KHAN LAB SCHOOL

Middle School Course Catalog

2024-25

Middle School (Grades 7-8)

Middle School Course Descriptions (Grades 7-8)



History: Early United States History & Geography: Growth and Conflict
In this middle school history course, you'll dive into the major events that shaped the United States, learning to think like historians. As you explore key dates and events, you'll unpack larger political, social, economic, and cultural ideas over time. You'll be challenged to understand history from the perspective of those who lived it, avoiding the mistake of judging the past by today's standards. Instead, you'll critically examine historical sources by considering who created them, when, why, and for whom.

Your journey through this course will take you from the earliest days of European colonization, exploring the cultural clashes and collaborations that defined early American history, to the Civil War and its lasting consequences. You'll study the origins and impact of slavery, the American Revolution, the U.S. Constitution, and the formation of the Early Republic. The course will also cover the Age of Jackson, the rise of democracy, and the social reforms of the time. Throughout, you'll connect these historical events to contemporary civics and government, gaining a deeper understanding of your role as an informed and active citizen.

Science: Chemistry and the Earth
Middle school science this year is designed to ignite curiosity about our planet and its chemical interactions. Students will explore geological processes, atmospheric phenomena, and chemical principles, with a special emphasis on local environmental issues. This hands-on course encourages students to become stewards of their environment, using scientific knowledge to understand and address community-specific challenges.

English: The Individual vs. Society
What happens when an individual starts questioning the systems and beliefs of the society in which they live? Is the way a society has existed for years one in which we should accept because it is accepted by the majority? Authors have used the conflict between the individual and society as a way to illustrate a larger exploration of the societal and cultural happenings at

large. In this course, we will journey through different individuals' battles with self-identity in correlation with the society they live in.

Math 7/8: Creative Math

Prerequisites: Math 6 or placement exam

In Math 7 and Math 8, we will embark on a comprehensive journey through the world of mathematics. This combined course is designed to provide a solid foundation in math concepts and skills while ensuring a smooth transition from Math 7 to Math 8. The topics covered include solving multi-step equations and inequalities, rational numbers, ratios and proportions, percents, linear functions and graphing, geometry, real numbers and right triangles, perimeter, area, and volume, as well as statistics and probability. Whether you're tackling equations, delving into geometric shapes, or analyzing data, this course will equip you with the mathematical knowledge and problem-solving abilities necessary for success while also fostering an understanding and appreciation for the beauty of math.

Algebra 1: Algebraic Reasoning and Problem Solving

Prerequisites: Math 7/8 or placement exam

This foundational course serves as a gateway to the fascinating world of mathematical thinking and problem-solving. Through a systematic exploration of topics such as linear equations, inequalities, polynomials, functions, exponents, and radicals, you will develop essential skills for modeling real-world scenarios and making informed decisions. Whether you're preparing for advanced mathematics, science, or simply aiming to enhance your quantitative aptitude, Algebra 1 will lay the groundwork for your mathematical journey, fostering logical reasoning and analytical prowess that extend far beyond the confines of the classroom.

Algebra 2: Predictive Modeling through Functions

Prerequisites: Algebra I and placement exam

The purpose of this course is to extend students' understanding of functions and the real numbers, and to increase the tools students have for modeling the real world. They extend their notion of number to include complex numbers and see how the introduction of this set of numbers yields the solutions of polynomial equations and the Fundamental Theorem of Algebra. Students deepen their understanding of the concept of function, and apply equation-solving and function concepts to many different types of functions. The system of polynomial functions, analogous to the integers, is extended to the field of rational functions, which is analogous to the rational numbers. Students explore the relationship between exponential functions and their inverses, logarithmic functions. Trigonometric functions are extended to all real numbers, and their graphs and properties are studied. Finally, students' statistics knowledge is extended to understanding the normal distribution, and they are challenged to make inferences based on sampling, experiments, and observational studies.The Algebra II is divided into four modules: Polynomial, Rational, and Radical Relationships, Trigonometry, Exponential and Logarithmic Functions and Inferences and Conclusions from Data. Upon successful completion of Algebra II , students should be able to demonstrate: quantitative reasoning skills, Building of arguments and

critical reasoning skills, how to model with mathematics, which tools to use, how to use those tools and when to use them.

Geometry: Delving Into Mathematical Dimensions
Prerequisites: Algebra 1 or placement exam
This geometry course serves two purposes. First, students are introduced to the beauty of Euclidean geometry, learning the fundamentals of points, lines, 2D shapes, 3D objects, and how they all are related. Second, and just as important, students develop critical mathematical practices, including reasoning abstractly, modeling real-world situations, attending to precision, and developing detailed proofs. For many students, this is the first time they have rigorously constructed a proof. Understanding how the body of knowledge in math can be derived from a few fundamental axioms is one of the joys of this course.

Spanish 1
Spanish 1 is an immersive introduction to spoken and written Spanish and Hispanic culture. Through contextual, real-life communicative activities, students develop their sentence formation and vocabulary. The course also provides a rich understanding of Hispanic culture, enhancing students' appreciation and understanding of the Spanish-speaking world. Class is conducted 75-90% in Spanish.

Spanish 2
Prerequisites: Spanish 1 or placement exam
Spanish 2 builds on the foundation in Spanish 1 and enhances students' understanding of the material. In this course, students expand their vocabulary and master the use of different past tenses, including imperfect and present perfect or compound. They also improve their creative writing skills and oral proficiency through presentations, communicative activities, games, cultural activities, and reading-centered discussions. Class is conducted 80-90% in Spanish.

Middle School Outer Wellness
Outer Wellness is included twice a week in all middle school students' weekly schedules and will focus on general physical fitness, team sports, and team building.

Exploratory Courses

The Exploratory course series are courses offered in addition to our core academic courses and students can choose from 5 different offerings each term. We have chosen the name "Exploratory" rather than just "Electives" to emphasize a proactive and adventurous approach to learning, inviting students to explore beyond their usual academic boundaries.

Introduction to Computer Programming
Dive into the essentials of computer programming in this beginner-friendly course designed for students interested in understanding how digital programs operate. Whether you're eager to create digital art, design games, or develop apps, this course will help you transform your innovative ideas into executable code. We will primarily use the Python programming language to teach you how to articulate logic through code, model data, and acquire foundational skills applicable to other classes or your own projects. The coursework involves progressively complex programming projects throughout the semester. This course is open to all students, with no prior experience required!

Critical Making and Robotics
Critical Making is a way of life. Are you able to quickly and easily identify design solutions? What do they look like? How do they function? What was the prototype? What would the next iteration look like? When we stand in the world today we see all around us, ideas and designs in some state of process, complete but never fully finished. There is no prerequisite for Critical Making except your own interest and curiosity of the world around you through the lens of a designer ready to peel back the layers of the world around us by asking and attempting to answer the question why. We will be using tools and machines to build prototypes that help push our boundaries of what is possible, as well as investigating the world of robotics and how we can design, or not, with AI.

> **Note**: This is a one-term class. The topics we explore may be adjusted to complement a concurrent class.

Decon/Recon
Inside every product you use, you will find many different parts that have been designed and engineered with constraints and considerations, for example, the properties of different materials. Let's look under the hood of these products and delve deeper into the art of engineering: How are they made? How can we take them apart? Can we put them back together? If we were to personify our object what would it say? What story might it tell?

> **Note:** This is a one-term class.

Art & Design
Students will develop their art and design skills by exploring key art concepts: line, shape, color, value, contour, self-portrait, form, and artist studies. Projects will be scaled to students' abilities with the goal of mastering the fundamentals of art and design. Students will practice Design Thinking techniques to learn visual hierarchy, composition, proportion, balance/alignment, texture, and repetition for fine art and digital design projects infused with cultural contexts. This is a core/foundational middle school-level art class. All work will be completed in the studio.
Note: This class is offered each trimester and can be repeated.

Big History

Students will journey through nearly 14 billion years of history. In this series of three project-based mini-courses, we ask the big questions about our Universe, our planet, life and humanity. Where did we come from? What causes change? How are those changes reshaping our world? Students will go on an astounding interdisciplinary journey that introduces them to cosmology, chemistry, geology, biology, and the principles of sustainability so they can develop an understanding of the universe and humanity's place within it.

Music

Students will co-create their musical experience, choosing as a group whether they will participate in chorus, focus on digital music, create musical theater scenes or participate in a small ensemble (guitar, ukulele, jazz, rock band, etc.)

Schedule of Exploratory Offerings

FALL	WINTER	SPRING
Art	Art	Art
Music	Music	Music
Critical Making & Robotics	Decon/Recon	Student-Led Electives
Intro to Computer Programming	Intro to Computer Programming	Intro to Computer Programming
Big History: The Origin of the Universe	Big History: Life on Earth and Early Humans	Big History: Expansion and the Future

Notes on Specific Subject Areas

Mathematics at KLS

Placement: Math placements are based on a variety of input data, including performance on previous courses taken (at KLS or at another school) and the iReady placement exam, given in August before school starts. In addition, students will be observed in the first few weeks of class to verify that their placement is appropriate. During the year Middle School students also take NWEA MAP tests.

Math Competitions: Some math competitions (such as AMC) are student-organized and led, and are optional for any student who qualifies. The exams are proctored by math faculty. Some competitions, such as MOEMS are organized by our math faculty, optional for any student who qualifies, and proctored five times per year by our math faculty.

World Languages at KLS

Placement: Spanish placements are based on a variety of input data, including performance on previous courses taken (at KLS or at another school) and a placement exam, given in August before school starts. If a student is new to Spanish or new to KLS, they must have a meeting with our World Language Coordinator in addition to the written placement test, where their speaking proficiency will be evaluated. In addition, students will be observed in the first few weeks of class to verify their appropriate placement.

Mixed Grade Level Classes: Spanish and math classes at KLS are not determined by your grade level, but by your proficiency level, as measured by the placement test given at the beginning of the year. This means that we can have mixed grade level classes which provides ample opportunities for peer learning and support.

Additional Programming

Advisory Program

The Middle School Advisory Program is designed to provide personalized support and guidance to students in small, grade-level groups of 10-12. Each group is led by a dedicated advisor who serves as both an advocate for the students and a primary point of contact for parents. The advisor's role includes fostering a supportive and trusting environment where students can discuss academic, social, and emotional concerns. By closely monitoring each student's progress and well-being, the advisor helps address individual needs and challenges, while also maintaining open lines of communication with parents to ensure they are informed and involved in their child's education. This tailored approach aims to strengthen student-teacher relationships, enhance parental engagement, and promote a cohesive and nurturing school experience.

Life Skills Lab

The Life Skills Lab offers a comprehensive and engaging approach to personal character development, blending essential practical skills with social and emotional learning. Drawing from the Wayfinder Project, the course integrates Social and Emotional Learning (SEL) principles to foster self-awareness, empathy, and resilience. It also incorporates practices from the Council tradition, emphasizing group discussions and personal reflection to build community and self-understanding. Students engage in hands-on activities to develop practical life skills such as financial literacy, time management, and effective communication. Academic skills are reinforced through interactive lessons, while specialized modules cover critical topics including digital media literacy, sex education, and drug awareness, providing students with the knowledge they need to navigate complex challenges in their daily lives. This holistic approach ensures that students are well-equipped with both the emotional intelligence and practical knowledge necessary for success and well-being.

Applied Learning

Applied Learning is a social science research process and project that requires students to apply knowledge and understanding of the habits of work, personal development skills and applied learning skills to a cognitive science lab experiment. Coached by advisors, and designed and run by students, the project provides foundational knowledge of the research and design process, as well as reflection and understanding of how social-emotional learning and executive function support agency, leadership and purpose. In 7th grade, the students will design and complete a project for the benefit of the school community. In 8th grade, the students will design and complete a project that benefits the surrounding community.

Goal Time

Goal Time is a dedicated period during which students can work at their own pace on projects, catch up on missed assignments, and complete any additional coursework. This time is supervised to ensure students stay focused and make the most of their work sessions. All middle school students have at least two hours of goal time each week. On Tuesday afternoons, Goal Time is further enhanced by the availability of all teachers, who are on hand to provide one-on-one support, answer questions, and offer personalized assistance. This structured yet flexible approach allows students to address their individual academic needs, receive targeted help, and manage their workload effectively, promoting a more personalized and supportive learning experience.