

Arthur Academy Charter School Curriculum Programs

08-09

5.2 Grade Level Summary of Curriculum Program Goals.

The curriculum model that Arthur Academy would like to achieve with its students at each grade would result in most children in grade five completing sixth grade reading programs and doing grade level work in math, written language, and other subjects. Most students who enroll at the Academy in kindergarten and continue through fifth grade will complete the following schedule of programs by the end of each year.

We want to emphasize that this schedule is only a desired goal. We stick to the schedule only if students demonstrate mastery of each step and level along the way. For those students who are unable to keep up to this schedule, we make accommodations.

Kindergarten:

Language for Learning
Reading Mastery I
Fun Math
Core Knowledge

First Grade:

Language for Thinking
Reasoning and Writing A
Reading Mastery I (review) and II
Spelling Mastery A
Connecting Math Concepts A-B
Core Knowledge

Second Grade:

Reasoning and Writing B-C
Language for Thinking (finish)
Reading Mastery II and III
Literature Anthology
Language Arts Guide with Lessons 51-75 Reading Mastery III
Activities Across the Curriculum (correlated with RM lessons)
Spelling Mastery B
Connecting Math Concepts B - C
Singapore Primary Math 2A & B (supplement)
Core Knowledge- Literature and Social Studies materials

Third Grade:

Reasoning and Writing C (finish)
Written language lessons in preparation for state writing tests.
Integrated Language Comprehension Program B-1 (CRP-Comp.)
Reading Mastery III and IV, Open Court Classics 3, and Supplemental literature
Corrective Reading Decoding A or B1 (if needed)
Literature Anthology
Language Arts Guide with Lessons 71-140 in Reading Mastery III
Writing and Spelling Guide (correlated with RM lessons)
Activities Across the Curriculum (correlated with RM lessons)
Spelling Mastery C Morphographic Spelling
Connecting Math Concepts C-D
Singapore Primary Math 3 A & B (supplement)

Core Knowledge- Literature and Social Studies materials

Fourth Grade: Reasoning and Writing D-E
Written language lessons in preparation for state writing tests.
Integrated Language Comprehension Program B-2 (CRP-Comp.)
Reading Mastery IV and V & Open Court Classics 4, Supplemental literature
Literature Anthology
Language Arts Guide with Lessons 1-140 in Reading Mastery IV
Writing and Spelling Guide (correlated with RM lessons)
Activities Across the Curriculum (correlated with RM lessons)
Spelling Mastery D Morphographic Spelling
Connecting Math Concepts D-E
Core Knowledge- Literature and Social Studies materials
Corrective Reading-Decoding (if necessary)

Fifth Grade: Reasoning and Writing E-F
Integrated Language Comprehension Program C (CRP-Comp.)
Reading Mastery V and VI & Open Court Classics 5, Supplemental literature
Literature Anthology
Language Arts Guide with lessons 1-140 in Reading Mastery V
Writing and Spelling Guide (correlated with RM lessons)
Activities Across the Curriculum (correlated with RM lessons)
Spelling Mastery –E, Morphographic spelling
Connecting Math Concepts E-F
Core Knowledge- Literature, Social Studies & Science materials
Corrective Reading-Decoding (if necessary)

We anticipate that some children will not meet all of these levels according to the above schedule. Such students will be placed in reading groups that progress at similar rates. We teach reading at several levels in kindergarten and grades one, two and three in order to accommodate students who learn at different rates. Some students who initially enroll at the Academy in first grade or a higher grade may not meet these goals. New students who enter the Academy in grades two or three will be placed in the programs according to placement tests. If these children are behind in any of the programs, individual plans will be designed to help them catch up.

For students in grades 3-5 who are behind grade level, we will use portions of the program Corrective Reading: Decoding.

5.3 Curriculum for Major Subject Areas.

5.3.1 Language Arts.

At Arthur Academy Language Arts is broadly defined to include reading, oral and written language comprehension, vocabulary, and oral and written communication. In fact, Language Arts skills are even required in the study of much of math instruction. Language skills are the basis for almost all academic learning. The goal for the Language Arts program is that all students will be able to communicate clearly and comprehend increasingly more complicated and diverse texts within a variety of subject areas.

Students are able to communicate clearly only when they think clearly. By starting at an early age to give students the critical thinking skills they need to analyze situations clearly and reach conclusions logically, Arthur Academy will equip them to express themselves with precision and clarity as they write.

However, Language Arts instruction at Arthur Academy will go far beyond communication skills. We agree with E.D. Hirsch about the “reading gap.” The reading gap has its roots in a more comprehensive “language gap” or “verbal gap” that exists long before children are readers. In order to effectively close the reading gap, a firm foundation in vocabulary and language comprehension needs to be laid. Direct Instruction programs in reading, spelling and language, combined with Core Knowledge programs in content subjects, can provide the foundation for closing this gap.

We will discuss in subsection (a) the five Direct Instruction language communications skills programs in the bulleted list below, after which we will discuss reading programs in depth [subsection (b)] and Direct Instruction Supplemental Literature and Research Materials [subsection (c)]:

- Language for Learning (kindergarten),
- Language for Thinking (grade 1),
- Spelling Mastery (grades 1-5),
- Reasoning and Writing (grades 1-5), and
- Reading Mastery Plus Language Arts Guide (grades 3-5).

(a) Direct Instruction Language Communications Skills Programs.

▪ **Language for Learning**

Basic language skills provide the prerequisites for reading instruction and provide a solid foundation for literacy. The Language for Learning program is designed for kindergarten children, low performers in language, and ESL students in higher grades. We use the program to build a solid foundation with such students and make sure they have confidence to succeed in subsequent programs that will develop reading and other language skills.

A major premise of the Language for Learning program is that children must understand the language of instruction. The children’s social language may be fully adequate for their lives outside the classroom, but if they do not understand the meaning of the language of the teacher and classroom and the language encountered in the textbook, they are likely to fail in school.

Language for Learning is designed to teach the language of instruction. The program is based upon analysis of skills and concepts the child must understand to follow the variety of basic instructions presented both in workbooks and by the teacher. It consists of carefully programmed sequences of exercises grouped into daily lessons, including teacher-directed activities and independent seatwork. These lessons provide for continual review of all the concepts and skills that are taught, as well as their application in problem-solving situations.

This program does more than teach language skills. Students also learn to think. They learn to group objects in different ways, see the logic behind “rules,” and to know when and how to apply these rules.

The Language for Learning program helps students:

- Perform small actions and describe them in a phrase and in a statement using the appropriate pronoun: I-you, you-your, she-her, he-his, I-my, we-ours.
- Described actions using past, present and future tense verbs
- Name objects in the classroom and make a complete statement about them
- Learn the difference between singular and plural forms of nouns and verbs
- Learn pairs of words that are opposites like: full/empty, big/small, wet/dry, long/short, old/young, tall/short, hot/cold, sad/happy, open/close
- Know how to use the comparative forms of these terms
- Learn names of other children, teacher, school, city, days of the week, months, seasons, names of common objects and their parts
- Learn kinds of materials that common objects are made from

- Learn names of common occupations, places in the community and basic natural phenomenon: land, sky, sun, clouds, the Earth, ocean, lakes
- Learn how to use terms like: first/next/last, before/after, on, over, in front of
- Learn to use the concepts of same and different, some/all/none, or/maybe
- Discriminate between and answer where, who, when and what questions
- Learn the meaning of if-then statements and be introduced to deductive reasoning
- Learn common classifications terms (vehicles, food, containers, clothing animals, building, plants, tools, furniture) and the name of objects found in each class and learn to group objects that share common features
- Learn to apply many of these skills to solve problems in a new context
- Recognize an absurd situation by applying logical analysis related to function, parts and location
- Recognize and name colors and common shapes
- Follow a story and sequence of events that occurs in a story that is read aloud and respond to questions and instructions about the story
- Respond to questions about a poem or nursery rhyme and recite a poem or nursery rhyme

A review of the research supporting this program can be found in a separate publication.

▪ **Language for Thinking**

Language for Thinking, a continuation of Language for Learning, teaches children the words, concepts, and statements important to both spoken and written language. It emphasizes language as a means of describing the world and as a tool for thinking and solving problems. Language for Thinking extends this teaching to more advanced concepts. It offers children language instruction through carefully sequenced exercises that help them learn the concepts and skills they need to succeed in school.

Language for Thinking provides a basis for enhancing reading comprehension. The program's vocabulary, background, and knowledge-building exercises, as well as its statement analysis, questioning, and definitions exercises, prepare children for the literal and inferential comprehension of the books and other materials they will read both in and out of school.

Materials for Language for Thinking include a teacher presentation book, a student picture book and a student workbook. The student picture book functions as a student textbook that has only pictures. The teacher directs the children to identify specific pictures and use them to deduce information or draw conclusions. The student workbook also contains activities, some of which are teacher directed and some are done as independent seatwork.

Concepts and skills are organized into seven groups:

- Review Lessons
- Information and Background Knowledge
- Reasoning and Critical Thinking
- Vocabulary Development
- Observing and Describing
- Comprehension Concepts
- Interpreting Graphic Displays.

▪ **Spelling Mastery**

The Spelling Mastery series is a basic spelling program for grades 1-6. In this program, students learn to understand the relationships among sounds, word parts, and spelling patterns. Three basic strategies are taught that encourage students to think their way through spelling rather than memorize weekly word lists. The three strategies are:

- Phonemic strategies that provide generalizations for spelling many words and word parts

- Morphographic strategies that teach spelling units corresponding to meanings that are combined to form whole words
- Strategies that teach high utility words with unpredictable spellings

The Spelling Mastery series progresses from phonemic strategies to morphographic spellings. Words with unpredictable spellings are spread throughout the program.

The assumption of this spelling program is that the teacher is the most effective medium for teaching spelling to children, not the use of self-study materials, computers, audio tapes, or unguided discovery, e.g. inventive spelling. Discovering the structure and meaning of words comes as a result of a teacher laying a solid foundation and not relying on chance.

▪ Reasoning and Writing

The Reasoning and Writing series of programs takes up where Language for Learning leaves off and overlaps, somewhat, with Language for Thinking in the first grade. To write well, students must think well. This is the simple premise behind this program, which introduces higher-order thinking skills at the earliest levels and uses them throughout a well-integrated program to teach effective communication.

- Exciting vibrant stories teach students to listen carefully, recognize logical categories, complete deductions, use clues to answer questions and understand story grammars.
- The program teaches students to inform, persuade, clarify, explain, and make recommendations. They write narrative stories, reports, essays, directions, summaries, critiques, and letters.
- Carefully planned lessons provide plenty of opportunity for students to apply and practice writing skills using editorial checklists to understand punctuation, capitalization, usage, and much more.

In Reasoning and Writing Level A, the prewriting stage, students learn to: follow instructions; recognize and master logical categories; use higher-order thinking skills; use clues to answer questions; discover alternative solutions; understand story grammars; and begin to write simple sentences. It also uses storytelling and other activities to help students develop an awareness of narrative structure and logical connections -- the foundations for reading comprehension and writing.

In Level B, students build on the skills developed in Level A and learn new higher level reasoning skills. At the completion of Level B, students will be able to: discuss and use the basics of sentence structure; detect and correct ambiguous references; perform sequencing operations; classify; and draw logical conclusions from data. This level expands reasoning activities and adds language concepts. Students learn to write complete sentences and begin to form simple paragraphs.

In Level C, students are actively involved in writing, as they apply what they have learned about communication and reporting. The emphasis in Level C is on describing events in narrative sequences. Students at this level will learn to: extend logical thinking abilities; perform sentence analysis; improve basic punctuation skills; revise for clarity and effectiveness; and edit for correctness. Level C introduces a complete narrative writing process, including drafting, revising, and editing for clarity. Students master important points in grammar, usage, and the mechanics necessary for effective communication.

In Reasoning and Writing Level D, instruction centers on expository writing. Students will learn to be critical thinkers as they analyze commentaries and advertisements to identify misleading claims, faulty or inadequate arguments, and contradictory statements. Students will also learn to: correct unclear parts of sentences; work with complex sentence structure; construct formal deductions; use evidence to support a conclusion; classify statements as general or specific; analyze problems with arguments; write business letters that express concerns; and write extended critiques. Level D focuses on various forms of writing, emphasizing the need for reading critically. Students learn to summarize what others say and then use the summary for writing comparisons and critiques.

Level E continues to develop persuasive, descriptive and other expository forms of writing. Students evaluate persuasive essays by (a) checking the accuracy of the evidence provided by comparing it with a reliable source, and (b) checking the logic of the argument. Research skills are introduced as students learn how to find sources and evaluate the reliability of the source.

Students learn how to write critiques of false-cause arguments, arguments with conclusions that are too general or too specific, arguments with misleading claims, and other types of weak arguments. Students learn to distinguish between contradictions, inconsistencies, unreasonable or improbable outcomes, and arguments that are just plain wrong. They learn to explain the problems in any of these arguments. Students also learn to develop plans to accomplish goals and to identify superior plans and choices based on a set of criteria.

A new retell track in Level E teaches students to listen carefully, take notes and organize and reproduce information accurately from a short oral presentation. In another track, students learn to use parallelism in writing: parallel verb forms, parallel sentence forms, parallel paragraph forms and other parallel organizations. They also learn parts of speech in a “transformational grammar” track that requires students to apply their skills of logical analysis to the problems of usage, meaning and sentence structure. Students also use sentence transformations to solve problems. The study of usage also emphasizes clear pronoun referents and appropriate pronoun case, verb tense agreement and subject-verb agreement.

▪ **Reading Mastery Plus Language Arts Guide**

The Reading Mastery Plus Language Arts Guide series for Grades 3-5 covers the following topics: Book parts, Capitalization, Comprehension Skills (cause and effect relationships, fact and opinion, main idea and details, location of words and phrases, time and order words and expressions, words and expressions that signal change), Grammar, Punctuation, Reference Sources, Vocabulary, Word Parts, Writing Skills (sentence structure, stories, persuasive writing, reports, author’s perspective, extended projects), Using Reference Materials, Figurative Language.

(b) Reading programs: Reading Mastery

To master the Reading Arts, students must be able to decode and comprehend, to apply thinking skills and background knowledge, and to love literature and language. These are the broad goals of the reading program.

The curriculum will include the Reading Mastery, published by SRA Macmillan/McGraw-Hill, copyright Science Research Associates, Inc. Reading Mastery consists of six levels that typically correspond to grades K-5. The objectives of this curriculum are to develop highly competent readers and therefore completely align with the reading section of the State Proficiency Test. Course objectives are listed in the material for each program level.

The success of this program is in large part due to the following simple principles.

- Along with the teacher, the program accepts complete responsibility for teaching every student how to read.
- All instruction is direct and unambiguous; tasks and activities are specified in detail.
- Every reading skill and strategy that students need is specifically taught, applied, and reviewed.
- Students receive consistent daily practice in reading, writing, listening, and speaking.
- Assessment is continuous; errors are corrected the instant they occur.

Phonics is always included as an integral part of the instructional plan, but it is only a beginning. The real test of a reading program is its success in developing fluency and comprehension skills. In Reading Mastery, comprehension is specifically taught early in the program. Fluency is developed gradually as skills are mastered.

Reading Mastery place particular emphasis on the teaching of thinking skills and the acquisition of background knowledge. Through step-by-step activities, students learn how to infer, predict, and conclude, and how to apply those skills to comprehension.

In these programs, students read some of the world's greatest literature by authors such as Mark Twain, Eleanor Clymer, and Langston Hughes. They also read such classics as the Wizard of Oz, Tom Sawyer, Charlotte's Web, Island of the Blue Dolphin, and various poems. Students also write early in the program. In first grade students write complete answers to questions; and in the third grade students write at least a paragraph each day about their reading.

Throughout the program, readings increase in length and complexity, questions become more probing, skill exercises more demanding, and writing assignments more challenging. Progress checks occur daily, and work is taken home on a regular basis.

Completion of the Reading Mastery program ensures a high level of mastery of the Reading Arts and prepares students for Benchmark Standards. At the second and third grade level (Reading Mastery III & IV), students read to learn about science and social studies as they extend their reading skills. In fourth grade and fifth grade students acquire an appreciation and understanding of literature.

At the beginning of the school year, students will be tested on their reading skills and placed within small groups at the appropriate level. It is possible for some students to progress through the levels faster than others. Yet, each student will always be placed in a small group with other students at their same approximate rate of progress and level of performance.

- **Reading Mastery: Levels I through VI.**

The Reading Mastery Program has six levels. We expect that most students who have started Arthur Academy in kindergarten will complete all six levels by the end of fifth grade.

Level I. Reading Mastery Level I contains 160 daily lessons that teach decoding and comprehension skills. Decoding is taught through an explicit phonics method that stresses letter sounds and blending of sounds. Students practice decoding by reading word lists and stories, both aloud and silently. Comprehension activities include answering questions about pictures, following directions, and responding to a variety of questions based on the stories.

Level II. Level II contains 160 daily lessons that expand basic reading skills. Students learn strategies for decoding difficult words and for answering interpretive comprehension questions. They also learn basic reasoning skills, such as making inference and drawing conclusions. The daily reading selections include realistic fiction and child fantasy stories.

Level III. Reading Mastery Level III contains 140 daily lessons that emphasize reasoning and reference skills. Students in the program learn how to apply rules in a wide variety of contexts and how to interpret maps, graphs, and time lines. The program also introduces a number of complex sentence forms and a range of vocabulary activities. The daily reading selections include realistic fiction, fantasy, and factual articles.

Level IV. Level IV contains 140 daily lessons that emphasize problem-solving skills and reading in the content areas. Students in the program evaluate problems and solutions, learn facts about the world, and complete research projects. Many of the daily reading selections incorporate facts from science and social studies. (Horizons Fast Track C-D combines Reading Mastery III and IV)

Level V. Reading Mastery Level V contains 120 daily lessons that emphasize literary analysis and extended writing. Students read a wide range of classic and modern fiction and prose, including two full-length novels, and they learn how to analyze characters, settings, plots, and themes. The daily writing assignments focus on the meaning of literature and encourage students to think critically. Other program activities include making outlines, inferring word meaning from context, and interpreting reference materials.

Level VI. Level VI contains 120 daily lessons that focus on literary language, reasoning strategies, and extended writing. The reading selections include novels, short stories, poems, factual articles, biographies, and plays. Students in the program learn how to interpret complex sentence forms, figurative language, and literary irony; they also learn how to identify contradictions and rebut faulty logic. In addition, students write complete paragraphs on issues related to the reading selections, as well as short stories and poems of their own.

(c) Direct Instruction Supplemental Literature and Research Materials.

Recently, new DI materials have been published to expand the basic programs.

Reading Mastery I and II: Literature Collections now provide nine (9) titles for Reading Mastery I and ten (10) titles for Reading Mastery II, in addition to teachers' guides for instruction.

Reading Mastery III, IV, V, and VI: Student Literature Anthologies are provided for each level. These contain classic and contemporary stories, poems, and plays by well-known authors. Teaching materials for each include a Guide for providing meaningful discussions, activities to teach writing and reading-related skills, and activities that reach across a range of key content areas.

Language Through Literature, a resource guide for grades 3 – 5. This enables a teacher to use high-quality children's books to introduce students to story patterns, literary structures, and conventions of expository text. Students are strengthened in their abilities to engage in active listening, critical thinking, writing, discussions, and projects.

Research Projects is a CD-ROM program that uses science and social studies content from the Reading Mastery programs to plan extended projects, find information and organize presentations. Students gain information from a variety of sources: encyclopedias, magazines, newspapers, and the internet.

Learning Through Literature includes a thematic series and literature series. Themes include: mysteries, science fiction, realistic animal stories, and biographies. The literature series coincides with each Reading Mastery level from I to VI.

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| Level I, | People/Friends and Animals/Mice |
| Level II, | Caldecott Winners/Poetry and Fairy Tales/Folk Tales |
| Level III, | Ramona Quimby, Age 8 and Philip Hall Likes Me |
| Level IV, | Little House in the Big Woods and Stuart Little |
| Level V, | The Enormous Egg and Ben and Me |
| Level VI, | King of the Wind and Sign of the Beaver |

Horizons Literature Collections, Levels A and B (k and 1st). Each level includes 15 titles, a teacher's guide, and black line masters with challenging activities.

Horizons Student Literature Anthology for levels C-D (2nd and 3rd) with teacher's guide and black line activity masters. Also included are two read-to titles: Little House on the Prairie and Julie Rescues Big Mack.

Open Court Classics for Grades 1 – 5. This series is for advanced students in each grade level to further develop higher-order thinking and comprehension skills through a collection of texts collected by E. D. Hirsch of Core Knowledge. It encourages independent inquiry and investigation of unit themes. It includes a Student Anthology, a teacher’s edition, and a workbook at each level.

5.3.2 Math.

(a) **Math Curriculum.** Arthur Academy will implement the Connecting Math Concepts program (Copyright McGraw Hill 1996), which is the Direct Instruction math program for grades K-5, while using DISTAR Math 1 for kindergarten students.

- **FUN Math for Kindergarten**

The Fun Math program is being field tested in our Arthur Academy schools. It is a new Direct Instruction program that has yet to be published. Completion of this program places some students about a half-year above grade level by the end of kindergarten.

- **Connecting Math Concepts (CMC)**

Connecting Math Concepts (CMC) is a complete basal mathematics program. It has been designed so that all students will learn to compute basic math operations, understand basic math concepts and how they are related and connected, and apply what has been learned to solve common math problems.

The general characteristics of Connecting Math Concepts are:

- Lessons are organized around a number of topics rather than a single topic.
- Connections are made between important concepts.
- Instructional time is maximized, so that all students have the opportunity to learn and apply concepts.
- Concepts are introduced at a reasonable rate.
- There is both guided and independent practice.
- As in all Direct Instruction programs, all lessons have been extensively field-tested and revised before publication.

Connecting Math Concepts is a case study in ideally balanced mathematics instruction. CMC provides a balanced emphasis on symbolic mathematics (computation), manipulative activities, and problem solving, and it provides a balance between understanding and the type and amount of practice necessary to secure that understanding.

The research base for such balance is well established, as is the research base for many of the specifics of CMC, such as selection and sequence of examples, variation in instruction, focus on key concepts, discrimination practice, and so on. A review of research by Bob Dixon, supporting the Connecting Math Concepts program, is available.

- **Singapore Primary Math Program**

The Singapore Primary Math Program 2B and 3B will be used to supplement some areas of the Connecting Math Concepts program in grades two and three in order to meet state standards.

(b) **Math Content and Skills at Each Grade.**

By the end of the highest level of the math program, students will have successfully mastered all component skills (lower level, more basic), which enable composite skills (higher level, more complex), such as those listed below, that give them a firm foundation for continued development in math. These are merely samples of skills and concepts students will master in the math program.

Kindergarten. Some kindergarten math content.

- Rote counting and counting objects and events
- Basic math symbols: identification and writing
- Matching numerals and lines
- Equality
- Addition, algebra addition, counting backwards and subtraction
- Facts, problems in columns, figuring out facts
- More or less, story problems, ordinal counting

First Grade. Some CMC-A math content (for first graders)

- Writes numbers that are 2 or 3 more from and given number up to 100
- Circles numbers on a number line that are more than a specified number
- Writes numbers that are 1 or 2 less than a give number up to 100
- Writes problems from dictation or from number line
- Writes answers to orally presented problems with a 2-digit value and an addend of 0, 1, 2 or 3
- Writes and solves addition problems with tens numbers
- Writes answers to problems that add 10 and 20
- Says doubles facts
- Writes answers to problems that begin with 2-digit numbers and that -0 , -1 , -2
- Writes addition and subtraction facts from number lines
- Writes addition and subtraction facts based on number-family relationships
- Responds to mental arithmetic questions
- Understands 2-digit place value
- Solves action problems, comparison problems and joining problems
- From story problems, figures out whether to add or subtract
- Solves a mixture of the above kind of problems
- Solves 3-addend problems
- Solves two problems, then writes the sign that compares the answers
- Solves problems with multiple solutions
- Writes cents for a nickel, a dime or a quarter followed by pennies
- Measures rectangles
- Estimates to complete rectangles that approximate descriptions

Second Grade. Some CMC-B Math Content (for second graders)

- Counts by 2,5,10, 25, 100, 9, or 4
- Writes 3-digit numbers from description
- Writes column problems for number families that have 2-digit or 3-digit numerals
- Writes the missing addend in problems based on familiar number families
- Writes answers to problems that add or subtract 9
- Works mixed sets of addition/subtraction problems
- Works problems with length, time or money
- Works problems, some of which require carrying to tens column or the hundreds column
- Works 2- or 3-digit problems, some of which require borrowing
- Writes answers to multiplication problems
- Identifies shapes, figures out perimeters and areas of shapes
- Determines totals and interprets data in a table to answer questions
- Solves number-family story problems that involve 2- or 3-digit numerals

Third Grade. Some Advanced CMC-C skills (for grade three)

- Work 3-digit times 1-digit multiplication problems, most of which require renaming
- Work division problems with 1-digit divisor, some of which have remainders
- Complete equations that have a missing number or a missing sign
- Solves comparison problems, some of which ask about a difference (how much more) and some of which ask about one of the values (how much)
- Solves action problems
- Solves word problems that require adding and subtracting fractions
- Solves classification word problems
- Solves multiplication/division word problems with variation in sentence order
- Solves comparison problems with complex syntax
- Solves word and comparison problems using data from a table, fills in the missing numbers in the table, and interprets the data to answer questions
- Solves problems based on tables that involve multiplication
- Solves multi-step problems based on a table
- Relates fractions to division problems
- Writes numerical fractions from descriptions

The Singapore Primary Math Program 2B and 3B will be used to supplement some areas of the Connecting Math Concepts program in grades two and three

Fourth Grade. Some Advanced Fourth Grade Skills

- Works a set of problems that calls for different operations: addition, subtraction, multiplication
- Solves mental addition problems of the form: 56 plus what number equals 60?
- Solves column problems that multiply a 3-digits value by a 2-digit value
- Solves column subtraction problems. Then checks answers with a calculator
- Works division problems in which the last digit of the answer has a remainder
- Completes a table that has division problems and equations involving fractions and whole numbers
- Writes mixed numbers equal to decimals or decimals equal to mixed numbers.
- Rewrites fractions as equivalent decimal values.
- Works a set of fraction problems that require addition, subtraction and multiplication
- Solves multiplication problems that have a fraction and a whole number
- Compares fractions with like or unlike denominators to determine which is larger
- Works complete ratio word problems
- Works a mixed set of ratio problems involving units of time, weight and capacity
- Writes fraction number families for different diagrams of fractions
- Uses information displayed in a bar graph to generate numbers for a 3-by-3 table
- Solves number-family problems, some of which compare and some of which classify
- Solves fraction number-family word problems that ask questions about numbers and about fractions
- Computes the volume of a box
- Plots equivalent fractions on a coordinate system.
- Conducts an experiment that compares probability predictions with actual outcomes.
- Conducts a project involving graphs.
- Conducts a project that creates a function table for converting a cake recipe that serves 4 into a recipe that serves 12
- Works a variety of projects involving probability, ratios, geometry and tables

Fifth Grade. Some Advanced Fifth Grade Skills

- Works a set of division problems that have 1-digit and 2-digit divisors.
- Completes a table to show hundredth fractions and their equivalent decimal and percent values.
- Writes equations that show fractions and equivalent percent values.
- Orders decimal values.
- Works unlike-denominator problems, some of which require rewriting only one of the fractions.

- Works column problems involving addition, subtraction and multiplication of fractions.
- Works equivalent-fraction problems in which one of the values is 1.
- Compares fractions with unlike denominators.
- Works addition and subtraction problems that have a whole number and a mixed number.
- Works division problems that have a decimal value in the dividend.
- Works a mixed set of word problems which require horizontal or vertical number families.
- Graphs a line on the coordinate system for a set of equivalent ratios and answers questions based on the line.
- Computes averages.
- Works ratio-table problems that involve percents.
- Uses inverse operations to solve word problems.
- Works problems that compare different units of measurement.
- Works ratio-table problems that involve probability.
- Finds the area and perimeter of parallelograms, rectangles and triangles.
- Finds the surface area and volume of a rectangle prism.
- Figures out the rule for vertically opposite angles formed by two intersecting lines.
- Works various projects that apply what has been learned.
- Uses ratio numbers to complete a table about the solar system and makes a scale model.
- Constructs a bar graph and circle graph to display percents for various geometric shapes selected as favorites by 20 different people.

5.3.3 Social Studies, Science, Music, P.E., Art.

(a) **Curriculum.** Core Knowledge materials provide most of the resources for these subjects. In addition to the general background book written by E. D. Hirsch, Jr., the following grade level resources are used. State standards in these subjects provide direction for selecting content within these materials.

- What Your Kindergarten – 6th Grader Needs to Know Grader Series
- The Core Knowledge Sequence
- The Core Knowledge Teacher Handbooks for Grades k-5
- Text Resource Packets
- Art Resource Packets
- Core Classics Plus, a series of 11 classic stories
- World History, Rats, Bulls, and Flying Machines (grades 4 and 5)
- Essential Poetry for Elementary School Students, Listen My Children.
- Pearson Learning/Core Knowledge History and Geography
- Kids Discover Life Science and Earth Science and Weather Series

Materials from the Singapore I-Science for grades 3-5 will also be used.

Core Knowledge developed its grade-level sequences from a survey of many state standards, but its content is so vast that we use the Oregon standards as guides in selecting which topics to study.