SCIENCE (CONTINUED)

- Identify and classify objects and materials that a magnet will attract and objects and materials that a magnet will not attract.
- Recognize that magnets have poles that repel and attract each other.

TECHNOLOGY/ENGINEERING DESIGN

Students will:

- Identify materials used to accomplish a design task based on specific property.
- Identify and explain the appropriate materials and tools to construct a given prototype safely.
- Identify and explain the difference between simple and complex machines.
- Identify a problem that reflects the need for shelter, storage, or convenience.
- Describe different ways in which a problem can be represented.
- Identify relevant design features (size, shape, weight) for building a prototype of a solution to a given problem.

SOCIAL STUDIES

In Grade Five, students study the major pre-Columbian civilizations in the New World and in North America in particular. They learn about the earliest settlements in North America, the political, economic, and social development of the English colonies, and the formation of a national government under the U.S. Constitution. The purpose of the fifth grade curriculum is to give students their first concentrated study of the formative years of U.S. history.

Students will:

- Interpret timelines of events studied.
- Study the Age of Exploration.
- Study and trace the trade routes of noteworthy explorers from the 16th century.
- Give examples of the responsibilities and powers associated with major federal and state officials.
- Explain key ideas contained in the Declaration of Independence.
- Study the establishment of the 13 colonies.
- Study the causes of the American Revolution.
- Describe the life and achievements of important leaders during the American Revolution and the early years of the United States.
- Identify various leaders of the Constitutional Convention and issues they debated.
- Explain events leading up to and the significance of the Louisiana Purchase.

ART

The Arts are an essential part of the human experience. Arts Education enables students to look at, hear, and feel their environment in a non rigid manner. Through the study and creation of art, appreciation of artists, and the study of art history, students develop the tools necessary to communicate their understanding of the world. The Rockport Elementary School Visual Arts Curriculum seeks to address the Massachusetts Visual Arts Curriculum Frameworks using a variety of approaches.

Students will:

- **Become visually aware of detail in the natural and constructed environments** by becoming increasingly aware of the vast amount of visual detail in the environment and by beginning to explore the relationships between an object's physical appearance, its environment, and its function.
- **Understand the elements of visual art** by understanding that line, color, texture, shape, and form comprise the basic language of visual art, by increasing the variety of ways students use the elements in their own work, and by exploring the basic elements in art works.
- **Develop concepts which will in later years, lead to an understanding of order in the visual environment** by beginning to understand the effects of using formal and informal patterns in decoration and in art works, by beginning to understand the effects of using more or less contrast, by beginning to use pattern and contrast purposefully in their own art works, and by beginning to explore the concept of visual balance.
- **Begin to develop skills which will help students, in later years, to depict people and objects accurately** by understanding that people are unique in their features, by understanding that the inclusion of details enhances depiction, by understanding that contour lines can be used to draw people and objects, by understanding that visual images can be used to show sequence of events, by understanding that closer objects appear to be larger than those farther away, and by understanding that closer objects show more detail than those that are farther away.
- **Begin to understand where ideas for visual expressions come from** by beginning to understand that art works express unique ideas, by beginning to generate ideas for art works from various sources, and by beginning to understand that they can work from memory, observation, imagination, or feelings to create art works.
- **Organize ideas into visual art expressions, using the processes and materials of visual art** by beginning to articulate the wide variety of reasons for creating art works, by becoming better able to articulate their own reasons for creating particular works of art, by continuing to make decisions about their own methods and material, by continuing to recognize valuable accidents in their work and to put them to use where appropriate, and by beginning to understand that creating involves finding a way to order images and the elements of art.
- **Become aware of the presence of the visual art in their own homes, town and surrounding communities** by continuing to explore the role of artists in their community and by beginning to understand that many different cultural groups contribute to a community's artistic make-up.
- **Become familiar with visual art and artists** by exploring the contributions of visual artists past and present, by beginning to develop an awareness of the visual arts past and present, by beginning to understand that art tells something about the society or community in which it was created, by continuing to explore the ideas that art works evoke responses in viewers, and by beginning to explore the connections between the elements of art, the images, and the techniques used in particular art works.
- **Become aware of visual images and their daily effects on people** by beginning to read the language of visual art and by beginning to understand that visual images play many different roles in visual art.

For an expanded version of the Rockport Elementary School Art Curriculum please visit our web site at: **http://www.rockport.k12.ma.us/res/**

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Rockport Public Schools ☼ GRADE FIVE ☼ Curriculum Overview

The Rockport Elementary School curriculum supports the learning standards set forth in the Massachusetts Curriculum Frameworks. This brochure was developed to provide you with a brief description and overview of each of the subjects your child will study during the current school year.

It is hoped that this overview, as well as continued communication with your child's teacher, will keep you informed about what your child is learning and how he/she is progressing throughout the school year.

LANGUAGE ARTS

The Rockport Elementary School Language Arts Curriculum addresses the areas of language (speaking and listening), reading (decoding, comprehension, and literature), and writing (writing process, conventions & grammar, literature response, and in Grades 2-5 narrative & expository writing) through a balanced literacy program.

Speaking and listening are the foundations of verbal communication. These language skills are developed through participation in one-to-one conferences, group meetings, and individual presentations.

Throughout the grades, students are actively engaged in reading a variety of imaginative, expository, and informational texts of increasing complexity, thus helping them to gain an understanding of the elements and structure of different genres. The five critical components essential to reading success (phonological awareness, phonics, fluency, vocabulary, and comprehension) are woven throughout the reading curriculum. Students participate in shared, guided, and independent reading activities, as well as experience interactive read alouds.

Students learn ways to become versatile writers and to effectively communicate their ideas to a variety of audiences. Writing instruction is likewise provided through shared, guided, and independent writing experiences.

Included in this Grade Five overview are *selected* components from each language arts area.

LANGUAGE

Students will:

- Follow and apply an understanding of agreed-upon rules for class discussion and carry out assigned roles.
- Initiate conversation effectively by establishing a context in addition to responding to adult initiated topics.
- Gather relevant information for a research project or composition through interviews.
- Clarify, illustrate, or expand on a response when asked to do so, and ask classmates for similar clarification.
- Confirm understanding by paraphrasing directions or suggestions.
- Adapt language to persuade, to explain, or to seek information.
- Give oral presentations for various purposes showing appropriate changes in delivery and using language for dramatic effect.
- Determine the meaning of unknown words using context clues and knowledge of root words, prefixes, and suffixes.
- Determine pronunciations, meanings, alternate word choices, and parts of speech using dictionaries and thesauruses.
- Use appropriate vocabulary that reflects a growing range of interest and knowledge.
- Identify words or word parts from other languages that have been adopted into the English language.
- Identify and demonstrate correct use of basic parts of speech.
- Identify and use correct mechanics, correct usage, and correct sentence structure.
- Identify formal and informal language in stories, poems, and plays, and in advertisements read, heard, and/or seen.
- Demonstrate through role-playing, appropriate use of formal and informal language, and dialect.

READING

DECODING

Students will:

- Demonstrate knowledge of onsets and rimes.
- Integrate the three cueing systems (semantic/meaning, syntactic/grammatical structure, graphophonic/visual) by searching, predicting, confirming, self-correcting, reading ahead, rereading, and cross checking to monitor reading.
- Use phonics skills/decoding strategies and structural analysis (e.g. break words into syllables, and look for word parts or affixes) skills to read unfamiliar words.
- Read with fluency, phrasing, and expression.

COMPREHENSION

Students will:

- Use prereading strategies (e.g. activate prior knowledge, make predictions), reading strategies (e.g. visualize, make connections, verify predictions, reread to clarify meaning, draw conclusions, infer unstated ideas) and post reading strategies (e.g. locate information, respond to questions, retell the story, restate a number of significant facts, form and support opinions).
- Locate and understand significant information from multiple sources.
- Expand ideas by formulating questions, developing hypothesis and drawing conclusions.
- Restate and summarize facts from nonfiction, in his or her own words.
- Identify the effect of literary devices such as figurative language, dialect, dialogue and description.
- Identify the characteristics of literary genres.
- Analyze literary elements of style of an author/illustrator.
- Make inferences and draw conclusions about events, characters, setting, themes, symbolism, mood, and voice.
- Extend ideas and make connections using multiple sources.
- Record significant information by making notes.
- Read critically for bias and motive in nonfiction sources.

LITERATURE

Students will:

- Listen to, experience, or read works representing various genres, themes, authors, and illustrators.
- Develop a personal appreciation for types of genres, favorite authors, and favorite illustrators.
- Read silently for information, pleasure, and insight for a sustained period of time.

WRITING

WRITING PROCESS

Students will:

- Write about self-selected topics known and cared about.
- Choose a manageable, focused topic.
- Stay on selected topic and maintain a focus.

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LANGUAGE ARTS (CONTINUED)

- Express voice through words.
- Select format appropriate to the audience and purpose of the work.
- Use conventional spelling to write words.
- Include appropriate facts & details.
- Write in different genres.
- Give feedback to other writers.
- Revise selected pieces for clarity by asking, "Does this make sense? What else will my reader need/want to know?"
- Self-edit selected pieces for conventions and grammar by using individual proofreading lists and other resources.
- Publish selected pieces.
- Respond positively & appropriately to another student's or teacher's sharing of writing.

CONVENTIONS & GRAMMAR

Students will:

- Use conventional spelling and spelling references.
- Write legibly in manuscript and cursive, with correct usage and formation of upper and lower case letters.
- Use correct capitalization and ending punctuation.
- Use quotation marks and appropriate punctuation when writing dialogue.
- Use commas in dates, series, letter writing, addresses, and dialogue, and use apostrophes in contractions and to show possession.
- Write in complete sentences using varied sentence structure.
- Write in paragraphs.
- Identify and demonstrate correct use of parts of speech.

LITERATURE RESPONSE

Students will:

- Give an opinion or make a judgment that is evaluative, reflective, interpretive, or analytic.
- Engage the reader by establishing a context, creating a point of view, and using one's voice.
- Support judgment through reference to the text, other works, authors, non-print media, and/or personal knowledge and experiences.

NARRATIVE WRITING

Students will:

- Create a narrative account that involves a situation, plot, elaboration with details, and a sense of closure to the writing.
- Maintain a focus and include relevant information.
- Exclude extraneous details and inconsistencies.
- Use a variety of appropriate strategies such as dialogue, use of sensory language, and elaboration of significant details to develop plot and characters.
- Engage the reader by establishing a context, creating a point of view, and using one's voice.
- Detect and correct problems, errors, and misunderstandings that might arise for the reader.

EXPOSITORY WRITING

Students will:

- Utilize an organizational strategy for informational writing.
- Engage the reader by establishing a context, creating a point of view, and using one's voice.
- Provide a main idea and supporting facts and details.
- Use a variety of ways to present ideas and information appropriate to a specific purpose and audience.
- Analyze the topic, provide facts and details, and exclude extraneous information.
- Use a range of strategies appropriate to the type of report such a providing facts and details, comparing, contrasting, describing, and interviewing.
- Use, evaluate, and cite reference materials and/or provide a bibliography when gathering data.
- Detect and correct problems, errors and misunderstandings that might arise for the reader.
- Write the steps needed to complete a task in sequential order.

MATHEMATICS

The Grade Five mathematics program is based on the Investigations in Number, Data, and Space curriculum and supplemented by the Scott Foresman Addison Wesley curriculum. Skills and concepts from each of the five mathematical strands are addressed.

NUMBER SENSE AND OPERATIONS

COMPUTATION

Students will:

- Practice, share, and become fluent with multiple strategies for computation and problem solving.
- Perform addition, subtraction, multiplication, and division (with double-digit divisors) of whole numbers using traditional algorithms.
- Perform addition, subtraction, multiplication, and division of positive fractions and mixed numbers.
- Simplify fractions.

UNDERSTANDING

Students will:

- Develop an understanding of the application of the Order of Operations for expressions involving addition, subtraction, multiplication, and division with grouping of symbols .
- Be introduced to and develop an understanding of positive integer exponents, in particular, when used in powers of ten .
- Demonstrate an understanding and mastery of place value to billions and thousandths.
- Represent and compare very large and very small positive numbers in various forms such as expanded notation without exponents .
- Demonstrate an understanding of fractions as a ratio of whole numbers, as parts of unit wholes, as parts of a collection, and as locations on the number line.
- Identify and determine common equivalent fractions and mixed numbers.
- Find and position whole numbers, fractions and mixed numbers on the number line.
- Compare and order whole numbers, positive fractions and mixed numbers.
- Use the number line to model addition and subtraction of whole numbers.
- Demonstrate an understanding of the inverse relationships of addition and subtraction, and use that understanding to simplify computation and solve problems.
- Estimate results of computations with whole numbers, and with positive fractions and mixed numbers.
- Describe reasonableness of estimates.

PROBLEM SOLVING

Students will:

- Apply number theory concepts-including prime and composite numbers, prime factorization, greatest common factor, least common multiple, and divisibility rules for 2, 3, 4, 5, 6, 9, and 10 - to the solution of problems.
- Select and use an appropriate operation(s) to solve problems involving addition, subtraction, multiplication, division, and positive integer exponents with whole numbers, and with positive fractions and mixed numbers.

PATTERNS, RELATIONS, AND ALGEBRA

Students will:

- Analyze and determine the rules for extending symbolic, arithmetic, and geometric patterns and progressions.
- Be introduced to replacing variables with given values and evaluate/simplify.
- Use the property of equality to solve problems, e.g., if _ + 7 = 13, then = 13 - 7, therefore _ = 6;
- Represent real situations and mathematical relationships with concrete models, tables, graphs, and rules in words and with symbols.

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MATHEMATICS (CONTINUED)

- Solve linear equations using concrete models, tables, graphs, and paper-pencil methods.
- Produce and interpret graphs that represent the relationship between two variables in everyday situations.
- Be introduced to identifying and describing relationships between two variables with a constant rate of change, and contrast these with relationships where the rate of change is not constant.

GEOMETRY

Students will:

- Identify polygons based on their properties, including types of interior angles, perpendicular or parallel sides, and congruence of sides.
- Identify three-dimensional shapes based on their properties such as edges and faces.
- Identify relationships among points, lines, and planes.
- Graph points and identify coordinates of points on the Cartesian coordinate plane.
- Find the distance between two points on horizontal or vertical number lines.
- Predict, describe and perform transformations on two-dimensional shapes, e.g., translations, rotations, and reflections.
- Identify types of symmetry, including line and rotational.
- Determine if two shapes are congruent by measuring sides or a combination of sides and angles, as necessary; or by motions or series of motions.
- Match three-dimensional objects and their two-dimensional representations.

MEASUREMENT

Students will:

- Apply the concepts of perimeter and area to the solution of problems.
- Apply formulas where appropriate.
- Identify, measure, describe, classify, and construct various angles, triangles, and quadrilaterals.
- Find the area of triangles and parallelograms.
- Recognize that shapes with the same number of sides but different appearances can have the same area.
- Develop strategies to find the area of more complex shapes.
- Identify, measure, and describe circles and the relationships of the radius, diameter, circumference, and area and use the concepts to solve problems.
- Find volumes and surface areas of rectangular prisms.
- Find the sum of angles in simple polygons with and without measuring the angles.

DATA ANALYSIS, STATISTICS, AND PROBABILITY

Students will:

- Describe and compare data sets using the concepts of median, mean, mode, maximum and minimum, and range.
- Construct and interpret stem and leaf plots, line plots, and circle graphs.
- Use tree diagrams and other models to represent possible or actual outcomes of trials. Analyze the outcomes.
- Predict the probability of outcomes of simple experiment and test the predictions.
- Introduce the use of appropriate ratios between 0 and 1 to represent the probability of the outcome and associate the probability with the likelihood of the event.

SCIENCE

The science curriculum at each grade level is divided into four major content strands that include Earth and Space Science, Life Science, Physical Science and Technology/Engineering. Within each strand there are more specific Learning Standards that enable teachers to plan, present and assess specific instruction within the four strands in conjunction with the Frameworks. Questions are key to all learning. Investigation and experimentation build essential scientific skills such as observing, measuring, replicating experiments, using equipment, and collecting and reporting data. Scientific inquiry and experimentation are integrated into the science curriculum, not taught as stand alone skills. Areas of study include weather, the water cycle, electrical and magnetic energy, characteristics and adaptations of animals.

EARTH AND SPACE SCIENCE:

Students will:

- Explain how air temperature, moisture, wind speed and direction, and precipitation make up the weather in a particular place and time.
- Distinguish among the various forms of precipitation and making connections to the weather in a particular place and time.
- Describe how global patterns such as the jet stream and water currents influence local weather in measurable terms such as temperature, wind direction and speed, and precipitation.
- Differentiate between weather and climate.
- Describe how water on earth cycles in different forms and in different locations, including underground and in the atmosphere.
- Give examples of how the cycling of water, both in and out of the atmosphere, has an effect on climate.

LIFE SCIENCES

Students will:

- Classify animals according to the physical characteristics that they share.
- Describe the major stages that characterize the life cycle of the frog or butterfly as they go through metamorphosis.
- Identify the structures in animals that are responsible for energy production, support, transport, reproduction, growth, and protection.
- Recognize that animals go through predictable life cycles that include birth, growth, development, reproduction, and death.
- Differentiate between observed characteristics of animals that are fully inherited and characteristics that are affected by the climate or environment.
- Identify the structures in animals that enable them to function and survive in their particular environment.
- Give examples of how changes in the environment (drought) have caused some to die or move to new locations (migration).
- Describe how organisms meet some of their needs in an environment by using behaviors in response to information received from the environment.
- Recognize that some animal behaviors are instinctive and others are learned.
- Recognize that many animals can survive harsh environments because of seasonal behaviors.
- Give examples of how organisms can cause changes in their environment to ensure survival. Explain how some of these changes may affect the ecosystem.
- Describe how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within a food chain from producers (plants) to consumers (who use food to produce energy through respiration) to decomposers.

PHYSICAL SCIENCE

Students will:

- Compare and contrast solids, liquids, and gases based on the basic properties of each of these states of matter.
- Describe how water can be changed from one state to another by adding or taking away heat.
- Identify the basic forms of energy (light, sound, heat, electrical, and magnetic).
- Recognize that energy is the ability to cause motion or create change.
- Give examples of how energy can be transferred from one form to another.
- Recognize that electricity in circuits requires a complete loop through which an electrical current can pass, and that electricity can produce light, heat, and sound.
- Identify and classify objects and materials that conduct electricity and objects and materials that are insulators of electricity.
- Explain how electromagnets can be made, and give examples of how they can be used.

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