate how a change in one variable relates to a change in a second variable.

4: 692A-692B, 692-695

at Level 3, the student is able to

4.2.tpi.6. demonstrate understanding that an equation is a number sentence stating two quantities are equal;

4: 100A-100B, 100-101, 166A-166B, 166-167, 692A-692B, 692-695

4.2.tpi.7. represent the idea of a variable as an unknown quantity using a letter or a symbol.

4: 94A-94B, 94-95, 96A-96B, 96-97, 98A-98B, 98-99, 100A-100B, 100-101, 160A-160B, 106-103, 166A-166B, 166-167, 690A-690B, 690-691, 692A-692B, 692-695

GEOMETRY

Content Standard 3.0 The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one-, two-, and three-dimensional figures.

Learning Expectations:

3.1 Analyze characteristics and properties of two- and three-dimensional shapes.

4: 434A-434B, 434-437, 438A-438B, 438-439, 440A-440B, 440-443, 444A-444B, 444-447, 448A-448B, 448-449

3.2 Specify locations and describe spatial relationships using coordinate geometry.

4: 452, 454-455

3.3 Apply transformations and use symmetry to analyze mathematical situations.

4: 452A-452B, 452-455, 456A-456B, 456-457

3.4 Use visualization, spatial reasoning, and geometric modeling to solve problems.

4: 434A-434B, 434-437, 438A-438B, 438-439, 440A-440B, 440-443, 444A-444B, 444-447, 448A-448B, 448-449

Fourth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**4.3.spi.1. identify points, lines, and rays.**

4: 440A-440B, 440-443

at Level 2, the student is able to**4.3.spi.2. recognize congruent geometric figures;**

4: 452A-452B, 452-455

4.3.spi.3. identify lines of symmetry for two-dimensional geometric figures;

4: 456A-456B, 456-457

4.3.spi.4. identify the result of a transformation (flip or slide) that has been applied to a simple two-dimensional geometric shape.

4: 452A-452B, 452-455

at Level 3, the student is able to**4.3.spi.5. identify two- or three-dimensional shapes given defining attributes;**

4: 434A-434B, 434-437

4.3.spi.6. locate and specify points in Quadrant I of a coordinate system.

4: 212A-212B, 212-215

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to**4.3.tpi.1. draw and describe lines, line segments, rays, and angles;**

4: 440A-440B, 440-443

4.3.tpi.2. draw lines of symmetry for two-dimensional geometric figures.

4: 456A-456B, 456-457

at Level 2, the student is able to**4.3.tpi.3. develop and use mathematical language to describe the attributes of geometric figures;**

4: 435, 436, 439, 442, 446, 449, 454, 457, 459, 466, 470, 471

4.3.tpi.4. describe characteristics of lines, rays, and angles;

4: 440A-440B, 440-443

4.3.tpi.5. describe and compare properties of two- and three-dimensional geometric figures;

4: 434A-434B, 434-437, 438A-438B, 438-439, 440A-440B, 440-443, 444A-444B, 444-447, 448A-448B, 448-449

4.3.tpi.6. construct or draw the mirror image of a two-dimensional geometric figure or pattern.

4: related material: 452-455

at Level 3, the student is able to**4.3.tpi.7. investigate and describe the results of subdividing and combining two-dimensional geometric figures;**

4: related material: 452-455

4.3.tpi.8. identify, compare, and analyze attributes of two- and three-dimensional shapes;

4: 434A-434B, 434-437, 438A-438B, 438-439, 440A-440B, 440-443, 444A-444B, 444-447, 448A-448B, 448-449

4.3.tpi.9. describe a motion that will show that two shapes are congruent.

4: 452A-452B, 452-455

MEASUREMENT

Content Standard 4.0 The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.

Learning Expectations:**4.1 Understand measurable attributes of objects and the units, systems, and processes of measurement.**

4: 464A-464B, 464-467, 468A-468B, 468-473, 588A-588B, 588-589, 652A-652B, 652-653

4.2 Apply appropriate techniques, tools, and formulas to determine measurements.

4: 464A-464B, 464-467, 468A-468B, 468-473, 474A-474B, 474-475, 588A-588B, 588-589, 590A-590B, 590-591, 592A-592B, 592-593, 594A-594B, 594-595, 596A-596B, 596-597, 652A-652B, 652-653, 654A-65B, 654-655, 656A-656B, 656-657

Fourth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**4.4.spi.1. read temperature using Fahrenheit and Celsius scales.**

4: 664A-664B, 664-665

at Level 2, the student is able to**4.4.spi.2. find the perimeter of rectangles;**

4: 464A-464B, 464-467

4.4.spi.3. tell time on the minute;

4: 190A-190B, 190-191

4.4.spi.4. measure length to the nearest $\frac{1}{4}$ inch or nearest centimeter;

4: 590A-590B, 590-591

4.4.spi.5. use estimation to determine if a length or volume measurement is reasonable;

4: 588-589, 652-653

4.4.spi.6. solve real-world problems involving addition and subtraction of measurements;

4: 464A-464B, 464-467

4.4.spi.7. solve real-world problems involving elapsed time to the quarter-hour.

4: 196A-196B, 196-197

*at Level 3, the student is able to***4.4.spi.8. select appropriate standard units to measure length, perimeter, area, capacity, volume, weight, time, temperature, and angles;**

4: 464A-464B, 464-467, 468A-468B, 468-473, 474A-474B, 474-475, 588A-588B, 588-589, 590A-590B, 590-591, 592A-592B, 592-593, 594A-594B, 594-595, 596A-596B, 596-597, 652A-652B, 652-653, 654A-65B, 654-655, 656A-656B, 656-657

4.4.spi.8. apply the formula for finding area of a rectangle;

4: 468A-468B, 468-471

4.4.spi.9. select the appropriate standard units to measure length, perimeter, area, capacity, volume, weight, time, temperature, and angles.

4: 464A-464B, 464-467, 468A-468B, 468-473, 474A-474B, 474-475, 588A-588B, 588-589, 590A-590B, 590-591, 592A-592B, 592-593, 594A-594B, 594-595, 596A-596B, 596-597, 652A-652B, 652-653, 654A-65B, 654-655, 656A-656B, 656-657

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

4.4.tpi.1. select and use appropriate benchmarks to estimate length measurements.

4: 590-591

at Level 2, the student is able to

4.4.tpi.2. demonstrate understanding of the concepts of length, perimeter, area, weight, capacity, volume, time, and angle measure;

4: 464A-464B, 464-467, 468A-468B, 468-473, 474A-474B, 474-475, 588A-588B, 588-589, 590A-590B, 590-591, 592A-592B, 592-593, 594A-594B, 594-595, 596A-596B, 596-597, 652A-652B, 652-653, 654A-65B, 654-655, 656A-656B, 656-657

4.4.tpi.3. develop strategies for estimating the perimeters and areas of geometric figures;

4: 464, 468

4.4.tpi.4. communicate an understanding of the relationships among the units within a system of linear measurement.

4: 464A-464B, 464-467, 468A-468B, 468-473

at Level 3, the student is able to

4.4.tpi.5. explore how perimeter and area of a rectangle change when its dimensions change.

4: related material: 464-467, 468-473

DATA ANALYSIS AND PROBABILITY

Content Standard 5.0 The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.

Learning Expectations:

5.1 Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer questions.

4: 204A-204B, 204-205, 206A-206B, 206-207, 208A-208B, 208-211, 216A-216B, 216-221, 226A-226B, 226-229, 230A-230B, 230-231, 232A-232B, 232-233

5.2 Select and use appropriate statistical methods to analyze data.

4: 226A-226B, 226-229

5.3 Develop and evaluate inferences and predictions that are based on data.

4: 216-221

5.4 Understand and apply basic concepts of probability.

4: 700A-700B, 700-703, 706A-706B, 706-709, 710A-710B, 710-713

Fourth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

4.5.spi.1. interpret data displayed in bar graphs and pictographs.

4: 204A-204B, 204-205, 208A-208B, 208-211

at Level 2, the student is able to

4.5.spi.2. connect data in tables to pictographs, line graphs, or bar graphs;

4: 204A-204B, 204-205, 206A-206B, 206-207, 208A-208B, 208-211

4.5.spi.3. determine the most likely, least likely, or equally likely outcomes in simple experiments;

4: 700A-700B, 700-703

4.5.spi.4. select all possible outcomes of a simple experiment (i.e., spinner, coin toss, number or color cube).

4: 710A-710B, 710-713

at Level 3, the student is able to

4.5.spi.5. determine the median of a data set;

4: 226A-226B, 226-229

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

4.5.tpi.1. collect data using observations, surveys, and experiments;

4: 230-231

at Level 2, the student is able to

4.5.tpi.2. construct bar graphs and line graphs from data in a table;

4: 206A-206B, 206-207, 208A-208B, 208-211

4.5.tpi.3. evaluate how well various representations show the collected data.

4: 232A-232B, 232-233

at Level 3, the student is able to

4.5.tpi.4. understand how data collection methods affect the nature of the data set;

4: 232A-232B, 232-233

4.5.tpi.5. design investigations to address a question;

4: 230-231

4.5.tpi.6. explain differences in measures of center (mean, median, mode).

4: 226A-226B, 226-229

**Scott Foresman – Addison Wesley Mathematics
to the
Tennessee Mathematics Curriculum Standards,
Learning Expectations, and Performance Indicators**

Grade Five

NUMBER AND OPERATIONS

Content Standard 1.0 The student will develop number and operation sense needed to represent numbers and number relationships verbally, symbolically, and graphically and to compute fluently and make reasonable estimates in problem solving.

Learning Expectations:

1.1 Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

5: 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-11, 14A-14B, 14-17, 26A-26B, 26-27, 84A-84B, 84-85, 394A-394B, 394-397, 398A-398B, 398-399, 400A-400B, 400-401, 404A-404B, 404-405

1.2 Understand meanings of operations and how they relate to one another.

5: 36A-36B, 36-37, 38A-38B, 38-39, 40A-40B, 40-41, 88A-88B, 88-91, 94A-94B, 94-97, 152A-152B, 152-155, 156A-156B, 156-157, 158A-158B, 158-159, 160A-160B, 160-161, 202A-202B, 202-203, 214A-214B, 214-217, 218A-218B, 218-221, 224A-224B, 224-225, 230A-230B, 230-231, 232A-232B, 232-233, 234A-234B, 234-237, 460A-460B, 460-461, 462A-462B, 462-463, 464A-464B, 464-465, 466A-466B, 466-469, 472A-472B, 472-473, 474A-474B, 474-475, 476A-476B, 476-477, 478A-478B, 478-483

1.3 Solve problems, compute fluently, and make reasonable estimates.

5: 32A-32B, 32-33, 42A-42B, 42-43, 44-45, 80A-80B, 80-81, 104A-104B, 104-105, 110-111, 144A-144B, 144-145, 168A-168B, 168-169, 180-181, 210A-210B, 210-211, 226A-226B, 226-227, 238-239, 276A-276B, 276-279, 272A-272B, 272-273, 306-307, 352A-352B, 352-355, 356A-356B, 356-357, 372-373, 406A-406B, 406-407, 434A-434B, 434-437, 438-439, 484A-484B, 484-487, 504A-504B, 504-505, 506-507, 558A-558B, 558-559, 570A-570B, 570-571, 572-573, 606A-606B, 606-607, 624A-624B, 624-625, 626-627, 660A-660B, 660-661, 664A-664B, 664-665, 676-677, 706A-706B, 706-709, 720A-720B, 720-721, 730-731

Fifth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**5.1.spi.1. read and write numbers from millions to thousandths;**

5: 4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-11, 14A-14B, 14-17

5.1.spi.2. connect symbolic representations of proper and improper fractions to models of proper and improper fractions;

5: 394A-394B, 394-397, 400A-400B, 400-401, 404A-404B, 404-405

5.1.spi.3. represent whole numbers and two-place decimals in expanded form.

5: 4A-4B, 4-5,

at Level 2, the student is able to**5.1.spi.4. add, subtract, multiply, and divide whole numbers (multipliers and divisors no more than two-digits).**

5: 36A-36B, 36-37, 72A-72B, 72-75, 152A-152B, 152-155

5.1.spi.5. identify the place value of a given digit from millions to thousandths;

5: 8A-8B, 8-11, 14A-14B, 14-17

5.1.spi.6. represent, compare, and order whole numbers and decimals to thousandths;

5: 6A-6B, 6-7, 12A-12B, 12-13

5.1.spi.7. use estimation to select a reasonable solution to a whole number computation;

5: 68A-68B, 68-69, 138A-138B, 138-141

5.1.spi.8. add, subtract, and multiply decimals;

5: 38A-38B, 38-39, 40A-40B, 40-41, 88A-88B, 88-91, 94A-94B, 94-97

5.1.spi.9. solve one- or two-step real-world problems involving addition, subtraction, and/or multiplication of whole numbers and decimals;

5: 36A-36B, 36-37, 38A-38B, 38-39, 40A-40B, 40-41, 72A-72B, 72-75, 88A-88B, 88-91, 94A-94B, 94-97, 152A-152B, 152-155

5.1.spi.10. represent numbers as both improper fractions and mixed numbers;

5: 400A-400B, 400-401, 404A-404B, 404-405

5.1.spi.11. compare and order fractions using the appropriate symbol (<,>=);

5: 420A-420B, 420-423

5.1.spi.12. add and subtract commonly used fractions.

5: 460A-460B, 460-461, 462A-462B, 462-463, 464A-464B, 464-465, 466A-466B, 466-469, 472A-472B, 472-473, 474A-474B, 474-475, 476A-476B, 476-477, 478A-478B, 478-483

at Level 3, the student is able to

5.1.spi.13. generate equivalent forms of commonly used fractions, decimals, and percents (e.g., $\frac{1}{10}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$);

5: 412A-412B, 400A-400B, 400-401, 404A-404B, 404-405, 412-413, 426A-426B, 426-429, 430A-430B, 430-433

5.1.spi.14. multiply a fraction by a multiple of its denominator (denominator less than or equal to 10) (3)

5: 490A-490B, 490-493

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

5.1.tpi.1. explain and demonstrate the inverse nature of addition and subtraction;

5: 36-37

5.1.tpi.2. select appropriate methods and tools for computation (i.e., mental computation, estimation, calculators, paper and pencil).

5: 36A-36B, 36-37, 38A-38B, 38-39, 40A-40B, 40-41, 88A-88B, 88-91, 94A-94B, 94-97, 152A-152B, 152-155, 156A-156B, 156-157, 158A-158B, 158-159, 160A-160B, 160-161, 202A-202B, 202-203, 214A-214B, 214-217, 218A-218B, 218-221, 224A-224B, 224-225, 230A-230B, 230-231, 232A-232B, 232-233, 234A-234B, 234-237, 460A-460B, 460-461, 462A-462B, 462-463, 464A-464B, 464-465, 466A-466B, 466-469, 472A-472B, 472-473, 474A-474B, 474-475, 476A-476B, 476-477, 478A-478B, 478-483

at Level 2, the student is able to

5.1.tpi.3. use various models to show relationships among fractions and decimals (e.g., number lines, base ten blocks, Venn diagrams, hundreds boards);

5: 394A-394B, 394-397, 400A-400B, 400-401, 404A-404B, 404-405, 426A-426B, 426-429, 430A-430B, 430-433

5.1.tpi.4. explain and demonstrate the inverse nature of multiplication and division;

5: 132-135, 148-151

5.1.tpi.5. communicate using mathematical terms and symbols;

5: 52-53, 118-119, 188-189, 246-247, 314-315, 380-381, 446-447, 514-515, 580-581, 634-635, 684-685, 738-739

5.1.tpi.6. solve problems in more than one way and explain why one process may be more efficient than another;

5: 32-33, 42-43, 80-81, 104-105, 144-145, 168-169, 210-211, 226-227, 276-279, 272-273, 352-355, 356-357, 406-407, 434-437, 484-487, 504-505, 558-559, 570-571, 606-607, 624-625, 660-661, 664-665, 706-709, 720-721

5.1.tpi.7. use models and benchmarks to add and subtract commonly used fractions.

5: 460A-460B, 460-461, 462A-462B, 462-463, 464A-464B, 464-465, 466A-466B, 466-469, 472A-472B, 472-473, 474A-474B, 474-475, 476A-476B, 476-477, 478A-478B, 478-483

at Level 3, the student is able to

5.1.tpi.8. apply commutative, zero, associative, distributive, and identity properties;

5: 36A-36B, 36-37, 38A-38B, 38-39, 40A-40B, 40-41, 88A-88B, 88-91, 94A-94B, 94-97, 152A-152B, 152-155, 156A-156B, 156-157, 158A-158B, 158-159, 160A-160B, 160-161

5.1.tpi.9. explain relationships among commonly used fractions and decimals;

5: 412A-412B, 400A-400B, 400-401, 404A-404B, 404-405, 412-413, 426A-426B, 426-429, 430A-430B, 430-433

5.1.tpi.10. identify missing information and/or too much information in real-world problems

5: 406A-406B, 406-407

5.1.tpi.11. solve real-world problems using fractions, decimals, and percents.

5: 84-85, 86-87, 88-91, 92-93, 94-97, 460-461, 462-463, 464-465, 466-469, 472-473, 474-475, 476-477, 478-483, 490-493, 494-493, 496-499, 500-501, 502-503

ALGEBRA

Content Standard 2.0 The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.

Learning Expectations:

2.1 Understand patterns, relations, and functions.

5: 14A-14B, 14-17, 66A-66B, 66-67, 84A-84B, 84-85, 106A-106B, 106-107, 136A-136B, 136-137, 728A-728B, 728-729

2.2 Represent and analyze mathematical situations and structures using algebraic symbols.

5: 100A-100B, 100-103, 104A-104B, 104-105, 106A-106B, 106-107, 108A-108B, 108-109, 172A-172B, 172-173, 174A-174B, 174-175, 176A-176B, 176-179, 696A-696B, 696-699, 700A-700B, 700-701, 702A-702B, 702-705, 706A-706B, 706-709, 728A-728B, 728-729

2.3 Illustrate general properties of operations.

5: 36A-36B, 36-37, 38A-38B, 38-39, 40A-40B, 40-41, 88A-88B, 88-91, 94A-94B, 94-97, 152A-152B, 152-155, 156A-156B, 156-157, 158A-158B, 158-159, 160A-160B, 160-161

2.4 Analyze change in various contexts.

5: 106A-106B, 106-107, 728A-728B, 728-729

Fifth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**5.2.spi.1. extend numerical patterns;**

5: 14A-14B, 14-17, 66A-66B, 66-67, 84A-84B, 84-85, 106A-106B, 106-107, 136A-136B, 136-137, 728A-728B, 728-729

5.2.spi.2. extend geometric patterns.

5: 144A-144B, 1414-145

at Level 2, the student is able to**5.2.spi.3. apply basic function rules;**

5: 106A-106B, 106-107, 728A-728B, 728-729

5.2.spi.4. connect open sentences to real-world situations;

5: 108A-108B, 108-109, 700A-700B, 700-701, 702A-702B, 702-705

5.2.spi.5. solve open sentences involving addition, subtraction, multiplication, and division.

5: 108A-108B, 108-109, 700A-700B, 700-701, 702A-702B, 702-705

at Level 3, the student is able to

5.2.spi.6. generalize numerical patterns using a variable;

5: 728A-728B, 728-729

5.2.spi.7. select an equation that represents a given mathematical relationship;

5: 108A-108B, 108-109, 700A-700B, 700-701, 702A-702B, 702-705, 706A-706B, 706-709, 728A-728B, 728-729

5.2.spi.8. extend rate charts to solve real-world problems.

5: 654A-654B, 654-655

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

5.2.tpi.1. apply the zero and identity properties;

5: 132-135, 148-151

5.2.tpi.2. show that division is not commutative.

5: 132-135, 148-151

at Level 2, the student is able to

5.2.tpi.3. demonstrate understanding that an equation is a number sentence stating two quantities are equal;

5: 108A-108B, 108-109, 700A-700B, 700-701, 702A-702B, 702-705

5.2.tpi.4. use appropriate representations to show properties of whole number operations;

5: 36A-36B, 36-37, 72A-72B, 72-75, 152A-152B, 152-155

5.2.tpi.5. represent patterns and functions using words, tables, and graphs;

5: 14A-14B, 14-17, 66A-66B, 66-67, 84A-84B, 84-85, 106A-106B, 106-107, 136A-136B, 136-137, 728A-728B, 728-729

5.2.tpi.6. use representations such as graphs, tables, and equations to draw conclusions;

5: 100A-100B, 100-103, 104A-104B, 104-105, 106A-106B, 106-107, 108A-108B, 108-109, 172A-172B, 172-173, 174A-174B, 174-175, 176A-176B, 176-179, 696A-696B, 696-699, 700A-700B, 700-701, 702A-702B, 702-705, 706A-706B, 706-709, 728A-728B, 728-729

5.2.tpi.7. generalize geometric patterns.

5: 144A-144B, 144-145

at Level 3, the student is able to

5.2.tpi.8. investigate how a change in one variable relates to a change in a second variable;

5: 728A-728B, 728-729

5.2.tpi.9. represent the idea of a variable as an unknown quantity using a letter or a symbol.

5: 100A-100B, 100-103, 104A-104B, 104-105, 106A-106B, 106-107, 108A-108B, 108-109, 172A-172B, 172-173, 174A-174B, 174-175, 176A-176B, 176-179, 696A-696B, 696-699, 700A-700B, 700-701, 702A-702B, 702-705, 706A-706B, 706-709, 728A-728B, 728-729

GEOMETRY

Content Standard 3.0 The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one-, two-, and three-dimensional figures.

Learning Expectations:**3.1 Analyze characteristics and properties of two- and three-dimensional shapes.**

5: 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337, 340A-340B, 340-341, 342A-342B, 342-345, 346A-346B, 346-351, 594A-594B, 594-597, 598A-598B, 598-601

3.2 Specify locations and describe spatial relationships using coordinate geometry.**5:** 724A-724B, 724-727**3.3 Apply transformations and use symmetry to analyze mathematical situations.****5:** 724A-724B, 724-727, 368A-368B, 368-371**3.4 Use visualization, spatial reasoning, and geometric modeling to solve problems.****5:** 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337, 340A-340B, 340-341, 342A-342B, 342-345, 346A-346B, 346-351, 594A-594B, 594-597, 598A-598B, 598-601**Fifth Grade Benchmarks****Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**5.3.spi.1. identify lines, line segments, rays, and angles;****5:** 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337**5.3.spi.2. identify lines of symmetry in two-dimensional geometric figures.****5:** 368A-368B, 368-371***at Level 2, the student is able to*****5.3.spi.3. identify two- or three-dimensional shapes given defining attributes;****5:** 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337, 340A-340B, 340-341, 342A-342B, 342-345, 346A-346B, 346-351, 594A-594B, 594-597, 598A-598B, 598-601**5.3.spi.4. use spatial reasoning to predict the result of sliding, flipping, or turning a two-dimensional shape;****5:** 724A-724B, 724-727

5.3.spi.5. locate and specify a point in Quadrant I of a coordinate system.

5: 724A-724B, 724-727

*at Level 3, the student is able to***5.3.spi.6. classify geometric figures using properties;**

5: 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337, 340A-340B, 340-341, 342A-342B, 342-345, 346A-346B, 346-351, 594A-594B, 594-597, 598A-598B, 598-601

5.3.spi.7. use spatial reasoning to identify the three-dimensional figure created from a two-dimensional representation (net) of that figure (i.e., cube, rectangular prism, pyramid, cone, or cylinder).

5: 598A-598B, 598-601

Performance Indicators Teacher:

As documented through teacher observation –

*at Level 1, the student is able to***5.3.tpi.1. draw and describe lines, line segments, rays, and angles;**

5: 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337

5.3.tpi.2. draw lines of symmetry for two-dimensional geometric figures.

5: 368A-368B, 368-371

*at Level 2, the student is able to***5.3.tpi.3. construct lines, line segments, rays, and angles;**

5: 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337

5.3.tpi.4. explore similarity;

5: 360A-360B, 360-363

5.3.tpi.5. use appropriate mathematical language to describe the attributes of a circle;

5: 336A-336B, 336-337

5.3.tpi.6. make coordinate systems to specify locations;

5: 724A-724B, 724-727

5.3.tpi.7. analyze attributes of two- and three-dimensional geometric figures;

5: 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337, 340A-340B, 340-341, 342A-342B, 342-345, 346A-346B, 346-351, 594A-594B, 594-597, 598A-598B, 598-601

5.3.tpi.8. construct and draw two- and three-dimensional geometric figures.

5: 340B, 342B, 346B, 594B, 598B

*at Level 3, the student is able to***5.3.tpi.9. use the attributes of geometric figures to develop definitions;**

5: 328A-328B, 328-331, 332A-332B, 332-335, 336A-336B, 336-337, 340A-340B, 340-341, 342A-342B, 342-345, 346A-346B, 346-351, 594A-594B, 594-597, 598A-598B, 598-601

5.3.tpi.10. investigate and describe the results of subdividing and combining geometric figures;

5: 368A-368B, 368-371

5.3.tpi.11. make and test hypotheses about geometric properties and relationships;

5: 335, 337, 362

5.3.tpi.12. describe location and movement using mathematical language and geometric vocabulary;

5: 364A-364B, 364-367

5.3.tpi.13. describe the results of transformations of two-dimensional geometric figures (i.e., slides, flips, and turns).

5: 364A-364B, 364-367

MEASUREMENT

Content Standard 4.0 The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.

Learning Expectations:**4.1 Understand measurable attributes of objects and the units, systems, and processes of measurement.**

5: 332A-332B, 332-335, 532A-532B, 532-533, 540A-540B, 540-541, 548A-548B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 554A-554B, 554-557

4.2 Apply appropriate techniques, tools, and formulas to determine measurements.

5: 332A-332B, 332-335, 532A-532B, 532-533, 540A-540B, 540-541, 548A-548B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 554A-554B, 554-557

Fifth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**5.4.spi.1. read temperature using Fahrenheit and Celsius scales;**

5: 568A-568B, 568-569

5.4.spi.2. use a ruler to measure to the nearest centimeter and 1/4 inch;

5: 532A-532B, 532-533, 534A-534B, 534-535

5.4.spi.3. use estimation to determine if a length or volume measurement is reasonable;

5: 529, 530, 537, 538, 541, 544, 549, 603, 613, 615, 617, 621

5.4.spi.4. solve real-world problems involving addition and subtraction of measurements.

5: 540A-540B, 540-541

at Level 2, the student is able to

5.4.spi.5. select appropriate standard units to measure length, perimeter, area, capacity, volume, weight, time, temperature, and angles;

5: 332A-332B, 332-335, 532A-532B, 532-533, 540A-540B, 540-541, 548A-548B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 554A-554B, 554-557

5.4.spi.6. connect simple units of measurement within the same system of measurement;

5: 528A-528B, 528-531, 534A-534B, 534-535

5.4.spi.7. use strategies to estimate perimeter and area of rectangles;

5: 540A-540B, 540-541, 550A-550B, 550-551

5.4.spi.8. solve real-world problems involving elapsed time.

5: 564A-564B, 564-567

at Level 3, the student is able to

5.4.spi.9. apply formulas to find the area of parallelograms and triangles;

5: 552A-552B, 552-553, 554A-554B, 554-557

5.4.spi.10. solve real-world problems involving perimeter and area of rectangles.

5: 540A-540B, 540-541, 550A-550B, 550-551

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

5.4.tpi.1. understanding of the concepts of perimeter, length, area, weight, capacity, volume, elapsed time, angle measure;

5: 332A-332B, 332-335, 532A-532B, 532-533, 540A-540B, 540-541, 548A-548B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 554A-554B, 554-557

5.4.tpi.2. use a protractor to measure angles.

5: 332A-332B, 332-335

at Level 2, the student is able to

5.4.tpi.3. demonstrate understanding of equivalent measures within the same system of measurements;

5: 528A-528B, 528-531, 534A-534B, 534-535

5.4.tpi.4. understand that measurements are approximations;

5: 529, 530, 537, 538, 541, 544, 549, 603, 613, 615, 617, 621

5.4.tpi.5. explain how difference in units affect precision;

5: 528A-528B, 528-531, 534A-534B, 534-535

5.4.tpi.6. develop and apply strategies for estimating the volume;

5: 613

5.4.tpi.7. select and use appropriate tools to measure length, perimeter, circumference, area capacity, volume, weight, time, temperature, and angles.

5: 332A-332B, 332-335, 532A-532B, 532-533, 540A-540B, 540-541, 548A-548B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 554A-554B, 554-557

at Level 3, the student is able to

5.4.tpi.8. explore what happens to measurements of a two-dimensional shape such as its perimeter and area when the shape is changed in some way;

5: 540-541, 548-549

5.4.tpi.9. develop formulas to find area of parallelograms and triangles;

5: 552A-552B, 552-553, 554A-554B, 554-557

5.4.tpi.10. develop informal strategies to determine the surface area and volume of rectangular solids.

5: 602A-602B, 602-605, 610A-610B, 610-613

DATA ANALYSIS AND PROBABILITY

Content Standard 5.0 The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.

Learning Expectations:

5.1 Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer questions.

5: 260A-260B, 260-261, 262A-262B, 262-265, 266A-266B, 266-269, 270A-270B, 270-275, 282A-282B, 282-285, 286A-286B, 286-287, 288A-288B, 288-291

5.2 Select and use appropriate statistical methods to analyze data.

5: 282A-282B, 282-285

5.3 Develop and evaluate inferences and predictions that are based on data.

5: 296A-296B, 296-299

5.4 Understand and apply basic concepts of probability.

5: 296A-296B, 296-299, 300A-300B, 300-301, 302A-302B, 302-305

Fifth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

5.5.spi.1. represent data using bar graphs and pictographs;

5: 262A-262B, 262-265

5.5.spi.2. interpret data displayed in bar graphs and pictographs.

5: 262A-262B, 262-265

at Level 2, the student is able to

5.5.spi.3. determine the median of a data set;

5: 282A-282B, 282-285

5.5.spi.4. determine the mode of a data set;

5: 282A-282B, 282-285

5.5.spi.5. determine the most likely, least likely, or equally likely outcomes in simple experiments;

5: 296A-296B, 296-299

5.5.spi.6. represent the likelihood of an event using a fractional number from zero to one.

5: 302A-302B, 302-305

at Level 3, the student is able to

5.5.spi.7. determine the mean of a data set;

5: 282A-282B, 282-285

5.5.spi.8. make predictions based on data.

5: 296A-296B, 296-299

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

5.5.tpi.1. collect data using observations, surveys, and experiments;

5: 260A-260B, 260-261

5.5.tpi.2. organize and display data;

5: 262A-262B, 262-265, 266A-266B, 266-269, 270A-270B, 270-275, 286A-286B, 286-287

5.5.tpi.3. design investigations to address questions.

5: 260A-260B, 260-261

*at Level 2, the student is able to***5.5.tpi.4. represent data using tables;**

5: 260A-260B, 260-261

5.5.tpi.5. relate mean, median, and mode to a visual representation of a data set;

5: 282A-282B, 282-285

5.5.tpi.6. create a sample space to predict the probability of an event;

5: 300A-300B, 300-301

5.5.tpi.7. explain the importance of sample size in investigations;

5: 260A-260B, 260-261

5.5.tpi.8. examine various representations of data and evaluate how accurately the data is depicted by the graph.

5: 262A-262B, 262-265, 266A-266B, 266-269, 270A-270B, 270-275, 286A-286B, 286-287

*at Level 3, the student is able to***5.5.tpi.9. understand how data collection methods affect the nature of the data set;**

5: 260A-260B, 260-261

5.5.tpi.10. explain which measure of central tendency best represents a given data set.

5: 282A-282B, 282-285

**Scott Foresman – Addison Wesley Mathematics
to the
Tennessee Mathematics Curriculum Standards,
Learning Expectations, and Performance Indicators**

Grade Six

NUMBER AND OPERATIONS

Content Standard 1.0 The student will develop number and operation sense needed to represent numbers and number relationships verbally, symbolically, and graphically and to compute fluently and make reasonable estimates in problem solving.

Learning Expectations:

1.1 Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

6: 4A-4B, 4-7, 76A-76B, 76-77, 160A-160B, 160-163, 408A-408B, 408-409

1.2 Understand operations and how they relate to one another.

6: 86A-86B, 86-89, 90A-90B, 90-93, 94A-94B, 94-97, 100A-100B, 100-103, 204A-204B, 204-205, 206A-206B, 206-211, 252A-252B, 252-255, 266A-266B, 266-267, 418A-418B, 418-421, 422A-422B, 422-425, 426A-426B, 426-427, 428A-428B, 428-429

1.3 Solve problems, compute fluently, and make reasonable estimates.

6: 20A-20B, 20-21, 36A-36B, 36-37, 52A-52B, 52-53, 54-55, 98A-98B, 98-99, 116A-116B, 116-119, 120-121, 156A-156B, 156-157, 180A-180B, 180-181, 182-183, 212A-212B, 212-213, 226A-226B, 226-227, 228-229, 230-231, 264A-264B, 264-265, 278A-278B, 278-279, 280-281, 312A-312B, 312-313, 324A-324B, 324-235, 334-335, 362A-362B, 362-363, 374A-374B, 374, 375, 388-389, 414A-414B, 414-415, 434A-434B, 434-436, 450-451, 490A-490B, 490-491, 512A-512B, 512-513, 520-521, 560A-560B, 560-561, 582A-582B, 582-583, 598-599, 648A-648B, 648-649, 674A-674B, 674-675, 676A-676B, 676-677, 706A-706B, 706-707, 710A-710B, 710-711, 724-725

Sixth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

6.1.spi.1. identify the place value of a given digit;

6: 4A-4B, 4-7

6.1.spi.2. solve one-step real-world problems involving whole numbers and decimals.

6: 86A-86B, 86-89, 90A-90B, 90-93, 94A-94B, 94-97, 100A-100B, 100-103

at Level 2, the student is able to

6.1.spi.3. represent numbers using a variety of models and equivalent forms (i.e., whole numbers, mixed numbers, fractions, decimals, and percents);

6: 172A-172B, 172-175, 358A-358B, 358-361

6.1.spi.4. connect whole numbers, mixed numbers, fractions, and decimals to locations on the number line;

6: 172A-172B, 172-175, 358A-358B, 358-361, 408A-408B, 408-409

6.1.spi.5. compare and order whole numbers, fractions, decimals, and percents using the appropriate symbol (<, >, =);

6: 12A-12B, 12-13, 78A-78B, 78-79, 176A-176B, 176-179, 410A-410B, 410-411

6.1.spi.6. identify prime and composite numbers up to 50;

6: 146A-146B, 146-149

6.1.spi.7. apply order of operations when computing with whole numbers (no parentheses or exponents);

6: 24A-24B, 24-27

6.1.spi.8. use estimation to select a reasonable solution to a computation involving whole numbers, fractions, and/or decimals;

6: 16A-16B, 16-17, 18A-18B, 18-19, 216A-216B, 216-217, 256A-256B, 256-257, 368A-368B, 368-369

6.1.spi.9. compute efficiently and accurately with whole numbers, fractions, and decimals .

6: 86A-86B, 86-89, 90A-90B, 90-93, 94A-94B, 94-97, 100A-100B, 100-103, 204-205, 206A-206B, 206-211, 218A-218B, 218-219, 220A-220B, 220-223, 248A-248B, 248-251, 252A-252B, 252-255, 258A-258B, 258-259, 266A-266B, 266-267, 270A-270B, 270-271

at Level 3, the student is able to

6.1.spi.10. connect ratios to a variety of models, real-world situations, and symbolic representations;

6: 300A-300B, 300-301, 302A-302B, 302-305

6.1.spi.11. select a reasonable solution to a real-world division problem in which the remainder must be considered.

6: 98A-98B, 98-99

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

6.1.tpi.1. explain the inverse relationships of addition and subtraction and of multiplication and division.

6: 48A-48B, 48-51, 112A-112B, 112-115, 276A-276B, 276-277

at Level 2, the student is able to

6.1.tpi.2. read, write, and represent whole numbers and decimals in expanded notation;

6: 5-7

6.1.tpi.3. use concrete, pictorial, and symbolic representations for integers;

6: 408A-408B, 408-409, 410A-410B, 410-411, 418A-418B, 418-42,1 422A-422B, 422-425, 426A-426B, 426-429, 430A-430B, 430-433

6.1.tpi.4. develop meaning for number theory concepts (i.e., divisibility, factors, multiples);

6: 142A-142B, 142-145, 146A-146B, 146-149, 150A-150B, 150-151, 152A-152B, 152-155

6.1.tpi.5. use strategies to estimate the results of computations involving whole numbers, fractions, and decimals in real-world situations

6: 16A-16B, 16-17, 18A-18B, 18-19, 216A-216B, 216-217, 256A-256B, 256-257, 368A-368B, 368-369

6.1.tpi.6. judge the reasonableness of the results of rational number estimates for computations;

6: 16A-16B, 16-17, 18A-18B, 18-19, 216A-216B, 216-217, 256A-256B, 256-257, 368A-368B, 368-369

6.1.tpi.7. recognize when an estimate is more appropriate than an exact answer in a variety of problem situations.

6: 226A-226B, 226-227

at Level 3, the student is able to

6.1.tpi.8. develop meaning for percents greater than 100 and percents less than 1;

6: 354A-354B, 354-357, 358A-358B, 358-361

6.1.tpi.9. develop and apply strategies to determine if two ratios form a proportion;

6: 316A-316B, 316-317

6.1.tpi.10. understand the meaning and effects of arithmetic operations on fractions and decimals;

6: 86A-86B, 86-89, 90A-90B, 90-93, 94A-94B, 94-97, 100A-100B, 100-103, 204-205, 206A-206B, 206-211, 218A-218B, 218-219, 220A-220B, 220-223, 248A-248B, 248-251, 252A-252B, 252-255, 258A-258B, 258-259, 266A-266B, 266-267, 270A-270B, 270-271

6.1.tpi.11. analyze procedures for computing with fractions, decimals, and integers.

6: 86A-86B, 86-89, 90A-90B, 90-93, 94A-94B, 94-97, 100A-100B, 100-103, 204-205, 206A-206B, 206-211, 218A-218B, 218-219, 220A-220B, 220-223, 248A-248B, 248-251, 252A-252B, 252-255, 258A-258B, 258-259, 266A-266B, 266-267, 270A-270B, 270-271, 418A-418B, 418-421, 422A-422B, 422-425, 426A-426B, 426-429, 430A-430B, 430-433

ALGEBRA

Content Standard 2.0 The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.

Learning Expectations:**2.1 Understand patterns, relations, and functions.**

6: 212A-212B, 212-213, 444A-444B, 444-447, 448A-448B, 448-449

2.2 Represent and analyze mathematical situations and structures using algebraic symbols.

6: 40A-40B, 40-43, 48A-48B, 48-51, 112A-112B, 112-115, 116A-116B, 116-119, 274A-274B, 274-275, 276A-276B, 276-277, 430A-430B, 430-433, 448A-448B, 448-449, 698A-698B, 698-699, 700A-700B, 700-703, 710A-710B, 710-711, 712A-712B, 712-715, 716A-716B, 716-717, 718A-718B, 718-721

2.3 Use mathematical models to represent and understand quantitative relationships.

6: 448A-448B, 448-449, 698A-698B, 698-699, 718A-718B, 718-721

2.4 Analyze change in various contexts.

6: 444A-444B, 444-447, 448A-448B, 448-449, 718A-718B, 718-721

Sixth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**6.2.spi.1. extend geometric and numerical patterns.**

6: 212A-212B, 212-213, 444A-444B, 444-447

at Level 2, the student is able to**6.2.spi.2. generalize patterns in data represented in tables;**

6: 444A-444B, 444-447, 448A-448B, 448-449

6.2.spi.3. apply function rules;

6: 444A-444B, 444-447, 448A-448B, 448-449

6.2.spi.4. find missing addends or factors represented as variables in simple equations;

6: 48A-48B, 48-51, 112A-112B, 112-115, 116A-116B, 116-119, 276A-276B, 276-277, 430A-430B, 430-433, 448A-448B, 448-449, 712A-712B, 712-715, 718A-718B, 718-721

6.2.spi.5. extend rate charts to solve real-world problems;

6: 306A-306B, 306-309

6.2.spi.6. select an equation that represents a given mathematical relationship.

6: 116A-116B, 116-119, 710A-710B, 710-711

at Level 3, the student is able to**6.2.spi.7. evaluate algebraic expressions for a given value of the variable.**

6: 274A-274B, 274-275

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to**6.2.tpi.1. use appropriate representations to show properties of whole number operations.****6:** 28A-28B, 28-29**at Level 2, the student is able to****6.2.tpi.2. develop a conceptual understanding of different uses of variables;****6:** 40A-40B, 40-43, 48A-48B, 48-51, 112A-112B, 112-115, 116A-116B, 116-119, 274A-274B, 274-275, 276A-276B, 276-277, 430A-430B, 430-433, 448A-448B, 448-449, 698A-698B, 698-699, 700A-700B, 700-703, 710A-710B, 710-711, 712A-712B, 712-715, 716A-716B, 716-717, 718A-718B, 718-721**6.2.tpi.3. model algebraic expressions using manipulatives, technology, and paper and pencil;****6:** 40A-40B, 40-43, 274A-274B, 274-275**6.2.tpi.4. model simple real-world problems using a variety of representations, including graphs.****6:** 448A-448B, 448-449, 698A-698B, 698-699, 718A-718B, 718-721**at Level 3, the student is able to****6.2.tpi.5. describe how changes in one quantity or variable result in changes in another.****6:** 444A-444B, 444-447, 448A-448B, 448-449, 718A-718B, 718-721

GEOMETRY

Content Standard 3.0 The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one-, two-, and three-dimensional figures.

Learning Expectations:**3.1 Analyze characteristics and properties of two- and three-dimensional geometric figures.**

6: 472A-472B, 472-475, 476A-476B, 476-479, 480A-480B, 480-483, 484A-484B, 484-489, 494A-494B, 494-495, 496A-496B, 496-499, 500A-500B, 500-501, 502A-502B, 502-503, 586A-586B, 586-589

3.2 Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

6: 440A-440B, 440-443, 510A-510B, 510-511

3.3 Apply transformations and use symmetry to analyze mathematical situations.

6: 510A-510B, 510-511, 514A-514B, 514-515

3.4 Use visualization, spatial reasoning, and geometric modeling to solve problems.

6: 472A-472B, 472-475, 476A-476B, 476-479, 480A-480B, 480-483, 484A-484B, 484-489, 494A-494B, 494-495, 496A-496B, 496-499, 500A-500B, 500-501, 502A-502B, 502-503

Sixth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to

6.3.spi.1. identify parallel, perpendicular, and intersecting lines;

6: 472A-472B, 472-475

6.3.spi.2. use ordered pairs to describe given points in Quadrant I of a coordinate system.

6: 440A-440B, 440-443, 510A-510B, 510-511

at Level 2, the student is able to

6.3.spi.3. classify two-dimensional geometric figures using properties;

6: 472A-472B, 472-475, 476A-476B, 476-479, 480A-480B, 480-483, 484A-484B, 484-489, 494A-494B, 494-495, 496A-496B, 496-499, 500A-500B, 500-501, 502A-502B, 502-503

6.3.spi.4. identify the results of transformations of two-dimensional figures (i.e., rotations/turns, flips/reflections, slides/translations);

6: 510A-510B, 510-511

6.3.spi.5. use spatial reasoning to identify the three-dimensional figure created from a two-dimensional representation (net) of that figure (i.e., cube, rectangular prism, pyramid, cone, or cylinder);

6: 587-589

6.3.spi.6. classify angles as acute, obtuse, right, or straight.

6: 476A-476B, 476-479, 480A-480B, 480-483

at Level 3, the student is able to

6.3.spi.7. classify quadrilaterals using their defining properties.

6: 500A-500B, 500-501

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

6.3.tpi.1. use geometric models to illustrate and explore number concepts and properties.

6: 472A-472B, 472-475, 476A-476B, 476-479, 480A-480B, 480-483, 484A-484B, 484-489, 494A-494B, 494-495, 496A-496B, 496-499, 500A-500B, 500-501, 502A-502B, 502-503

at Level 2, the student is able to

6.3.tpi.2. describe line and rotational symmetry in two-dimensional figures;

6: 514A-514B, 514-515

6.3.tpi.3. build a three-dimensional object from a two-dimensional representation (net) of that object and vice versa.

6: 587-589

at Level 3, the student is able to

6.3.tpi.4. describe a motion or a series of motions that will show that two shapes are congruent;

6: 506A-506B, 506-509

6.3.tpi.5. draw or build two-and three-dimensional geometric figures with specified properties;

6: 472B, 484A-484B, 484-489, 494B, 496B, 500B, 502B

6.3.tpi.6. use visualization and spatial reasoning to solve real-world problems.

6: 472-475, 476-479, 480-483, 484-489, 494-495, 496-499, 500-501, 502-503

MEASUREMENT

Content Standard 4.0 The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.

Learning Expectations:

4.1 Understand measurable attributes of objects and the units, systems, and processes of measurement.

6: 476A-476B, 476-479, 542A-542B, 542-545, 546A-546B, 546-549, 568A-568B, 568-569, 570A-570B, 570-571, 572A-572B, 572-575, 590A-590B, 590-593, 594A-594B, 594-597

4.2 Apply appropriate techniques, tools, and formulas to determine measurements.

6: 476A-476B, 476-479, 568A-568B, 568-569, 570A-570B, 570-571, 572A-572B, 572-575, 590A-590B, 590-593, 594A-594B, 594-597

Sixth Grade Benchmarks**Performance Indicators State:**

As documented through state assessment –

at Level 1, the student is able to**6.4.spi.1. use strategies to estimate perimeter and area of rectangles ;**

6: 570A-570B, 570-571

6.4.spi.2. solve real-world problems involving elapsed time.

6: 554A-554B, 554-557

Level 2, the student is able to**6.4.spi.3. convert from one unit to another within the same system**

6: 542A-542B, 542-545, 546A-546B, 546-549

6.4.spi.4. select units of appropriate size and type to measure angles, perimeter, area, capacity, volume, and weight;

6: 476A-476B, 476-479, 568A-568B, 568-569, 570A-570B, 570-571, 572A-572B, 572-575, 590A-590B, 590-593, 594A-594B, 594-597

6.4.spi.5. apply formulas to determine the area of rectangles and triangles;

6: 568A-568B, 568-569, 572A-572B, 572-575

6.4.spi.6. use scales to read maps;

6: 331-332

6.4.tpi.7. solve real-world problems involving perimeter and area of rectangles;

6: 564A-564B, 564-567, 568A-568B, 568-569

6.4.spi.8. determine the distance between two points on the x- or the y-axis in Quadrant I.

6: related material: 440-443

at Level 3, the student is able to

6.4.spi.9. solve problems involving ratios and proportions.

6: 300A-300B, 300-301, 302A-302B, 302-305, 316A-316B, 316-317, 318A-318B, 318-321, 322A-322B, 322-323

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to

6.4.tpi.1. describe the need for precision in measurement.

6: 550A-550B, 550-551

at Level 2, the student is able to

6.4.tpi.2. use a variety of manipulatives to develop the formula for the circumference of a circle;

6: 576A-576B, 576-579

6.4.tpi.3. understand and use both metric and customary systems of measurement.

6: 542A-542B, 542-545, 546A-546B, 546-549

at Level 3, the student is able to

6.4.tpi.4. use a variety of strategies to estimate length, perimeter, circumference, area, and volume;

6: 550A-550B, 550-551

6.4.tpi.5. use a variety of manipulatives to develop formulas for area of circles and trapezoids;

6: 580A-580B, 580-581

6.4.tpi.6. use models and manipulatives to explore the volume of selected prisms and cylinders.

6: 594A-594B, 594-597

DATA ANALYSIS AND PROBABILITY

Content Standard 5.0 The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.

Learning Expectations:

5.1 Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer questions.

6: 620A-620B, 620-623, 624A-624B, 624-627, 628A-628B, 628-631, 632A-632B, 632-635, 636A-636B, 636-637, 638A-638B, 638-641, 642A-642B, 642-647, 650A-650B, 650-651

5.2 Select and use appropriate statistical methods to analyze data.

6: 624A-624B, 624-627

5.3 Develop and evaluate inferences and predictions that are based on data.

6: 636-637, 638-641, 642-647

5.4 Understand and apply basic concepts of probability.

6: 654A-654B, 654-657, 658A-658B, 658-661, 662A-662B, 662-663, 664A-664B, 664-665, 668A-668B, 668-671, 672A-672B, 672-673

Sixth Grade Benchmarks

Performance Indicators State:

As documented through state assessment –

at Level 1, the student is able to

6.5.spi.1. determine the mode of a data set.

6: 625-627

at Level 2, the student is able to

6.5.spi.2. interpret bar and line graphs to answer questions and solve real-world problems;

6: 636A-636B, 636-637, 638A-638B, 638-641

6.5.spi.3. determine the mean of a data set;

6: 624A-624B, 624-627

6.5.spi.4. determine the median from a stem-and-leaf-plot;

6: 632A-632B, 632-635

6.5.spi.5. determine if a sample is biased;

6: 621-623

6.5.spi.6. represent the likelihood of an event using a number from 0 – 1.

6: 662A-662B, 662-663, 664A-664B, 664-665

at Level 3, the student is able to

6.5.spi.7. connect data sets and their graphical representations (i.e., bar graphs, circle, graphs, and stem-and-leaf plots);

6: 636A-636B, 636-637, 638A-638B, 638-641, 642A-642B, 642-645

6.5.spi.8. make conjectures and predictions based on data;

6: 636-637, 638-641, 642-647

6.5.spi.9. use a tree diagram or organized list to determine all possible outcomes of a simple compound event.

6: 654A-654B, 654-657, 658A-658B, 658-661

Performance Indicators Teacher:

As documented through teacher observation –

at Level 1, the student is able to**6.5.tpi.1. conduct a survey using random sampling.****6:** 620A-620B, 620-623**at Level 2, the student is able to****6.5.tpi.2. find and interpret measures of center and spread (mean, median, mode, interquartile range);****6:** 624A-624B, 624-627**6.5.tpi.3. model situations by devising and carrying out experiments and simulations;****6:** 662A-662B, 662-663, 664A-664B, 664-665**6.5.tpi.4. determine an appropriate sample to test a hypothesis;****6:** 620A-620B, 620-623**6.6.tpi.5. conduct simple experiments to compare theoretical and experimental probabilities.****6:** 662A-662B, 662-663, 664A-664B, 664-665**at Level 3, the student is able to****6.5.tpi.6. explain the importance of sample size in surveys and research;****6:** 620A-620B, 620-623**6.5.tpi.7. make conjectures from data to formulate new questions for further investigation.****6:** 636-637, 638-641, 642-647