

# MANUS ACADEMY

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Instructional Programs and  
Courses for Middle School Students

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# Introduction

Thank you for your interest in Manus Academy, a private school dedicated to working with students with specific learning needs.

Manus Academy is accredited by the Southern Association for Colleges and Schools (SACS) and AdvancED, its parent organization. We deliver a tutorial model of instruction where students work one-on-one with teachers and in small groups.

In this “Instructional Programs and Courses for Middle School Students,” you will learn about our mission, our instructional methods, how we tailor each student’s learning environment for success and the skills and courses we teach. As you and your child go through the admissions process, we will share our recommendations specific to your child’s instructional program.

We look forward to working with you!



# **The Manus Academy Mission and Instructional Programs**

## **Our Mission**

Our mission at Manus Academy is to deliver to each student the kind of instruction he or she needs at any given point in time. To fulfill this mission, we customize each student's instructional program and his or her learning environment. Here is a description of our instructional programs and learning environments.

## **Our Instructional Programs**

During our admissions process, we meet with parents and students to discuss their concerns and goals, review school records and any previous evaluations students may have had and we administer some tests ourselves. Based on this and other information, we develop instructional programs and learning environments best suited to individual students.

Each student's teaching team (i.e., teacher, one-on-one tutor and lead teacher) continues this diagnostic-prescriptive process by monitoring the student's progress, charting and graphing weekly and monthly practice, adjusting instructional programs as needed and communicating regularly with parents.

Much of our middle school curricula have been developed by the founder, Rosanne Manus. The goals and objectives within these curricula follow national and state standards for each grade level. Teachers deliver instruction using procedures and strategies that are based on decades of educational research that tell us how to maximize student learning.

Our curricula and procedures are also subjected each year to rigorous in-house testing and updating. This process allows us to offer the most effective instruction possible at any particular point in time. Our teachers receive regular training and consultation in the prescribed teaching techniques to ensure they all employ the same effective methods.

The rate at which students progress is largely based on the number of correct responses they produce during a given period. The higher their correct responses during each lesson, the faster they progress. We use strategies, therefore, that maximize students' participation and correct responses. One of the key strategies is direct instruction. Direct instruction has been tested extensively over the past few decades and found to be highly effective with students, particularly students with specific learning needs.

Direct instruction involves intensive interaction between teachers and students and it promotes a high degree of focus, which, in turn, leads to efficient learning. Here are some of the key methods involved in direct instruction.

1. *Teaching in small, manageable steps* – The teaching and learning process is step-by-step, predictable and efficient. Basic skills and course content are divided into small, cumulative objectives that students can easily master in a short period.
2. *Teaching in a cumulative sequence* – Each skill is an extension of the preceding skills. Once students learn a new skill, they review all skills learned up to that point of instruction. This sequential and cumulative approach builds fluency and skill integration and application.
3. *Using guided instruction* – In the first stage of guided instruction, the teacher explains the purpose of the new skill then models and recites the steps for performing it. In the second stage, the teacher coaches the students to commit the steps to memory, say and perform each step accurately and at a steady pace. In the third stage, the teacher coaches the students to perform the skill independently until they are fluent.

The teacher then covers the next skill, which is an extension of the preceding one. Many of these extensions involve applying the newly learned skills to different situations so the skills have personal use to the students.

Guided instruction is particularly useful in the initial stages of learning because it maximizes the number of students' correct responses and minimizes time spent being confused.

4. *Monitoring progress* – Students record their daily and monthly practice and evaluate their work habits. Then, with their teachers, they analyze their performance to decide if they are working efficiently and intensively enough for optimal progress and make changes, if needed.
5. *Engaging students* – Students are actively engaged as they learn and practice skills. They learn by seeing, listening and doing. They are coached to speak aloud and in complete sentences during

the initial stages of instruction and apply effective strategies as they perform the skill so they learn to consistently show what they know.

6. *Teaching students to learn how to learn* – At Manus, Academy, we teach more than just basic skills and content courses. We teach students to self-teach, a skill they must have to succeed in life. This involves training them to:

- understand themselves as learners and identify their strengths and barriers
- organize their materials so they have them when they need them
- use those strategies most effective for each assignment type and their learning style
- manage time effectively

Knowing how to interact successfully with others and solve, or at least manage, one's problems are as important as mastery of academic skills; therefore, we also directly instruct students in social and problem-solving skills.

Our students follow a process during which they first examine their specific learning strengths and barriers. Second, they practice strategies under their teacher's guidance so they can succeed in spite of these barriers and, third, they routinely assess their use of these strategies and the degree to which they are effective. This ongoing process helps students learn to solve their daily problems, a skill required to function successfully as adults.

### **Our Learning Environments**

To ensure that our students experience success, we customize not only their instruction, but their learning environments, too. Some students learn best with one-to-one instruction, while others respond well to small-group instruction with anywhere from one to five other students. Some students need a compressed schedule during which they work intensively with an instructor on core subjects for a few hours a day. Others benefit from our five-hour school day.

Here are some of the different learning environments we offer:

- *Class instruction from 9:00 a.m. to 2:00 p.m., Monday through Friday* – Students in this environment work with five other students, a teacher and support staff. They spend part of their day with the whole class building vocabulary, grammar, literature, written expression, social studies, science and communication skills.

They spend another part of their day working with two other students and a teacher in math and time alone with a tutor working on specific skills in which they need particularly intensive training, such as language, reading, spelling, writing or additional math.

Students also participate in cooking and nutrition classes in the kitchen each week and apply science concepts as they work in our school gardens. Our lead teacher oversees each student's program to ensure that he or she is responding to it well.

- *Small group instruction in the afternoons* – Students in this environment work with one or two other students and a teacher. (Depending on their needs, they may also spend some time working one-on-one with a tutor.) They typically attend school for three and a half hours a day; however, some may attend for more or fewer hours.
- *One-to-one instruction throughout the day* – Students in this environment work individually with a tutor on specific skills and courses during regularly scheduled times in the mornings or afternoons. Some students attend for several hours every day while others attend for one or two hours several times a week. Some of these students are enrolled in home school and see our instructors for intensive work in a specific course or skill, such as advanced math, foreign language or remedial reading and writing.

In addition to offering various learning environments to meet individual student needs, we also offer a wide range of accommodations. Accommodations are environmental adjustments that help students succeed despite their particular barriers.

These accommodations may involve classroom design, strategies to reduce background noise, hand-held fidget toys, schedule adjustments, medication monitoring, audio books, study guides, word processors, specific testing procedures, modified assignments, regular time to talk privately with a staff member about concerns, training in self-relaxation techniques and opportunities to stretch and move around when restless.

The ability to regulate one's attention, behavior and emotions is also essential for school success. Students who have difficulty in one or more of these areas receive training from both their teachers and support staff in managing their behavior and resolving conflicts effectively, maintaining a sufficient level of alertness during their lessons and using self-relaxation techniques as needed throughout the day.

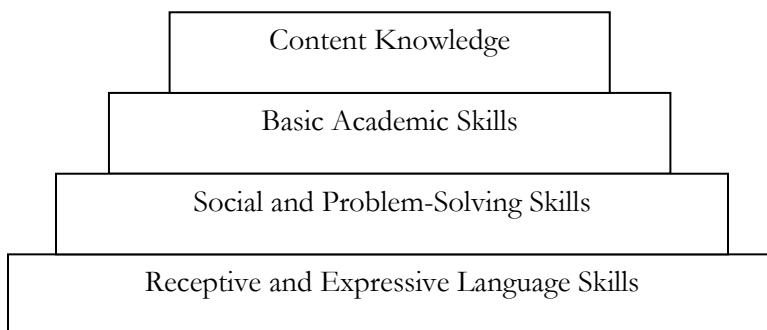
### **Our Middle School Curricula**

To give you an overview of what we teach, we have listed and described on the following pages the scope and sequence of the middle school curricula. Students learn these skills and subjects at different rates and depths depending on their individual learning profiles. During the admissions process, we

outline your child's starting points of instruction in each area and give you regular updates on his or her progress during parent-teacher contacts.

Our curricula cover both basic skills and content courses. The basic skills are: 1) receptive and expressive language; 2) social and problem-solving skills; 3) reading; 4) handwriting and spelling; and 5) organizational, time management and study skills. Our content courses are: English, math, science, health and social studies.

This learning hierarchy shows the relationship between learning basic skills and gaining knowledge in the content areas (e.g., science, health, social studies, literature). While there is much overlap among the levels, the hierarchy indicates how the development of certain skills is dependent on the development of other skills. At Manus Academy, we factor this skill hierarchy into the instructional decisions we make.



# Basic Skills

## Receptive and Expressive Language

Language skill has more impact on our social, emotional and academic development than any other single skill. Language helps us make sense out of chaos by categorizing information received through our senses. It helps us convey our needs and wants, temper our emotions and connect with others. It helps us wait before responding so we can draw on experience (the past), consider consequences (the future) and engineer effective responses. In this way, it helps us control our environment.

Language also helps us think. If we can name something, we can perceive it. If we can sequence our thoughts, we are more likely to recognize causal relationships. Strong language skills help us understand fields of knowledge, such as science, social studies and math. They help us think abstractly. In fact, understanding class lectures and reading assignments in science, health, social studies and math is entirely dependent on one's language skills.

Because strong language development is so critical to one's overall success, we train students to build their receptive and expressive language skills as we teach other skills and subjects, particularly English. We also have additional lessons with students with delayed language skills. Here are the main divisions of basic language instruction. For a description of the other language skills we teach, refer to the section that covers English.

*Phonemic awareness* – Phonemic awareness is the awareness of sounds in spoken language and the understanding that words are composites of individual sounds blended together. Reading, spelling and listening skills depend heavily on students' ability to easily perceive individual speech sounds. Students who need to develop phonemic awareness skills receive intensive instruction to build their proficiency. We often combine phonemic awareness training with the teaching of phonics and spelling.

*Rapidly naming nouns and adjectives and word retrieval* – To succeed in school, students must have the ability to rapidly name objects, colors, numbers and letters and easily retrieve the words they need when speaking. Some students have trouble saying what they want to say. This problem affects several areas, including reading, speaking and social development. Because rapid naming and word

retrieval skills are essential to future learning, students who have difficulty in this area undergo intensive training.

*Classifying, describing, comparing and defining nouns* – Students needing skill building in this area learn to classify, describe, compare and define common nouns. They also learn to identify and use adjectives and create sequences. A solid foundation in these skills enables students to more easily phrase their thoughts and communicate with others, both orally and in writing.

*Phrasing words* – Building on the preceding skills, students learn to further organize and phrase their thoughts using basic concepts. These concepts include positional, directional and sequential words (e.g., under, into, beyond, through, left, right, since, later, before, until); quantitative words (e.g. more than, less than, equal to); and words of negation, exclusion and conditions (e.g., not, no, except, but, although, unless, only, if). Examples include: “Walk *through* the second door and turn to your *left*” and “*Don’t* begin your math assignment *unless* you’ve finished your spelling.”

*Following directions* – As students understand and speak in phrases and simple sentences, they learn to follow directions. They first learn to follow one-step then two, three and four-step directions. As students progress, they learn to follow directions of increasing complexity, including directions containing negation, exclusions and conditions. Examples include: “Get a piece of scrap paper *before* you pick up the pencil,” “Draw a circle in any color *except* yellow, green or brown” and “*First*, write your name. *Second*, write the date under your name. *Third*, number your paper one through nine.”

*Discourse* – As they progress through school, students apply their basic language skills by learning to speak and write in longer units than sentences and short paragraphs. Students continue to practice classifying, describing, comparing, sequencing, narrating, persuading and showing causal relationships as they speak in front of the class, write paragraphs, essays and reports and read more complex and lengthier material in social studies and science. They also develop discourse skills as they practice study skills.

### **Social and Problem-Solving Skills**

Like receptive and expressive language ability, social and problem-solving skills affect all areas of students’ lives. Therefore, learning these skills is crucial. Students learn how to solve problems and develop and maintain successful relationships with others. These skills include:

- communicating nonverbally
- communicating one’s needs and wants
- successfully participating in structured group activities

- starting, maintaining and ending conversations
- solving and managing problems effectively
- exercising self control
- practicing good manners
- understanding one’s learning strengths and barriers
- understanding and accepting one’s self
- accepting and fulfilling one’s school responsibilities

Students practice these skills intensively until they can perform them routinely. They learn these skills by watching the teacher model specific behaviors, practicing the skills themselves and participating in group discussions and activities. These activities include drama exercises where students act out various situations and perform before others.

Effective social and problem-solving skills include taking good care of oneself. Students work with a staff member, as needed, to develop their own personal fitness program. This program includes:

- exercising to increase muscle strength (e.g., weight lifting)
- improving cardio-vascular fitness (e.g., running, walking, aerobics)
- increasing flexibility (e.g., stretching, yoga)
- eating a balanced diet
- getting sufficient sleep

### **Reading**

Reading is a complex and hierarchical skill where mastery of some skills is only possible with mastery of the ones preceding it. The five strands of reading instruction are: 1) phonemic [or sound] awareness; 2) word recognition [phonics, sight words and multi-syllable words]; 3) fluency; 4) vocabulary; and 5) comprehension. Here is a brief description of the skills students must develop. Depending on their current level of reading ability, students work on these skills to greater or lesser degrees.

*Phonemic awareness* – See “Basic Skills: Receptive and Expressive Language.”

*Word recognition* – For students to recognize words, they must master phonics or the skill of making paired associations between sounds and letters. For instance, students must understand that the word *tap* is a blending of three separate sounds: /t/, /ă/ and /p/.

Students must also learn to read by sight. Sight word reading requires instant recognition of the visual patterns of words, particularly those that look similar (e.g., *want/what* and *though/through*). Sight

word recognition also requires the immediate recognition of common letter clusters, such as the *an* in *can* and the *ine* in *pine*.

To read higher-level, multi-syllable words, students need to learn about word structure, such as roots, prefixes, suffixes and syllable patterns. This allows them to decode and eventually recognize multi-syllable words, such as *convent*, *convention*, *conventional* and *unconventional*.

Students must concurrently develop a strong vocabulary, as knowing what words mean greatly facilitates the decoding of them.

*Fluency* – As students develop phonetic, sight word recognition, word analysis and vocabulary skills, they must develop them to the point of automaticity, or to the point where they can apply these skills easily and with little mental effort. They must develop the ability to make written language sound like spoken language, with natural phrasing and inflection. Fluency enables students to focus on understanding what they read rather than on deciphering individual words.

*Vocabulary* – Research clearly indicates that students’ vocabulary levels are major predictors of how well they learn to decode words, comprehend texts and score on achievement tests. A strong vocabulary facilitates the learning of new material. A weak one impairs it.

Studies show that students learn approximately 3,000 new words a year. They learn most of these words incidentally, without direct instruction. Students learn new words as they watch television, read signs, hear people talk and listen to their teachers in school. They learn many of these 3,000 words by reading. Reading is one of the most effective ways to build vocabulary.

Our vocabulary program teaches students to understand and use those higher level words they are most likely to hear when they listen to conversations and class instruction and when they read books. It also includes idiomatic language, such as “go to pieces” and “like a fish out of water.”

Drawing from applied research that suggests how to teach vocabulary effectively, our program employs several strategies. One is to have students read often. Another is to learn definitions. Learning definitions helps students understand the precise meanings of words, their pronunciations, root origins and parts of speech. A third way of teaching vocabulary is contextually, or learning word meanings from the passages’ syntactical and contextual clues. These three strategies, when combined, promote rigorous vocabulary growth.

Students spend twenty minutes or so learning word definitions and engaging in expanded exercises, such as adding prefixes and suffixes to these words, determining their synonyms and antonyms and

using them in sentences. Throughout the school day, the teacher uses these words in his or her instruction and prompts the students to use them, too.

Your child's teacher will give you a list of the words your child is studying each week. We ask that you write these words on index cards, post them in a prominent place in your home and incorporate the words into your daily conversations. This exercise helps students retain their skill and use the words in various situations.

*Comprehension* – As students build their reading fluency, they start focusing more on comprehension. Comprehension is an intricate and complex process that involves many overlapping functions. Here's a summary of the skills students build.

- *Semantics*: Students build their knowledge of word meanings so they understand most of the words they encounter in their reading material and derive some meaning of unfamiliar words from the context within which these words are embedded.
- *Sentence comprehension*: Students learn to comprehend small units of meaning by analyzing and producing large numbers of sentences with specific patterns and structure. As students develop a sense of how to phrase words, they can better understand them and predict what comes next in the passage. These skills are prerequisites for comprehending longer units, such as paragraphs and stories.
- *Literal comprehension*: Students first learn to understand what they read at a literal level. This includes learning to recall specific information then paraphrase and summarize it. Students also learn to distinguish between relevant and irrelevant information. Literal comprehension is the foundation upon which students build higher level thinking skills. Students can only interpret, analyze, synthesize and conclude based on a literal understanding of facts and ideas.
- *Memory*: To understand information, students must remember it. To remember it, they must understand it at some level. As students learn new information, they practice strategies that enhance both their memory and understanding. They learn how developing each skill augments the other.
- *Higher-level comprehension*: To more deeply understand what they read, students learn to analyze one or more parts of the reading passage; synthesize or recombine these parts with a new understanding; tap into their prior knowledge of the topic; understand abstract concepts and figurative speech; connect small details to each other and to the main topic; recognize different

paragraph types (e.g., descriptive, comparative, sequential, causal); and evaluate the author's style, purpose and skill.

Students develop reading comprehension skills in several ways. They practice reading short paragraphs containing relatively simple information then summarizing them. Summarizing requires students to understand the main idea, select those two or more details that best support this idea then organize, arrange and present this information in a logical, coherent order.

Students practice reading and summarizing until they build fluency. Once they reach a certain level of proficiency, they spend more time reading and analyzing the literary works covered in English, such as stories, novels, drama and poetry, and expository or factually-based material, such as that found in social studies and science textbooks.

### **Handwriting and Spelling**

To develop writing skill, students must develop fluency in handwriting and spelling, for these are the tools they use to express thoughts on paper.

*Fine motor skills* – Students build fine motor skills with daily activities that increase shoulder, arm, hand and wrist strength and flexibility. Next, they engage in hand coordination activities to increase their ability to manipulate those small finger muscles necessary for handwriting.

*Handwriting* – Students learn to position their bodies, arms and wrists properly. Then they learn to write in manuscript and/or cursive until they can form letters, words and numbers legibly and fluently. Students also learn to evenly space their words and follow margin guidelines.

*Spelling* – Spelling success depends on well-developed phonemic awareness, an understanding of phonics (writing letters to represent specific sounds) and orthography (mentally picturing then writing words that one has spoken and read many times before). Students follow a step-by-step method to build their phonemic awareness and phonetic and orthographic skills so they can spell those frequently used words they need for everyday writing and spell unfamiliar words by phonetic means. Students practice to the point of fluency so they are eventually free to focus on what to write rather than on how to write.

### **Time Management, Organizational and Study Skills**

To succeed in school, students must organize their materials and their time and use study strategies most effective for each type of course and assignment and for their personal learning styles. They must develop the ability to read and learn from textbooks, workbooks, literary pieces, graphs, maps, videos

and class activities. Students must also develop the ability to write in different formats and styles, research and write about topics, take tests and work accurately and in a timely manner.

Middle and high school students must also master the skill of engaging in discourse. Discourse is the *systematic* examination of a topic that involves learning new material in a top-down sequence. Virtually all teachers, professors and publishers use it extensively when covering topics.

This sequence begins with an examination of the subject and continues with the main topic, subtopics and details. As students learn new information, they must continuously re-connect the details and subtopics to the larger topics so they can see how details are part of a collective whole rather than isolated pieces of information. The ability to engage in discourse enables students to handle the relatively large volumes of material covered in middle and high school and helps them understand information that is somewhat removed from their everyday experiences (e.g., the economic and political systems of Bolivia).

Training students to develop these skills is as essential as teaching the content itself. These tools make the content stick. All students, therefore, receive intensive coaching in organization, study, time management skills and discourse. Students learn these skills as they learn other subjects, such as science, social studies, English and math. Teachers model, coach and require students to use these skills as they complete assignments and participate in class activities.

# Content Courses

## English

English consists of four main divisions:

- grammar, usage and mechanics
- vocabulary
- literature
- written expression

Students work intensively and extensively in all four areas to build their command of the spoken and written word. A strong base in English enhances students' ability to teach themselves new information in virtually any field by reading and researching. It also enhances their ability to assimilate then convey their knowledge to others in the form of written summaries, essays and research reports.

*Grammar, Usage and Mechanics* – Students spend about twenty minutes each day participating in intensive grammar, usage and mechanics practice. In grammar, they learn the parts of speech then analyze the functions of each word in given sentences. This helps them build fluency in stringing words together, with varying degrees of complexity, to represent thoughts.

In usage, they learn the rules for making subjects and verbs agree and using pronouns, adjectives and adverbs correctly. In mechanics, they learn the rules for capitalizing and punctuating sentences then practice these skills extensively so they use them automatically when they complete other writing assignments.

*Vocabulary* – See “Reading.”

*Literature* – The purpose of literature instruction is fourfold:

- to teach students to understand what they read
- to know the different literary genres and their characteristics
- to learn about literary techniques

- to broaden their understanding of the human experience by exposing them to different characters, conflicts, settings and themes.

Students read selected passages, such as stories, novels, drama and poetry. As they read, they complete guided analyses that help them focus on the essential elements of the texts and summarize the chapters and scenes in a cumulative sequence. Then they complete guided outlines about specific elements (e.g., character, theme, setting) and write literary essays about them.

*Written Expression* – Like reading, written expression is a complex skill. To write well, students must learn to handwrite, spell, phrase, capitalize, punctuate, organize and develop topics and write in different formats.

Students follow a systematic process as they write letters, paragraphs, essays, book reports and research reports. This writing process includes choosing a topic; researching then developing it with an outline, chart or other graphic organizer; phrasing or verbally composing the paper from the outline; writing the paper; then editing it several times for completeness and accuracy.

- *Writing letters and paragraphs* – Students follow specific steps as they learn to write letters and short paragraphs that develop topic sentences. Then they learn to write each of the seven different paragraph types: classification, descriptive, comparative, sequential, cause and effective, narrative and persuasive. Students develop some fluency writing each paragraph type before they progress to the next type.
- *Writing five-paragraph essays* – Once students can easily write the paragraph types described above, they follow the same step-by-step procedures for writing five-paragraph essays that also classify, describe, compare, sequence, show causal relationships, narrate and persuade.
- *Writing book reports and article summaries* – Students follow a prescribed sequence for reading and summarizing the key points of stories and articles they read. They practice this sequence as many times as necessary to achieve fluency in the skill.
- *Writing literary analyses* – Students read literary material and write analyses on one or more parts of them. They analyze and write about a story’s characters, setting, theme, point of view and symbolism.
- *Writing research reports* – Students use a system to research then write about topics. Topics include famous people, inventions, historical events, states, countries, epidemics, natural disasters and planets.

## Math

A strong math foundation begins with a solid understanding of our number system and how it works. Once students develop this foundation, they build their math skills in the areas of number operations, geometry, measurement, probability and statistics and pre-algebra.

Students first learn each skill by engaging in teacher-directed, hands-on activities during which they explore the concept using three-dimensional objects. Then they learn the skill as it's presented with pictures, graphs, tallies, tables, charts and other graphic organizers.

Once they demonstrate an understanding of the concepts, they learn to work with the skill as represented by numbers only (e.g., solving addition computations or adding fractions). Finally, they practice applying their newly learned skills as they solve word problems and complete other application activities. Students follow a tightly structured sequence so the teacher can quickly and easily determine their progress and make instructional adjustments, if necessary.

Here are brief descriptions of the skills covered in our math program. Once we assess each student's math skill, we place him or her in the appropriate instructional group.

*Number operations* – Students develop numerical reasoning skills by learning to count, compare and order numbers, and understand place value. They apply these numerical reasoning skills as they learn addition, subtraction, multiplication and division facts. Next, they apply their math facts as they practice specific computational sequences (e.g., regrouping and adding  $354 + 687$ , dividing 68 into 3527). Finally, they learn how to count money and make change, and work with fractions, decimals and percents.

*Geometry* – Students first learn about points, lines, rays, angles and planes. Next, they learn about polygons (e.g., square, quadrilateral, trapezoid). They practice determining congruency, movement, and symmetry of polygons and how to measure their perimeters and areas. They continue geometry with learning about space figures (e.g., cubes, pyramids, cones) and their parts (e.g., faces, edges and vertices). Finally, they learn about circles and how to graph points on lines and grids.

*Measurement* – Students learn how to tell time, measure the length, area, volume and weight of areas and objects, read thermometers and solve problems involving increases and decreases in temperature. They learn to measure with the customary system used in the United States and with the metric system used throughout the rest of the world and in the scientific community.

*Probability and statistics* – Students learn about probability by conducting experiments and predicting probable outcomes. They also learn to read line, bar and circle graphs, collect data and record it on each of these graphs, and determine the range, average, median and mode of given data.

*Pre-Algebra* – Students learn about number properties, how to work with positive and negative integers, exponents and square roots and how to follow the order of operations, simplify algebraic expressions, solve one, two and three-step algebraic equations and graph ordered pairs.

As students learn the above skills, they practice applying them by solving different types of problems. They follow a sequence for reading and understanding the problem, setting up the problem, solving it, then checking the answer for accuracy.

## **Science**

To learn science well, students must develop the ability to follow scientific procedure as they investigate science concepts, follow class presentations, read and note key information from textbooks, review all learned information regularly to promote retention and apply this newly learned information to daily activities. Teachers follow step-by-step procedures to help students develop these skills.

Middle school students learn about different topics in general science. The divisions of general science are the scientific method, physical science, life science, earth and space science, ecology and health.

To deepen their understanding of each science concept, students conduct investigations; study charts, posters and three-dimensional models; watch videos; read selected material; and complete other activities. Because cooking and gardening involve the application of numerous science concepts, students engage regularly in these activities, too.

The topics we cover in science follow state and national standards for science instruction. Students begin learning about the general science concepts listed here in elementary school and continue to learn more about them and in greater depth through the eighth grade. This spiral, or looped, sequence promotes a strong foundation of general science knowledge that prepares students for the more specialized fields of science in high school (e.g., biology, chemistry, physics).

Here's a summary of the content of each scientific field that students explore at different times.

### *Scientific Method*

- using laboratory tools and following safety procedures
- asking a question

- gathering information
- forming a hypothesis
- testing the hypothesis
- recording, organizing and analyzing observations and data
- drawing conclusions

#### *Physical Science*

- force, motion and energy
- magnetism and electricity
- heat, sound, light
- matter

#### *Life Science*

- life processes and cells
- plants, animals
- human body and health
- reproduction, heredity and genetics

#### *Earth and Space Science*

- rocks, minerals, weathering and erosion
- fossils and geologic time
- earth's crust, interior, hydrosphere and atmosphere
- weather and climate
- space

#### *Ecology*

- ecosystems and their energy flow
- earth's biomes
- factors that affect the ecosystem
- environmental conservation

### **Social Studies**

During social studies instruction, students are trained to follow class presentations, read and note key information from textbooks and/or workbooks, review all learned information regularly to promote retention and apply this information to daily activities. Teachers follow a structured sequence to help students develop these skills.

Middle school students learn about different topics in world geography and cultures, United States government, United States history and world history. To promote their understanding of each social studies concept, students listen to class presentations; read selected material; study charts, posters and three-dimensional models; watch videos; and complete other activities.

Here's a summary of the content of each social studies section.

#### *World Geography and Cultures*

- maps and globes
- major landmasses and oceans
- geographic regions and cultures
- five geographic themes (location, place, human and environmental interaction, movement, regions)

#### *United States Government (Civics)*

- democracy
- how government is organized
- duties of each government branch
- rights and privileges of citizens

#### *United States History*

- Native Americans
- European explorers
- thirteen colonies then fifty states
- major wars and events (e.g., American Civil War, immigration, Great Depression, Civil Rights movement)

#### *World History*

- ancient civilizations
- early Greek and Roman empires
- rise of towns, cities and nations in Europe and North America
- major events and movements (e.g., Reformation, colonial expansion, Industrial Revolution, major civil, revolutionary and world wars, creation of the United Nations)