	English/Language Arts	Mathematics	Social Studies
ACTIVITY			
Get In Touch With Trees (2)	4.7.1		
Sounds Around (4)			4.3.2
Poet-Tree (5)	4.5.5, 4.7.14		
Picture This! (6)			
The Forest of S.T. Shrew (8)	4.3.2, 4.3.3, 4.5.2, 4.7.1		
Planet Of Plenty (9)	4.7.1		
We All Need Trees (13)	4.7.13		
Pass the Plants, Please (16)		4.6.1, 4.6.2	
Tale of the Sun (18)	4.3.1, 4.7.1		4.1.14
Environment Exchange Box (20)			4.3.3, 4.3.5, 4.4.1, 4.5.2, 4.5.3
Adopt a Tree (21)		4.5.1, 4.7.4, 4.7.5	4.4.10
Trees as Habitats (22)		4.6.1, 4.6.2, 4.7.4, 4.7.5	
Bird and Worms (25)		4.6.1, 4.6.2, 4.7.4, 4.7.5	
Every Tree for Itself (27)		4.5.1, 4.6.1, 4.6.2, 4.7.4, 4.7.5	
(28)		4.3.2, 4.5.3, 4.5.4, 4.5.5, 4.7.1, 4.7.3	
Plant a Tree (31)			4.4.10
Pollution Search (36)		4.6.1, 4.6.2, 4.7.4	
Talking Trash, Not! (37)		4.5.8, 4.6.1, 4.6.2, 4.7.4	
Every Drop Counts (38)		4.2.1, 4.5.8, 4.6.1, 4.6.2, 4.7.1, 4.7.3, 4.7.5	4.2.7
Energy Sleuths (39)	4.7.2, 4.7.12		4.3.5
Then and Now (40)	4.4.5, 4.4.6, 4.4.7, 4.5.1, 4.5.3, 4.5.6, 4.7.1, 4.7.2		4.3.9, 4.3.10
How Plants Grow (41)		4.5.1, 4.6.1, 4.6.2, 4.7.4, 4.7.5	
Sunlight and Shades of Green (42)	4.7.2		

	English/Language Arts	Mathematics	Social Studies
ACTIVITY			
Water Wonders (44)	4.5.1		4.3.7
School Yard Safari (46)	4.5.6		
Are Vacant Lots Vacant (47)		4.5.1, 4.5.3, 4.6.1, 4.7.4, 4.7.5	
Field, Forest, and Stream (48)		4.5.1, 4.6.1, 4.6.2, 4.7.4, 4.7.5	
Tropical Treehouse (49)	4.4.3, 4.4.7, 4.5.3		4.1.2
On The Move (53)		4.2.1, 4.2.5, 4.2.6, 4.2.10, 4.3.2, 4.5.9, 4.7.1, 4.7.2, 4.7.3, 4.7.4, 4.7.5, 4.7.10	
I'd Like to Visit A Place Where… (54)	4.4.4, 4.5.6, 4.7.1		4.3.4, 4.3.5, 4.3.10
Planning the Ideal Community (55)	4.7.1, 4.7.6		4.3.2
There Ought To Be A Law (58)	4.4.2, 4.4.7, 4.5.6, 4.7.1, 4.7.8		4.2.6, 4.2.7, 4.5.1, 4.5.2
Power of Print (59)	4.5.6, 4.7.1, 4.7.7, 4.7.10, 4.7.12		
The Closer You Look (61)	4.7.6, 4.7.8		
Germinating Giants (66)		4.1.1, 4.1.9, 4.2.1, 4.2.5, 4.2.6, 4.3.2, 4.3.7, 4.5.1, 4.6.1, 4.7.1, 4.7.2, 4.7.3, 4.7.4, 4.7.5, 4.7.10	
How Big is Your Tree? (67)		4.1.9, 4.2.1, 4.2.4, 4.2.5, 4.2.6, 4.2.11, 4.3.2, 4.5.1, 4.6.1, 4.6.2, 4.7.3, 4.7.4, 4.7.5, 4.7.6	
Forest for the Trees (69)		4.1.10, 4.7.1	
Waste Watchers (73)		4.1.9, 4.2.1, 4.2.5, 4.2.10, 4.3.2, 4.5.9, 4.6.1, 4.6.2, 4.7.1, 4.7.3, 4.7.4, 4.7.5, 4.7.10	4.2.7
Tree Cookies (76)	4.4.6, 4.4.7		4.1.11, 4.1.13
Trees In Trouble (77)	4.5.1, 4.5.6, 4.7.2, 4.7.8	4.5.1, 4.6.1, 4.7.4, 4.7.5	4.3.7
Signs of Fall (78)	4.3.4, 4.5.1, 4.5.6, 4.7.1		
Tree Life Cycle (79)	4.7.1, 4.7.6, 4.7.7		

	English/Language Arts	**Mathematics**	**Social Studies**
ACTIVITY			
Nothing Succeeds Like Succession (80)	4.2.6, 4.7.1, 4.7.6, 4.7.7	4.2.5, 4.3.2, 4.5.1, 4.5.4, 4.5.5, 4.6.1, 4.6.2, 4.7.1, 4.7.4, 4.7.5	
Resource-Go-Round (82)			4.3.5, 4.4.1
Reduce, Reuse, Recycle (83)	4.5.6, 4.7.5, 4.7.7, 4.7.12		4.2.7
Earth Manners (87)	4.7.1, 4.7.2		
Life on the Edge (88)			4.3.7
Trees For Many Reasons (89)	4.5.2, 4.5.6, 4.7.1, 4.7.2, 4.7.6, 4.7.8		4.2.7
The Native Way (90)	4.2.5		4.1.1, 4.1.2, 4.1.5, 4.3.9, 4.5.3
The Good Old Days (91)	4.2.2, 4.2.5, 4.4.5, 4.4.6, 4.5.6, 4.7.6, 4.7.7, 4.7.12, 4.7.14		4.5.4, 4.5.6
Paper Civilizations (93)	4.2.2, 4.7.7, 4.7.13		4.4.2
Did You Notice? (95)	4.2.2, 4.4.4, 4.4.7, 4.7.7, 4.7.8		4.1.1, 4.1.2, 4.1.5, 4.1.11, 4.1.12, 4.1.13, 4.3.9, 4.3.10, 4.4.1, 4.4.2, 4.5.3, 4.5.6

Grade 4

Standard 2
READING: Comprehension

Students read and understand grade-level-appropriate material. They use a variety of comprehension strategies, such as asking and responding to essential questions, making predictions, and comparing information from several sources to understand what is read. The selections in the **Indiana Reading List** *(available online at www.doe.state.in.us/standards/readinglist.html) illustrate the quality and complexity of the materials to be read by students. At Grade 4, in addition to regular classroom reading, students read a variety of grade-level-appropriate narrative (story) and expository (informational and technical) texts, including classic and contemporary literature, poetry, magazines, newspapers, reference materials, and online information.*

Comprehension and Analysis of Grade-Level-Appropriate Text

4.2.2 Use appropriate strategies when reading for different purposes.
Example: Read and take notes on an informational text that will be used for a report. Skim a text to locate specific information. Use graphic organizers to show the relationship of ideas in the text.

PLT Activities: 91, 93, 95

4.2.5 Compare and contrast information on the same topic after reading several passages or articles.
Example: Read several fictional and informational texts about guide dogs, such as *A Guide Dog Puppy Grows Up* by Carolyn Arnold, *Buddy: The First Seeing Eye Dog* by Eva Moore, and *Follow My Leader* by James B. Garfield, and compare and contrast the information presented in each.

PLT Activities: 90, 91

4.2.6 Distinguish between cause and effect and between fact and opinion in informational text.
Example: In reading an article about how snowshoe rabbits change color, distinguish facts (such as *Snowshoe rabbits change color from brown to white in the winter*) from opinions (such as *Snowshoe rabbits are very pretty animals because they can change colors*).

PLT Activities: 80

Standard 3
READING: Literary Response and Analysis

Students read and respond to a wide variety of significant works of children's literature. They identify and discuss the characters, theme (the main idea of a story), plot (what happens in a story), and the setting (where a story takes place) of stories that they read. The selections in the **Indiana Reading List** *(available online at www.doe.state.in.us/standards/readinglist.html) illustrate the quality and complexity of the materials to be read by students.*

Structural Features of Literature

4.3.1 Describe the differences of various imaginative forms of literature, including fantasies, fables, myths, legends, and fairy tales.
Example: Show how fables were often told to teach a lesson, as in Aesop's fable, *The Grasshopper and the Ant*. Discuss how legends were often told to explain natural history, as in the stories about *Johnny Appleseed* or *Paul Bunyan and Babe, the Blue Ox*. Use a graphic organizer to compare the two types of literature.

PLT Activities: 18

Narrative Analysis of Grade-Level-Appropriate Text

4.3.2 Identify the main events of the plot, including their causes and the effects of each event on future actions, and the major theme from the story action.
Example: After reading *Sarah, Plain and Tall* by Patricia MacLachlan, discuss the causes and effects of the main event of the plot, when the father in the story acquires a mail-order bride. Describe the effects of this event, including the adjustments that the children make to their new stepmother and that Sarah makes to living on the prairie. Plot the story onto a story map, and write a sentence identifying the major theme.

PLT Activities: 8

4.3.3 Use knowledge of the situation, setting, and a character's traits, motivations, and feelings to determine the causes for that character's actions.
Example: After reading *The Sign of the Beaver* by Elizabeth George Speare, tell how the Native American character's actions are influenced by his being in a setting with which he is very familiar and feels comfortable, as opposed to the reactions of another character, Matt.

PLT Activities: 8

4.3.4 Compare and contrast tales from different cultures by tracing the adventures of one character type. Tell why there are similar tales in different cultures.
Example: Read a book of trickster tales from other countries, such as *The Barefoot Book of Trickster Tales* retold by Richard Walker. Describe the similarities in these tales in which a main character, often an animal, outwits other animals, humans, or forces in nature. Then, tell how these tales are different from each other.

PLT Activities: 78

Standard 4
WRITING: Process

Students write clear sentences and paragraphs that develop a central idea. Students progress through the stages of the writing process, including prewriting, drafting, revising, and editing multiple drafts.

Organization and Focus

4.4.2 Select a focus, an organizational structure, and a point of view based upon purpose, audience, length, and format requirements for a piece of writing.

PLT Activities: 58

4.4.3 Write informational pieces with multiple paragraphs that:

- provide an introductory paragraph.
- establish and support a central idea with a topic sentence at or near the beginning of the first paragraph.
- include supporting paragraphs with simple facts, details, and explanations.
- present important ideas or events in sequence or in chronological order.
- provide details and transitions to link paragraphs.
- conclude with a paragraph that summarizes the points.
- use correct indention at the beginning of paragraphs.

PLT Activities: 49

4.4.4 Use common organizational structures for providing information in writing, such as chronological order, cause and effect, or similarity and difference, and posing and answering a question.

PLT Activities: 54, 95

Research and Technology

4.4.5 Quote or paraphrase information sources, citing them appropriately.

PLT Activities: 40, 91

4.4.6 Locate information in reference texts by using organizational features, such as prefaces and appendixes.

PLT Activities: 40, 76, 91

4.4.7 Use multiple reference materials and online information (the Internet) as aids to writing.

PLT Activities: 40, 49, 58, 76, 95

Standard 5
WRITING: Applications (Different Types of Writing and Their Characteristics)

At Grade 4, students are introduced to writing informational reports and responses to literature. Students continue to write compositions that describe and explain familiar objects, events, and experiences. Student writing demonstrates a command of Standard English and the drafting, research, and organizational strategies outlined in Standard 4 — Writing Process. Writing demonstrates an awareness of the audience (intended reader) and purpose for writing.

In addition to producing the different writing forms introduced in earlier grades, such as letters, Grade 4 students use the writing strategies outlined in Standard 4 — Writing Process to:

4.5.1 Write narratives (stories) that:

- include ideas, observations, or memories of an event or experience.
- provide a context to allow the reader to imagine the world of the event or experience.
- use concrete sensory details.

Example: Prepare a narrative on how and why immigrants come to the United States. To make the story more realistic, use information from an older person who may remember firsthand the experience of coming to America.

PLT Activities: 40, 44, 77, 78

4.5.2 Write responses to literature that:

- demonstrate an understanding of a literary work.
- support judgments through references to both the text and prior knowledge.

Example: Write a description of a favorite character in a book. Include examples from the book to show why this character is such a favorite.

PLT Activities: 8, 89

4.5.3 Write informational reports that:

- ask a central question about an issue or situation.
- include facts and details for focus.
- use more than one source of information, including speakers, books, newspapers, media sources, and online information.

Example: Use information from a variety of sources, such as speakers, books, newspapers, media sources, and the Internet, to provide facts and details for a report on life in your town when it was first settled or for a report about the water cycle.

PLT Activities: 40, 49

4.5.5 Use varied word choices to make writing interesting.
Example: Write stories using descriptive words in place of common words; for instance, use *enormous*, *gigantic*, or *giant* for the word *big*.

PLT Activities: 5

4.5.6 Write for different purposes (information, persuasion) and to a specific audience or person.
Example: Write a persuasive report for your class about your hobby or interest. Use charts or pictures, when appropriate, to help motivate your audience to take up your hobby or interest.

PLT Activities: 40, 46, 54, 58, 59, 77, 78, 83, 89, 91

Standard 7
LISTENING AND SPEAKING: Skills, Strategies, and Applications

Students listen critically and respond appropriately to oral communication. They speak in a manner that guides the listener to understand important ideas by using proper phrasing, pitch, and modulation (raising and lowering voice). Students deliver brief oral presentations about familiar experiences or interests that are organized around a coherent thesis statement (a statement of topic). Students use the same Standard English conventions for oral speech that they use in their writing.

Comprehension

4.7.1 Ask thoughtful questions and respond orally to relevant questions with appropriate elaboration.

PLT Activities: 2, 8, 9, 18, 40, 54, 55, 58, 59, 78, 79, 80, 87, 89

4.7.2 Summarize major ideas and supporting evidence presented in spoken presentations.

PLT Activities: 39, 40, 42, 77, 87, 89

Organization and Delivery of Oral Communication

4.7.5 Present effective introductions and conclusions that guide and inform the listener's understanding of important ideas and details.

PLT Activities: 83

4.7.6 Use traditional structures for conveying information, including cause and effect, similarity and difference, and posing and answering a question.

PLT Activities: 55, 61, 79, 80, 89, 91

4.7.7 Emphasize points in ways that help the listener or viewer follow important ideas and concepts.

PLT Activities: 59, 79, 80, 83, 91, 93, 95

4.7.8 Use details, examples, anecdotes (stories of a specific event), or experiences to explain or clarify information.

PLT Activities: 58, 61, 77, 89, 95

Analysis and Evaluation of Oral and Media Communications

4.7.10 Evaluate the role of the media in focusing people's attention on events and in forming their opinions on issues.

PLT Activities: 59

Speaking Applications

4.7.12 Make informational presentations that:

- focus on one main topic.
- include facts and details that help listeners focus.
- incorporate more than one source of information (including speakers, books, newspapers, television broadcasts, radio reports, or Web sites).

PLT Activities: 39, 59, 83, 91

4.7.13 Deliver oral summaries of articles and books that contain the main ideas of the event or article and the most significant details.

PLT Activities: 13, 93

4.7.14 Recite brief poems (two or three stanzas long), soliloquies (sections of plays in which characters speak out loud to themselves), or dramatic dialogues, clearly stating words and using appropriate timing, volume, and phrasing.

PLT Activities: 5, 91

Grade 4

In this technological age, mathematics is more important than ever. When students leave school, they are more and more likely to use mathematics in their work and everyday lives — operating computer equipment, planning timelines and schedules, reading and interpreting data, comparing prices, managing personal finances, and completing other problem-solving tasks. What they learn in mathematics and how they learn it will provide an excellent preparation for a challenging and ever-changing future.

The state of Indiana has established the following mathematics standards to make clear to teachers, students, and parents what knowledge, understanding, and skills students should acquire in Grade 4:

Standard 1 — Number Sense

Understanding the number system is the basis of mathematics. Students extend their understanding of the place value system to count, read, and write whole numbers up to 1,000,000 and decimals to two places. They order and compare whole numbers using the correct symbols for greater than and less than. They extend the concept of fractions to mixed numbers, learning how fractions are related to whole numbers. They also extend their skills with decimals and how they relate to fractions.

Standard 2 — Computation

Fluency in computation is essential. As students learn about numbers, they also learn how to add, subtract, multiply, and divide them. They understand the special roles of 0 and 1 in multiplication and division. They also add and subtract fractions and decimals, learning how these different representations of numbers can be manipulated.

Standard 3 — Algebra and Functions

Algebra is a language of patterns, rules, and symbols. Students at this level develop an understanding of the fundamental concept of a variable — having a letter represent all numbers of a certain kind. They use this to write formulas and equations, including equations that give the rule for a function. They continue number patterns involving multiplication and division. They recognize and apply the relationships among the four operations of addition, subtraction, multiplication, and division. They further develop the connection between numbers and number lines, including estimating positions on a number line.

Standard 4 — Geometry

Students learn about geometric shapes and develop a sense of space. They identify, describe, and draw such concepts as acute angles and parallel lines. They describe shapes and objects, including special quadrilaterals such as rhombuses and trapezoids. They identify congruent quadrilaterals and explain their reasoning using specific geometric terms. They draw lines of symmetry for various polygons, and they construct cubes and prisms, developing their ability to work in three dimensions.

Standard 5 — Measurement

The study of measurement is essential because of its uses in many aspects of everyday life. Students measure length to the nearest eighth-inch and millimeter and subtract units of length. They develop and use the formulas for calculating perimeters and areas of rectangles. They compare the concepts of volume and capacity. They add time intervals and calculate the amount of change from a purchase.

Standard 6 — Data Analysis and Probability

Data are all around us — in newspapers and magazines, in television news and commercials, in quality control for manufacturing — and students need to learn how to understand data. At this level, they represent data on a number line and in frequency tables, interpret data graphs to answer questions, and summarize the results of probability experiments in an organized way.

Standard 7 — Problem Solving

In a general sense, mathematics is problem solving. In all mathematics, students use problem-solving skills: they choose how to approach a problem, they explain their reasoning, and they check their results. As they develop their skills with numbers, geometry, or measurement, for example, students move from simple ideas to more complex ones by taking logical steps that build a better understanding of mathematics.

As part of their instruction and assessment, students should also develop the following learning skills by Grade 12 that are woven throughout the mathematics standards:

Communication

The ability to read, write, listen, ask questions, think, and communicate about math will develop and deepen students' understanding of mathematical concepts. Students should read text, data, tables, and graphs with comprehension and understanding. Their writing should be detailed and coherent, and they should use correct mathematical vocabulary. Students should write to explain answers, justify mathematical reasoning, and describe problem-solving strategies.

Reasoning and Proof

Mathematics is developed by using known ideas and concepts to develop others. Repeated addition becomes multiplication. Multiplication of numbers less than ten can be extended to numbers less than one hundred and then to the entire number system. Knowing how to find the area of a right triangle extends to all right triangles. Extending patterns, finding even numbers, developing formulas, and proving the Pythagorean Theorem are all examples of mathematical reasoning. Students should learn to observe, generalize, make assumptions from known information, and test their assumptions.

Representation

The language of mathematics is expressed in words, symbols, formulas, equations, graphs, and data displays. The concept of one-fourth may be described as a quarter, $\frac{1}{4}$, one divided by four, 0.25, $\frac{1}{8} + \frac{1}{8}$, 25 percent, or an appropriately shaded portion of a pie graph. Higher-level mathematics involves the use of more powerful representations: exponents, logarithms, π, unknowns, statistical representation, algebraic and geometric expressions. Mathematical operations are expressed as representations: +, =, divide, square. Representations are dynamic tools for solving problems and communicating and expressing mathematical ideas and concepts.

Connections

Connecting mathematical concepts includes linking new ideas to related ideas learned previously, helping students to see mathematics as a unified body of knowledge whose concepts build upon each other. Major emphasis should be given to ideas and concepts across mathematical content areas that help students see that mathematics is a web of closely connected ideas (algebra, geometry, the entire number system). Mathematics is also the common language of many other disciplines (science, technology, finance, social science, geography) and students should learn mathematical concepts used in those disciplines. Finally, students should connect their mathematical learning to appropriate real-world contexts.

Standard 1
Number Sense

Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions.*

4.1.1 Read and write whole numbers up to 1,000,000.
Example: Read aloud the number 394,734.

PLT Activities: 66

4.1.9 Round two-place decimals to tenths or to the nearest whole number.
Example: You ran the 50-yard dash in 6.73 seconds. Round your time to the nearest tenth.

PLT Activities: 66, 67, 73

* whole number: 0, 1, 2, 3, etc.

Standard 2
Computation

Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among these operations. They extend their use and understanding of whole numbers to the addition and subtraction of simple fractions and decimals.

4.2.1 Understand and use standard algorithms* for addition and subtraction.
Example: 45,329 + 6,984 = ?, 36,296 – 12,075 = ?.

PLT Activities: 38, 53, 66, 67, 73

4.2.4 Demonstrate mastery of the multiplication tables for numbers between 1 and 10 and of the corresponding division facts.
Example: Know the answers to 9×4 and $35 \div 7$.

PLT Activities: 67

4.2.5 Use a standard algorithm to multiply numbers up to 100 by numbers up to 10, using relevant properties of the number system.
Example: $67 \times 3 = ?$.

PLT Activities: 53, 66, 67, 73, 80

4.2.6 Use a standard algorithm to divide numbers up to 100 by numbers up to 10 without remainders, using relevant properties of the number system.
Example: $69 \div 3 = ?$.

PLT Activities: 53, 66, 67

4.2.10 Use a standard algorithm to add and subtract decimals (to hundredths).
Example: 0.74 + 0.80 = ?.

PLT Activities: 53, 73

4.2.11 Know and use strategies for estimating results of any whole-number computations.
Example: Your friend says that 45,329 + 6,984 = 5,213. Without solving, explain why you think the answer is wrong.

PLT Activities: 67

* algorithm: a step-by-step procedure for solving a problem

Standard 3
Algebra and Functions

Students use and interpret variables, mathematical symbols, and properties to write and simplify numerical expressions and sentences. They understand relationships among the operations of addition, subtraction, multiplication, and division.

4.3.2 Use and interpret formulas to answer questions about quantities and their relationships.
Example: Write the formula for the area of a rectangle in words. Now let *l* stand for the length, *w* for the width, and *A* for the area. Write the formula using these symbols.

PLT Activities: 28, 53, 66, 67, 73, 80

4.3.7 Relate problem situations to number sentences involving multiplication and division.
Example: You have 150 jelly beans to share among the 30 members of your class. Write a number sentence for this problem and use it to find the number of jelly beans each person will get.

PLT Activities: 66

Standard 5
Measurement

Students understand perimeter and area, as well as measuring volume, capacity, time, and money.

4.5.1 Measure length to the nearest quarter-inch, eighth-inch, and millimeter.
Example: Measure the width of a sheet of paper to the nearest millimeter.

PLT Activities: 21, 27, 41, 47, 48, 66, 67, 77, 80

4.5.3 Know and use formulas for finding the perimeters of rectangles and squares.
Example: The length of a rectangle is 4 cm and its perimeter is 20 cm. What is the width of the rectangle?

PLT Activities: 28, 47

4.5.4 Know and use formulas for finding the areas of rectangles and squares.
Example: Draw a rectangle 5 inches by 3 inches. Divide it into one-inch squares and count the squares to find its area. Can you see another way to find the area? Do this with other rectangles.

PLT Activities: 28, 80

4.5.5 Estimate and calculate the area of rectangular shapes using appropriate units, such as square centimeter (cm^2), square meter (m^2), square inch (in^2), or square yard (yd^2).
Example: Measure the length and width of a basketball court and find its area in suitable units.

PLT Activities: 28, 80

4.5.8 Use volume and capacity as different ways of measuring the space inside a shape.
Example: Use cubes to find the volume of a fish tank and a pint jug to find its capacity.

PLT Activities: 37, 38

4.5.9 Add time intervals involving hours and minutes.
Example: During the school week, you have 5 recess periods of 15 minutes. Find how long that is in hours and minutes.

PLT Activities: 53, 73

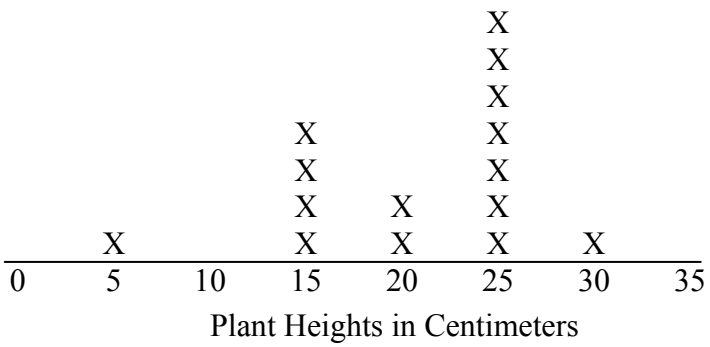
Standard 6
Data Analysis and Probability

Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings. They show outcomes for simple probability situations.

4.6.1 Represent data on a number line and in tables, including frequency tables.
Example: The students in your class are growing plants in various parts of the classroom. Plan a survey to measure the height of each plant in centimeters on a certain day. Record your survey results on a line plot.

PLT Activities: 16, 22, 25, 27, 36, 37, 38, 41, 47, 48, 66, 67, 73, 77, 80

4.6.2 Interpret data graphs to answer questions about a situation.
Example: The line plot below shows the heights of fast-growing plants reported by third-grade students. Describe any patterns that you can see in the data using the words "most," "few," and "none."



PLT Activities: 16, 22, 25, 27, 36, 37, 38, 41, 48, 67, 73, 80

Standard 7
Problem Solving

Students make decisions about how to approach problems and communicate their ideas.

4.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.
Example: Solve the problem: "Find a relationship between the number of faces, edges, and vertices of a solid shape with flat surfaces." Try two or three shapes and look for patterns.

PLT Activities: 28, 38, 53, 66, 69, 73, 80

4.7.2 Decide when and how to break a problem into simpler parts.
Example: In the first example, find what happens to cubes and rectangular solids.

PLT Activities: 53, 66

Students use strategies, skills, and concepts in finding and communicating solutions to problems.

4.7.3 Apply strategies and results from simpler problems to solve more complex problems.
Example: In the first example, use your method for cubes and rectangular solids to find what happens to other prisms and to pyramids.

PLT Activities: 28, 38, 53, 66, 67, 73

4.7.4 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, tools, and models to solve problems, justify arguments, and make conjectures.
Example: In the first example, make a table to help you explain your results to another student.

PLT Activities: 21, 22, 25, 27, 36, 37, 41, 47, 48, 53, 66, 67, 73, 77, 80

4.7.5 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work.
Example: In the first example, explain what happens with all the shapes that you tried.

PLT Activities: 21, 22, 26, 27, 38, 41, 47, 48, 53, 66, 67, 73, 77, 80

4.7.6 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.
Example: You are telling a friend the time of a TV program. How accurate should you be: to the nearest day, hour, minute, or second?

PLT Activities: 67

Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.

4.7.10 Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.
Example: Change the first example so that you look at shapes with curved surfaces.

PLT Activities: 66, 69, 73

GRADE 4

Indiana in the Nation and the World

Students in Grade 4 study Indiana and its relationships to regional, national, and world communities, including the influence of physical and cultural environments on the state's growth and development and principles and practices of citizenship and government in Indiana..

The Indiana's K – 8 academic standards for social studies are organized around five content areas. The content area standards and the types of learning experiences they provide to students in Grade 4 are described below. On the pages that follow, age-appropriate concepts are listed underneath each standard. Skills for thinking, inquiry, and participation in a democratic society are integrated throughout. Specific terms are defined and examples are provided when necessary.

Standard 1 — History
Students will trace the historical periods, places, people, events, and movements that have led to the development of Indiana as a state.

Standard 2 — Civics and Government
Students will describe the components and characteristics of Indiana's constitutional form of government; explain citizenship rights and responsibilities; investigate civic and political issues and problems; use inquiry and communication skills to report findings in charts, graphs, written, and verbal forms; and demonstrate responsible citizenship by exercising civic virtues and participation skills.

Standard 3 — Geography
Students will explain how Earth/sun relationships influence the climate of Indiana; identify the components of Earth's physical systems; describe the major physical and cultural characteristics of Indiana; give examples of how the interaction of people with their environment has changed over time and continues to change; and identify regions of Indiana.

Standard 4 — Economics
Students will study and compare the characteristics of Indiana's changing economy in the past and present.

Standard 5 — Individuals, Society, and Culture
Students will examine the interaction between individual and group behavior in state and community life; analyze the roles and relationships of diverse groups of people contributing to Indiana's cultural heritage; and describe the impacts of science, technology, and the arts on Indiana's culture.

Standard 1
History

Students will trace the historical periods, places, people, events, and movements that have led to the development of Indiana as a state.

Historical Knowledge

American Indians and the Arrival of Europeans to 1770

4.1.1 Identify and compare the major early cultures that existed in the region that became Indiana prior to contact with Europeans.
Example: Angel Mounds (1050 – 1400 C.E.).

PLT Activities: 90, 95

4.1.2 Identify and describe historic Indian groups that lived in the region that became Indiana at the time of early European exploration and settlement in the seventeenth century.
Example: The Miami, Shawnee, Potawatomi, and Lenape (Delaware).

PLT Activities: 49, 90, 95

The American Revolution and the Indiana Territory: 1770s to 1816

4.1.4 Explain the significance of key documents in Indiana's development from a United States territory to statehood.
Example: The Northwest Ordinance (1787) made Indiana part of the United States territory; the 1816 Indiana Constitution established the first state government.

PLT Activities: 18

Statehood and Development: 1816 to 1850s

4.1.5 Describe the removal of Indian groups from Indiana in the 1830s.

PLT Activities: 90, 95

1920 to the Present

4.1.11 Identify important events and movements that changed life in Indiana in the twentieth century.
Example: The Great Depression, World War II, African American migration from the South, post-war baby boom, civil rights movements, the Vietnam War, increase in Asian and

PLT Activities: 76, 95

Hispanic immigration.

4.1.12 Research Indiana's agricultural and industrial transformation, emphasizing new technologies, transportation, and international connections, in the last part of the twentieth century.
Example: Use CD-ROMs and Indiana history Web sites to research new farming technologies, development of the highway system, establishment of ports in Indiana, air travel, high-tech industries.

PLT Activities: 95

Chronological Thinking, Comprehension, Analysis, and Interpretation

4.1.13 Organize and interpret timelines that show relationships among people, events, and movements in the history of Indiana.

PLT Activities: 76, 95

Standard 2
Civics and Government

Students will describe the components and characteristics of Indiana's constitutional form of government; explain citizenship rights and responsibilities; investigate civic and political issues and problems; use inquiry and communication skills to report findings in charts, graphs, written, and verbal forms; and demonstrate responsible citizenship by exercising civic virtues and participation skills.

Roles of Citizens

4.2.6 Give examples of how citizens can participate in their state government and explain the right and responsibility of voting.

PLT Activities: 58

4.2.7 Define and provide examples of civic virtues* in a democracy.
Example: Individual responsibility, self-discipline/self-governance, civility, respect for the rights and dignity of all individuals, honesty, respect for the law, courage, compassion, reasoned patriotism, fairness, and commitment to the common good.

PLT Activities: 38, 58, 73, 83, 89

* civic virtues: qualities that contribute to the healthy functioning of a democracy

Standard 3
Geography

Students will explain how Earth/sun relationships influence the climate of Indiana, identify the components of Earth's physical systems, describe the major physical and cultural characteristics of Indiana, give examples of how the interaction of people with their environment has changed over time and continues to change, and identify regions of Indiana.

The World in Spatial Terms

4.3.2 Estimate distances between two places on a map, using a scale of miles, and use cardinal* and intermediate* directions when referring to relative location.

PLT Activities: 4, 55

4.3.3 Explain the essential facts of Earth/sun relationships* and be able to relate these to the climate of Indiana.

PLT Activities: 20

* cardinal directions: north, south, east, west
* intermediate directions: northeast, southeast, northwest, southwest
* Earth/sun relationships: the rotation and tilt of Earth on its axis and the revolution of Earth around the sun influence climate variation on Earth; Indiana has major seasonal differences in climate relating to changes in the position of the sun and the amount of sunlight received

Places and Regions

4.3.4 Locate Indiana on a map of the United States; indicate the state capital, major cities, and rivers in Indiana; and be able to place these on a blank map of the state.

PLT Activities: 54

4.3.5 Map the physical regions of Indiana and identify major natural resources and crop regions.

PLT Activities: 20, 39, 54, 82

Physical Systems

4.3.7 Describe Earth's atmosphere*, lithosphere*, hydrosphere*, and biosphere* and explain how these systems affect life in Indiana.

PLT Activities: 44, 77, 88

* atmosphere: the gases that surround Earth, including the air we breathe
* lithosphere: the soil and rock that form Earth's surface
* hydrosphere: all the water on Earth's surface, including the hydrologic cycle (precipitation, evaporation, and condensation)
* biosphere: all plants and animals

Environment and Society, Uses of Geography

4.3.9 Create maps of Indiana at different times in history showing regions and major physical and cultural features; give examples of how people in Indiana have modified their environment over time.

PLT Activities: 40, 90, 95

4.3.10 Read and interpret thematic maps — such as transportation, population, and products — to acquire information about Indiana in the present and the past.

PLT Activities: 40, 54, 95

Standard 4
Economics

Students will study and compare the characteristics of Indiana's changing economy in the past and present.

4.4.1 Give examples of the kinds of goods* and services* produced in Indiana in different historical periods.

PLT Activities: 20, 82, 95

4.4.2 Define productivity* and provide examples of how productivity has changed in Indiana during the past 100 years.
Example: Improved farm equipment has helped farms to produce more. Computers have helped businesses to produce more.

PLT Activities: 93, 95

4.4.10 Explain how money helps people to save and develop a savings plan in order to make a future purchase.

PLT Activities: 21, 31

* goods: tangible objects, such as food or toys, that can satisfy people's wants
* services: actions that someone does for someone else, such as dental care or trash removal
* productivity: the amount of goods and services produced in a period of time divided by the productive resources used

Standard 5
Individuals, Society, and Culture

Students will examine the interaction between individual and group behavior in community life; analyze the roles and relationships of diverse groups of people contributing to Indiana's cultural heritage; and describe the impacts of science, technology, and the arts on Indiana's culture.

4.5.1 Identify ways that social groups* influence individual behavior and responsibilities.
Example: When people belong to a group they usually interact with each other frequently and follow the rules of the group.

PLT Activities: 58

4.5.2 Identify the different types of social groups to which people belong and the functions these groups perform.
Example: Social groups may have social, religious, recreational, cultural, educational, service, civic, political, or other functions.

PLT Activities: 20, 58

4.5.3 Define the term cultural group* and give examples of the challenges faced by diverse cultural groups in Indiana history.
Example: Quakers faced religious and social differences. Recent Asian and Hispanic immigrants face the challenge of adapting to a new language and culture.

PLT Activities: 20, 90, 95

4.5.4 Describe the role of Indiana artists in American visual arts, literature, music, dance, and theatre.
Example: James Whitcomb Riley, Gene Stratton-Porter, T.C. Steele, Janet Scudder, and the Hoosier Group.

PLT Activities: 91

4.5.6 Investigate the contributions and challenges experienced by people from various cultural, racial, and religious groups in Indiana during different historical periods by reading biographies, historical accounts, stories, and electronic media, such as CD-ROMs and Web sites.

PLT Activities: 91, 95

* social group: a group of people who share common goals and interests
* cultural group: a group of people who share common language, religion, and customs