

CAPITOL REGION EDUCATION COUNCIL

Two Rivers Magnet Middle School

Scope and Sequence Course Catalog

Fall, 2015

Two Rivers Magnet Schools

Mission

Two Rivers Magnet Schools are dynamic and diverse science and technology-based learning communities, centered within an environmental theme. Students are inspired and prepared to meet the challenges of the 21st century through a robust academic program where collaboration, innovation, and critical thinking skills ensure that our students will be college and career ready.

Vision

We will be a center of excellence for science and technology through cutting-edge curriculum, an innovative approach to learning, and state-of-the-art technology.

Beliefs

- We believe that our science, technology, and environmental themes are key components to developing 21st century learners who are college and career ready.
- We believe a diverse school community enriches learning and promotes respect for and appreciation of differences.
- We believe in instilling a sense of personal integrity, the foundation of a successful school community.
- We believe in cultivating environmentally conscious students, citizens, and future leaders.
- We believe success is dependent upon partnerships among students, staff, families, and the community.
- We believe in an educational community where everyone chooses to bring energy, passion, and a positive attitude.
- We believe in an education tailored to meet the individual needs of each student.
- We believe fostering teacher growth and effectiveness is directly linked to student achievement.

Scope and Sequence by Subject

The middle school years, much like our environment, are dynamic; each year brings unique possibilities for growth. The curricular themes of each grade mirror the opportunities surrounding both the environment and our students in terms of changes, challenges, and choices.

6th Grade- Changes

Sixth grade is full of changes, not the least of which is the transition from primary to secondary school. Changing schools, changing friends, changing classes, even changing bodies and minds are all central to a sixth grader’s life. Our 6th grade curriculum embraces that theme with the environment as well, including changes in ecosystems and weather.

7th Grade – Challenges

As students move from sixth to seventh grade, they face a number of challenges. Academically they are faced with more rigorous programs. Students are also challenged with the social, emotional, and physiological events that are shaping their lives. Environmental challenges, such as the environmental impact of war and the impacts of environmental pollutants on human health will be explored.

8th Grade – Choices

Our eighth grade theme surrounds choices and empowering students to make positive choices, understanding that today’s options impact future opportunities for themselves and the environment. Our curriculum explores the idea of choices that have been made in history as well as alternatives that our students will face in the future, such as environmental policy and genetic research, and focuses on critical thinking and analysis to make wise choices.

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CORE CLASSES BY SUBJECT

ENGLISH LANGUAGE ARTS - Reading

The English Language Arts classes are a vehicle for students to become strong readers and literate members of our society. The workshop model of instruction has been implemented in all English Language Arts classes. Students will increase their reading capacity and comprehension skills as they read at their own appropriate reading level. The Common Core Standards are the foundation for the reading curriculum.

Reading (6)

Changing and evolving into adolescence and adulthood is a journey that all sixth graders begin in middle school. Students learn from authors and writers how to navigate the world around them. Through literature, students will explore: the relationship between being a strong reader and understanding literature, the development of critical literacy to expand awareness of social issues, and the key skills and strategies necessary to read and comprehend complex text.

Reading (7)

Challenging and formulating our perspectives is a part of transition and maturation. Seventh grade is time for exploring and developing personal perspectives and guidelines. Authors and writers provide students with resources to inform their own thinking and the ability to share them in a literary community. Students will discover: the strength of their independent reading directly relates to their achievement across other studies, analytical reading deepens understanding beyond just reading a book for entertainment, and research across multiple texts is a lifelong tool.

Reading (8)

Choosing and formulating personal values and attitudes develop as eighth graders prepare to move to high school and beyond. In depth literacy immersion establishes a foundation for the leadership and college and career readiness.. Students will delve into: recognizing archetypes, allusions, and arguments across genres, search the pages of fantasy and dystopian literature to analyze universal themes and author's craft, and research and read critically in order to support a position on a global topic.

English Language Arts - Writing

In order to be ready for the future and the demands of the 21st Century, students will go back to basics. In order to communicate through written and spoken language students must know the essential parts of the English language. The writing conventions, vocabulary, word study and spelling rules will be included in classes that will encompass many writing genres. Also students will practice effective communication via speech and writing.

Writing (6)

Communicating in the 21st Century will require a strong command of the English language as well as the unique skill set for interpersonal exchanges. Through the implementation of the writing process and individualized instruction students will write personal narratives, literary essays that will compare and contrast characters, and research-based informational writing and presentations. Additionally, classes will concentrate on the conventions of the English language, word study, vocabulary, and writing and speaking to communicate.

Writing (7)

Students who are career and college ready will require a strong command of the English language as well as the unique skill set for interpersonal exchanges. Students will become the authors of realistic fiction, reflective writing that expresses their thinking about literature, and argumentative research-based position papers. Classes will concentrate on the conventions of the English language, word study, vocabulary, and writing and speaking to communicate.

Writing (8)

Preparation to move to high school and beyond will require a strong command of the English language as well as purposeful communication skills of writing, speaking and listening. Students will learn and write about investigative journalism, an advanced level of literary analysis, and the art of argument. The proper application of the conventions of English will be an expectation and reinforcement lessons will be applied as needed.

MATHEMATICS

Our math program is designed with meeting the needs of our students on various levels to provide a challenging learning environment for all students. Sixth graders will adjust to changes from elementary school in terms of the complexity of numbers and equations; seventh graders will tackle more complex challenges and pre-algebraic expressions, and eighth grade choices will prepare students for their appropriate high school math course. All grades will apply mathematics to environmental topics such as analyzing energy consumption and calculating and reducing carbon footprints.

Changes in Mathematical Concepts (6)

This course examines many facets of math, including: ratios and proportional relationships; the number system; expressions and equations; geometry, and statistics and probability. Learning is enhanced with technology rich instruction, including the use of dynamic adaptive learning websites.

Changes in Mathematical Concepts: Honors (6)

This is an accelerated math course for students with a strong math background who have mastered many of the concepts covered in the *changes in mathematical concepts* course. Students will move through the sixth grade curriculum at an accelerated pace and progress through the seventh grade *challenges in mathematical concepts* curriculum.

Challenges in Mathematical Concepts (7)

This course challenges students on their way to becoming analytical thinkers. The course builds upon existing math foundations, focusing on more advanced concepts of: ratios and proportional relationships; the number system; expressions and equations; geometry, and statistics and probability.

Challenges in Mathematical Concepts: Honors (7)

This accelerated course builds on the *changes in mathematical concepts: honors* course from sixth grade. Students will finish the *challenges in mathematical concepts* and move directly into pre-algebra. As students reflect on their learning, they will develop a deeper understanding of mathematics.

Choices in Mathematical Concepts: Pre-algebra (8)

This course builds on the *challenges in mathematical concepts* course from seventh grade and moves students into pre-algebra. Students will take this course as a precursor to *fundamentals of algebra* in ninth grade.

Choices in Mathematical Concepts: Algebra I (8)

This is an honors level course for those students who successfully completed *challenges in mathematical concepts: honors* in seventh grade. Topics include:

seeing structures in expressions, arithmetic with polynomials and rational expressions, creating equations, and reasoning with equalities and inequalities.

ENVIRONMENTAL SCIENCE

Over the course of three years, students will continue to transition through the themes of changes, challenges and choices in each level of environmental science. Sixth grade focuses on the cyclical nature of our environment and the seasonal changes that occur. Seventh grade focuses on the challenges we face as our actions impact our health and the world around us, and eighth grade will look at choices we face in the field of genetics, astronomy and physics.

Changes in the Environment (6)

Core science in grade 6 explores the dynamic nature of the natural environment through inquiry based activities. Students study the cyclical changes that occur in ecosystems, our waters, and our atmosphere. Field studies include an investigation of three habitats on the Long Island Sound, as well as monitoring changes that occur in and around our school's pond. A focus on collaboration and the scientific process are central to the learning process.

Challenges Facing Us and Our Environment (7)

After completing a year of exploring the natural world in sixth grade, our seventh grade core science curriculum focuses on the impact humans have on that world and the challenges that presents for both the environment and our society. Through an inquiry approach to learning, students apply their understanding of simple machines to design inventions that address a problem of their choice. The top projects go on to compete in the state "invention convention". Students continue their studies with the human body and the impact that environmental factors have on our health. They wrap up the year with a study of geologic processes, including the challenges that terrain, soil type and environmental practices have on water flow through ecosystems.

Environmental Choices and Implications (8)

Students extend their understanding of simple machines to investigate how forces and motion affect them, both on earth and in space. An exploration of Newton's Laws of Motion emphasizes that every action has an equal and opposite reaction; choices have consequences. Students explore the impact of choices further through a unit on genetics and what, if any, organisms should be genetically modified. Activities sponsored by the UConn School of Engineering, both at school and on the UConn campus, enhance the 8th grade core curriculum.

SOCIAL STUDIES

The focus of our social studies curriculum is to broaden student experiences and understanding of the world and humans' complicated role in it. The program begins on a global scale, with students acquiring an understanding of the many cultural political, and environmental views held and practiced around the world. We bring the curriculum home in the eighth grade for the first of a two year study of American history and politics. Through discussion, research projects, and formal argumentative essay writing, students are empowered to share their personal views on these topics and support them with textual evidence.

Exploring Changes in Global Political Systems (6)

Creating globally informed citizens is the primary focus of the sixth and seventh grade social studies courses. Sixth graders will look at changes throughout the world, specifically: India and China as emerging superpowers; the European Union; established and emerging democracies of Continental Africa, and sustainable development in the Amazon.

Analyzing Challenges through Global Political Conflict (7)

Continuing their global studies in seventh grade, students shift their focus from changing global systems to the conflicts that come with such transitions. Specific areas of study include: modern immigration in North America; Soviet-Russia's transition through time; foreign involvement in the Middle East, and post-imperialism and post-cold war.

Examining Choices that Shaped our Nation (8)

A two year study of American history begins in the eighth grade as students explore the social, economic and political conflicts and compromises that influenced our nation's development. Engaging in a case study approach, students will analyze topics such as: exploration and conquest; Colonial America and the American Revolution; the Constitution and Bill of Rights; American Expansion, and slavery and the Civil War.

ENCORE CLASSES

SCIENCE INVESTIGATIONS

Exploratory Science (6, 7, 8)

This course rotates through a three year cycle, during which time students will engage in various STEM fields of study. Areas to be covered include:

- **Forensic Science:** Students will explore the tools and skills necessary to analyze and process evidence in an investigation.
- **Field Ecology:** Students will head outdoors to explore topics such as edible plants, aquatic ecosystems, and invasive species. High school ENVIROTHON contest materials will also be used to include soils, forestry, wildlife and aquatic species.
- **Engineering :** Students engage in various demonstrations in physics and chemistry to better understand some of the basic principles that engineers need to master.

Freshwater Ecology: Our Changing Waters (6)

Students will trade their pencils and desks for nets and waders as they explore freshwater aquatic environments. Using our access to the Connecticut and Hockanum Rivers as well as our nearby pond, students will engage in hands-on investigations to compare and contrast each ecosystem.

Oceanology: Our Changing Oceans (6)

Examining the many ecosystems of the oceans and ways that marine life benefits humans will transform students' views under the sea. We will also investigate how human practices impact the oceans and the global implications they present.

Sustainability: Challenging Consumption (7)

Imagine a world where everything has a purpose, nothing is wasted, and there is an endless supply of resources! In this inquiry based course, students will investigate the technologies that will sustain us and reduce our global footprint.

Environmental Ethics: Challenging Perspectives (7)

Students will examine the many cultural perspectives surrounding the environment and how those perspectives influence society. Through readings, debates, and project based learning activities, students will critically analyze and evaluate issues such as environmental ethics and values worldwide.

Hydroponics (8): Choices in Agriculture

Aquatic gardens expand opportunities and minds as students try their hands at growing fruits and vegetables in water instead of soil. Students will learn about water quality as they experiment with how water conditions affect plant growth.

Environmental Research: Choices in Topics (8)

Students will investigate a topic of choice in this independent research course. With teacher approval, students may conduct a research topic of their design, or they may choose to utilize their online research skills to investigate an environmental issue or innovation.

Scientific Inquiry: Choices in Experimental Design (8)

In this course, students will choose from several “citizen science” programs and collect and submit data to a national or international database. They will choose topics they would like to investigate, then plan and carry out experiments to investigate those questions.

TECHNOLOGY

Changing Technology (6)

Students will take this essential course in their sixth grade year to meet the changing format of communication. Keyboarding and basic Microsoft Office skills will be introduced and reinforced, as well as online navigational skills and proper email protocol. *Google* and presentation apps will be explored to enhance core curriculum projects; curriculum will be updated as new platforms and applications emerge.

Digital Research Challenge (7)

The internet provides a wealth of information, but how accurate are the statements, and how reliable are the websites? This course will inform students on relevant search techniques, assessing the reliability of sources and authors, and how to properly cite online information and images in a bibliography.

Animation Challenge (7)

Students will extend their basic knowledge of computer skills acquired in 6th grade to learn about the art of animation. Through inquiry based learning, students will be challenged with producing a variety animation forms and techniques.

Game Design (8)

In the 8th grade, students may choose to enroll in game design. Through hands on activities they will learn the tools and technology necessary to design and develop computer games.

Challenges and Choices in Multimedia (7)

Students are introduced to the basic principles and skills necessary to create, write, direct and produce their own videos in this course. Techniques include combining pictures, sound and motion to communicate stories through movies.

PRE-ENGINEERING

A Change in Thinking (6)

In sixth grade, pre-engineering provides students with a hands-on approach to design and structure. Using LEGO kits, students explore the concepts of work and simple machines to solve every day problems. .

A Challenge of Mechanics (7)

Building on their prior pre-engineering experience, students will be challenged by concepts such as motor control, gear ratios, torque, and friction to develop, build, and program a LEGO Mindstorm Robot. Students may choose to enhance these skills by joining our award winning LEGO League Robotics Club.

A Choice in Design (8)

Moving away from the LEGO kits, students will apply their knowledge of engineering to independently design catapults, *battletracks*, water rockets and magnetic levitation vehicles.

SPANISH

Spanish Explorations (6)

Music, food and customs are all central to this course that introduces students to the Spanish culture. Primarily for students with no Spanish background, this course will introduce students to very basic words and phrases.

Advanced Spanish for Global Citizens (6)

Students who have had prior experience with Spanish, both in the classroom and / or at home are eligible for this course, which will explore Spanish culture while introducing more vocabulary and grammar in preparation for Honors Spanish in grades 7-8. The grammar is integrated in thematic units such as schooling, hobbies, and food.

Spanish Communication and Connections (7-8)

This is a two year course in which students will learn the fundamentals of Spanish. Grammar is integrated in thematic units such as food, family, shopping, and careers. Successful completion of both years will prepare students for enrollment in Spanish II when entering high school.

Advanced Spanish for Global Citizens II (7-8)

This is a two year course in which students who took *Advanced Spanish for Global Citizens* in sixth grade or who demonstrated exceptional ability for the language in *Spanish Explorations* will learn the fundamentals of Spanish at an honors level. Grammar is integrated in thematic units such as Spanish homes, schools, the environment, and immigration. Successful completion of both years will prepare students for enrollment in Spanish II or at an advanced Spanish program when entering high school.

VISUAL ARTS

Art introduces students to the purposes, principles and forms of visual expression. Understanding their stylistic development through many mediums and appreciating and analyzing the work of the great artists, peers and self builds independence and creativity in adolescents.

Change of Perspective (6)

The sixth grade program is designed to evaluate the students' previous art experiences in order to construct a common ground in art techniques, processes, concepts, and ideas. The primary objective is to build and expand the visual perspective through a foundation of art consisting of drawing, painting, sculpture, and crafts. The program is enhanced through the integration of technology providing students with foundation in digital art. Also, students produce, discuss, and write about their own art and that of others.

Challenges of Expression (7)

The seventh grade program is designed to provide students with the opportunity to continue to further develop a foundation of varied art skills, techniques, concepts and ideas beyond what is learned in the sixth grade program. Students will continue to develop personal and critical expressions.

Choice of Technique (8)

The eighth grade program is concentrated on refining acquired techniques and processes from previous courses through mastery of art concepts, art construction, and digital craftsmanship. The course is designed to provide students with the opportunity to develop independent visual expressions and ideas and acquire critical perspectives about their own work and that of others.

PERFORMING ARTS (details from Vinick and Stolarun pending)

Band and Orchestra (6, 7, 8)

Students with prior experience playing an instrument may continue their studies through our music department. Students will perform in a Winter and Spring school concert.

Choral Music (6, 7, 8)

Students may choose to develop their music reading and singing skills through our choral program. Choral concerts take place in the Winter and Spring.

PHYSICAL EDUCATION

Activities are based on the Project Adventure concepts: creating community, problem solving, building trust and risk taking in a safe environment on low and high elements. Students will challenge themselves to work as a team, develop leadership skills, appreciate diversity, and respect others.

Project Adventure: Changing Attitudes (6)

Students are involved in new games, initiatives and problem solving activities that prepare them to adopt the PA philosophies as they move through the TRMMS Physical Education continuum. The curriculum culminates with the High Elements: Flying Squirrel and Climbing Wall. Personal fitness awareness begins with the introduction of the fitness components.

Project Adventure: Challenging Gravity (7)

Students review the basic PA philosophies; participate in many different trust activities, games and initiatives. The curriculum culminates with the High Elements: Climbing Wall, Cargo Net, Dangle Duo and Ladders. Personal Fitness is expanded with introduction of the relation of heart rate and exercise.

Project Adventure: Choosing Adventure (8)

Students continue to have the PA philosophies incorporated into their PE classes and continue their progression with higher order challenges. The curriculum culminates with the High Elements: Climbing Wall, Cargo Net, Vertical Playpen, Pamper Pole and Swing Shot. Personal Fitness is incorporated with emphasis on lifelong fitness.

ENRICHMENT

Think Tank I: Changing Ideas (6)

This class focuses on learning and applying higher level thinking and problem solving skills in all subject areas with a focus on STEM . Activities include: creative thinking through use of salvaged material in a survival scenario; evaluative thinking through mock trials; visual-spatial thinking through puzzles and computer programming; deductive and logical thinking through brainteasers and mini-mysteries; and critical thinking through Jr. Great Books selections.

Virtual High School: Choosing Interests (7, 8)

Students who demonstrate a strong desire to learn and an ability to work independently may participate in our Virtual High School program. Students will take online courses in all subjects for high school credit.