

## STEAM

Students in Grades 1-3 are provided with a year-long STEAM experience as part of “special” area programming. STEAM is an acronym for **S**cience, **T**echnology, **E**ngineering, the **A**rts, and **M**athematics. It is not a program, but a philosophical approach to learning that integrates knowledge from the various disciplines. It is taught through project-based experiences that also emphasize the 21<sup>st</sup> century skills of collaboration, cooperation and communication. The STEAM experience is divided into four 9-week segments, with each focusing on a common grade level theme such as “Earth”, “Sound” and “Air & Weather”, and how the design process is applied within the various disciplines.

- In the Arts portion of STEAM, students will use their skills and concepts learned in visual art and music to reinforce, express, practice and demonstrate knowledge and skills in other academic areas such as science, math or literacy. Examples of topics include: learning about sound waves, exploring weather using musical sounds, how patterns and symmetry are important in design, and the important role that length, width and depth play in sculptural form. As the STEAM program evolves this year, increased emphasis will be placed on strengthening connections between the Arts and the other STEAM components via the overarching themes.

- As part of the STEAM program, students are engaged in project based engineering activities. As in all STEAM classes, students experience the engineering design process (ask, imagine, plan, create, improve and share) to solve a problem. Activities in the engineering class are extensions/reinforcements of the science and engineering standards for each grade and are based on the common grade level themes. First graders design sails and windmills, second graders explore the properties of sound to design musical instruments and third graders engineer model buildings that are earthquake resistant.

- In the Technology segment of STEAM, students will be introduced to computer programming and robotics via sites such as Botlogic, Code.org, and MIT’s Scratch. In the process they will be developing the basic computer and navigation skills needed to support general computer use as well as their programming activities. They explore programming through the use of robotic devices (BeeBots, Lego WeDots, and MakeyMakey) to make hands-on connection with these concepts. Through this experience, students will be exposed to a new literacy, have opportunities to develop their critical and logical thinking skills, and will begin to develop an understanding of the relationship between programming and the technologies that are part of their everyday lives.

## Social & Emotional Learning

Social and emotional learning (SEL) is the process through which children acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions. SEL is more than just a program or lesson. It is about how teaching and learning happens, as well as what you teach and where you learn. There are a variety of approaches used to teach SEL including:

- Free-standing lessons designed to enhance students’ social and emotional competence explicitly.
- Teaching practices such as cooperative learning and project-based learning, which promote SEL.
- Integration of SEL and academic curriculum such as language arts, math, social studies, or health.
- Organizational strategies that promote SEL as a schoolwide initiative that creates a climate and culture conducive to learning.

At the elementary level, the Responsive Classroom Approach is used to promote well-designed practices intended to create safe, joyful, and engaging classroom and school communities. The emphasis is on helping students develop their academic, social, and emotional skills in a learning environment that is developmentally responsive to their strengths and needs.

Students develop their SEL skills across five competencies:

- Self Awareness
- Self Management
- Social Awareness
- Relationship Skills
- Responsible Decision Making

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## GRADE 2

## CURRICULUM SUMMARY

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## Mathematics

- Represent and solve problems involving addition and subtraction
- Add and subtract within 20
- Work with equal groups of objects to gain foundations for multiplication
- Understand place value
- Use place value understanding and properties of operations to add and subtract
- Measure and estimate lengths in standard units
- Relate addition and subtraction to length
- Work with time and money
- Represent and interpret data
- Reason with shapes and their attributes



## Science

Students explore the big ideas of life, physical, and earth science through an inquiry-based, hands on approach. Students study:

- Trees (Life Science)
- Soil (Earth Science)
- Magnetism & Magnet Challenge (Physical Science & Engineering)

Live animals, outdoor field trips and special programs provided by the Science Center serve to enhance the hands-on experience.

## Social Studies

Students learn about geography and engage in inquiry-based social studies as they study the following unit:

- Five Themes of Geography (location, place, relationships, movement, regions)

## Spanish Language & Culture

- Understand and produce memorized vocabulary and formulaic expressions related to the following themes: common greetings and courtesy expressions, the calendar, seasons and weather, colors, numbers, clothing, shapes, school, fruits and vegetables, the alphabet, family, the body, animals, and continents
- Respond to simple questions and produce simple expressions
- Demonstrate comprehension by following basic classroom instructions
- Demonstrate awareness, curiosity and appreciation for different cultures



## Reading

- Participate in book discussion with partners, small groups, and whole class
- Select books for independent reading appropriate to level and interest
- Know the difference between fiction and non-fiction
- Read for pleasure and begin to read for information
- Read and recognize characteristics of various genre
- Select appropriate print strategies
- Recognize story elements (character, setting, plot)
- Retell and discuss stories
- Read to acquire information
- Use comprehension to deepen understanding
- Increase knowledge of word structure and vocabulary

## Writing

- Use stages of the writing process including, drafting, revising, editing and publishing
- Begin to experiment with graphic organizers to plan writing
- Use oral story telling to plan writing
- Use pictures and sentences to tell a story across multiple pages
- Use mentor text to learn crafting techniques
- Write with voice
- Use phonetic spelling
- Spell grade level high frequency words correctly
- Use the word wall and other spelling resources
- Use beginning capitalization and ending punctuation
- Experiment with punctuating dialogue
- Write in different genres and for different purposes

## Art

- Draw from memory, observation, and imagination
- Explore different types of texture
- Explore patterns and designs in printmaking
- Create a textural composition (collage)
- Create a 3-D sculptural project
- Continue to explore painting techniques

## Music

- Identify pitches do, re, mi, sol, la
- Perform, read and write rhythm patterns using voices, instruments and body percussion
- Demonstrate different musical forms
- Demonstrate different tempi through movement
- Experience the music of diverse cultures
- Demonstrate the ability to use a healthy singing voice

## Physical Education

- Work independently with others in partner environments with minimal teacher prompting
- Jump a long rope continuously turned by others
- Kick a rolling ball to a large, stationary target with the instep
- Dribble a ball continuously using alternating hands
- Apply simple strategies in chasing and fleeing activities
- Demonstrate the ability to move to a beat with various body movements and direction changes

## Library & Digital Learning

- Read and present information for author/illustrator studies
- Identify different literature types
- Use a simple table of contents and index
- Identify Caldecott titles and series of books
- Differentiate between fiction and nonfiction
- Understand that biographies are true stories of a person's life
- Recognize the patron catalog as a locational tool
- Use advanced drawing tools on computer program
- Navigate between two computer applications, locate, retrieve, and save files
- Combine pictures and text using publishing software for projects
- Understand the concept of Digital Citizenship
- Understand roles that children play in cyberbullying situations, including bystanders and upstanders