

## Mosaic Class Descriptions Fall 2023

Meeting Mondays & Wednesdays

**A note on class placement:** Academic age groups are recommendations with flexible boundaries. Placement is based on both age/ability and is at the discretion of the Instructor and Program Director. For inquiries, please contact [jayne@mosaicfreeschool.com](mailto:jayne@mosaicfreeschool.com)

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### MONDAY CLASSES

#### HIGH SCHOOL (ages 14+)

##### **Word History Through Art (full year class)**

In this year-long course, we will look in depth at world history through the lens of art. We will examine how people reacted to events in the world, and how it was reflected in the world of art. Our goal is to connect the dots between what was happening from a historic perspective, how it affected the lives of people at the time, how that was reflected in the art, and how it still potentially affects our lives today. The focus will be on discussing some of the more fascinating aspects of art history and the correlating historical events. Each lecture will align chronologically and will provide context for a deeper understanding of the subject matter. We will touch on politics, science, ethics, and of course history, through discussions, debate, and writing.

We will learn how religion affects art, and examine Colonialism and its effect on art. We will learn about important figures that changed the tides of time: Justinian I, Marie Antoinette, The Sun King, Leonardo Da Vinci, The Medici, and more. We will draw parallels between some of the modern influential families and The Medici, in how they influenced the world around them, and, of course, the art. We will talk at length about the Industrial Revolution, and its influence on art, and not just the first Industrial Revolution, but all four of them. Why are we obsessed with the Mona Lisa? Was Van Gogh really that crazy? We will talk about art being used as propaganda from ancient times to today, and how artists find ways around rules imposed on them by the regime in charge. We'll look at Japan's isolationist policies and how they tie in with European impressionism and how the Great War is responsible for the birth of several art movements, and what happened to the art that went missing during WWII. Finally, we will discuss more modern questions, like is graffiti considered art? Why or why not? The psychology behind people that feel the compulsion to destroy art. How has the development of digital art and the last Industrial Revolution influenced the art world? All these questions and more will be addressed throughout the course.

**Instructor:** Mariya Kovalyov

**Tuition:** \$360/semester

##### **High School Biology with Labs (full year class)**

In this year long class we will delve into the biochemical pathways and forces that power life. We'll start with atoms, build up to biomolecules, and continue through cells up to evolution

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and the study of whole organisms. We will be using the "flipped" classroom model where the reading is done before the material is presented in class. This allows students to become familiar with the concepts before each class, bring questions and insights, and allows us to go deeper with biochemistry and application of the information during class time. In addition to class discussions, we will have near weekly hands-on labs to further students' understanding and application of the class material.

All material will be presented at the standard level, as well as the Honors/AP Level for those wishing to delve deeper. Mastery at this deeper level is not required and each student may choose the level of learning appropriate for their needs and ability.

Text: We will be covering one chapter of a standard tenth-grade biology textbook per week, using Miller and Levine Biology.

**Instructor:** Cristen Pantano

**Tuition:** \$400/semester, includes all student lab/activity supplies

### **High School World Literature (full year class)**

This course is designed to introduce students to masterpieces of World Literature ranging from Homer's *The Odyssey* through *Things Fall Apart* by Chinua Achebe. Through class discussion and in depth literary analysis, students will hone their ability to think and talk critically about works of literary art that both shape and reflect our world through the ages. Students will read, discuss, and analyze texts from a variety of genres including poetry, plays, novels, and short stories. Through small group discussions and literary analysis, we will look specifically at the historical context of these works of literature and how they reflect and shape the world in which we live. Students will develop their thoughts through written analysis in several papers throughout the class. By the end of this course, students will be able to clearly articulate major themes, literary techniques, and devices used by a specific author as well as place the specified piece of literature within a larger world context.

Sample Reading List: *The Odyssey* by Homer, *A Midsummer Night's Dream* by William Shakespeare, *Murder on the Orient Express* by Agatha Christie, *Their Eyes Were Watching God* by Zora Neale Hurston, *In the Time of the Butterflies* by Julia Alvarez, *Night* by Elie Wiesel, *Things Fall Apart* Chinua Achebe, and *The God of Small Things* by Arundhati Roy

**Instructor:** Sachi Tripp

**Tuition:** \$360/semester

### **Art Workshop II (High School & Middle School; full year or semester option)**

This class is aimed at middle and high school students that have completed Art Workshop I. The course will focus on taking a student's art skills to a superior level. Students will be taught advanced drawing, painting, palette knife and sculpting techniques and will be introduced to a number of new mediums. Mediums: Graphite pencil, watercolor, colored pencil, charcoal, acrylics, oil pastel, ink, and polymer clay.

Please contact the instructor with questions about student placement.

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**Instructor:** Lisa Young

**Tuition:** \$360/semester

### **Mosaic Yearbook Club (High School & Middle School)**

Let's brainstorm, design, and create our very first Mosaic Yearbook!

Students will take the lead on drawing layouts, managing sections of the book, choosing photographs, writing and editing copy, setting a budget, and participating in sales promotions and ad campaigns. Weekly meetings will be facilitated by a Mosaic instructor and/or parent volunteer.

**Tuition:** \$150/semester

### MIDDLE SCHOOL (ages 12 - 13)

#### **Literary Genre (full year class)**

In this class, students will explore the major literary genres, discovering together what those genres have in common and how they differ. The year will be broken into units based on those genres, including fiction (both short story and novel), nonfiction, poetry, and drama. Students will become familiar with each genre and be able to identify distinguishing

characteristics of each. Within each of these units, we will study various literary devices, including the author's use of figurative language, theme, tone, and style of writing. Through small group projects and in class discussions, students will get comfortable talking about literature with their peers.

Sample Reading List: Romeo and Juliet by William Shakespeare, Emily Dickinson's poetry, "Thank You, Ma'am" by Langston Hughes, Lord of the Flies by William Golding, and The Boy Who Harnessed the Wind by William Kamkwamba

**Instructor:** Sachi Tripp

**Tuition:** \$360/semester

#### **Inquiry Physical Science (full year class)**

This middle school class engages students in the practice of science not just the memorization of facts. Using an Argument-Driven Inquiry (ADI) methodology, we will cover four core areas in physical science: matter, motion and forces, energy, and waves. Through labs and activities, students will actively engage in scientific practices as they design their own investigations to answer a variety of thought-provoking research questions - from how thermal energy works to what could make an action figure jump higher.

The ADI process is multi-layered and collaborative with a strong focus on developing scientific writing and presentation skills. Working in small groups, students respond to a guiding question, design their own method, develop models, collect and analyze data, and construct

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an argument for presentation. Each investigation will conclude with peer critique, class discussion, and written lab reports.

Pre-requisites: Students must possess appropriate maturity for effective small group lab work and solid communication and writing skills.

**Instructor:** Jayne Besjak

**Tuition:** \$400/semester, includes all student lab/activity supplies

### Public Speaking (Fall semester)

Students in public speaking will first spend time analyzing excellent speeches by others to discern the techniques used to make them effective. Simultaneously, the students will select a speech delivered by a famous person to memorize and perform in class. During the second half of the term, the students will write and memorize their own platform speech. Through this process, they will learn to develop a thesis, research their topic effectively, and utilize excellent speech-writing techniques. From the very first class, the students will work to improve the important speaking skills of diction, inflection, eye contact, and use of movement.

**Instructor:** Natasha Benkendorf

**Tuition:** \$360/semester

### Plant the Moon or Mars (Fall Semester, Middle & High School)

Mosaic will once again sponsor a team of young scientists to participate in NASA's exciting experiment to examine how vegetable crops can grow in lunar or Martian soil! Our 2020 team successfully completed the challenge and took home the award for *Best Experimental Design*.

NASA's Plant the Moon Challenge gives students the chance to help get astronauts back to the moon and to prepare them for manned exploration of Mars. Student teams will assist NASA scientists to answer this important question: Can we grow food sustainably on the surface of the Moon and Mars? Each registered team will receive real soil simulant and work together to design and conduct a set of experiments using this simulant to grow crops for a future long-duration mission. Student groups choose either lunar or Martian soil, set up an experimental design, and examine how vegetable crops grow in the soil over a 10-week period, collecting data and writing up a final report on their findings.

**Time commitment:** This activity does not require a substantial time commitment, however, participants must be conscientious about keeping accurate daily/weekly plant growth and soil moisture records. Students will meet several times in early fall at Mosaic with a team facilitator to 1) determine an experimental design, and 2) plant grow chambers, and at least once in late fall to 3) contribute to a final report at the conclusion of the experiment. Some team members will also be responsible for taking home grow chambers to monitor and record plant growth over the 10-week experiment and provide short weekly video updates to the team.

**Tuition:** \$90/semester

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### UPPER ELEMENTARY (ages 10 - 11)

#### **Science Investigations (Fall semester)**

Who doesn't enjoy the fun and challenge of trying to solve a mystery? In this class, students will work together to solve two mysteries using science: a crime scene and an environmental disaster. Scientific investigation is about gathering evidence to determine a solution. Student understanding of science will deepen as they experience the ways that science is like the process of detection with an important distinction between evidence and inference. Crime lab testing will include thread tests, powder tests, DNA, chromatography, fingerprinting, and more. To solve the environmental mystery students will study and discuss reference materials, including records, newspaper articles, charts, graphs, and even "secret documents," and integrate all of this information with their own test results. Students will become aware of the interconnectedness of the natural world and of environmental problems, and see how one small change can trigger a whole chain of events.

**Instructor:** Jayne Besjak

**Tuition:** \$360/semester

#### **Literary Geography (Fall semester)**

This class will blend literature and geography as students read and discuss a variety of stories from around the globe! We'll explore what makes great literature as we navigate the world through weekly hands-on activities, class discussions, and presentations. The class will

integrate the study of physical geography - maps, mapping tools and physical features - with projects centered on culture, history, natural resources, cuisine and economy related to the stories we read. The book (and short story) list will be finalized based on the preferences and ability levels of registered students. Some possible novel choices include: *A Long Walk to Water*, *The Night Diary*, *Call it Courage*, *The Red Umbrella*, *When Stars are Scattered*, *Esperanza Rising*, *The Last Mapmaker*.

At-home work required for this class will consist of reading assigned chapters and preparing for class discussions and projects.

**Instructor:** Sachi Tripp

**Tuition:** \$360/semester

#### **Art Workshop I (full year or semester option)**

Art class focused on bringing each student to the next level in their art journey. The course will lead the student from basic drawing skills through to advanced painting techniques using a wide range of mediums. Students will have the opportunity to express themselves in both realistic and abstract visual arts, as they work towards developing good foundational art skills. Class will include still life, portraiture, landscape, life drawing, cubism, impressionism, surrealism and sculpture. Mediums: Graphite Pencil, colored pencil, charcoal, watercolor,

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pastel, clay and acrylic.

**Instructor:** Lisa Young

**Tuition:** \$360/semester

### **Makerspace: Units (ages 10+)**

Monday 4th Period

Bringing learning outcomes into challenging, engaging projects that incorporate technology & mathematical thinking. In this course, we bridge learning outcomes in multiple content areas, creating collaborative, authentic, multidisciplinary projects that shine. This course is unit based. Students must sign up for a full unit and may sign up for the entire semester (all units). Units are 3-4 weeks; see details below.

**Instructor:** Jayne Besjak

**Tuition:** \$300/semester OR Pay per Unit (see Unit prices listed below)

### **Unit 1 (4 weeks) Littlebits: Introduction to Inventing**

**Dates:** 9/11, 9/18, 10/2, 10/9

**Tuition:** \$96

In this 4 week unit, we will explore the invention cycle. Students will use their knowledge of electronics by putting circuits together in order to build prototypes. We will Create, Play, Remix, and Share with a competitive paper ball challenge, Invent for Good, & Invent an AMAZE-ing racer. (No previous electronics knowledge is necessary)

By the end of the unit, students will be able to:

- Create a circuit containing a power source, inputs, outputs, and wires
- Identify and explain the value of each phase of the Invention Cycle
- Brainstorm ideas for meeting the designated challenge
- Create and test a circuit containing a power source, inputs and outputs
- Construct a prototype of an invention using Bits and other materials
- Test their prototypes and make improvements
- Self-assess their work based on the identified success criteria and constraints
- Demonstrate their ability to Create, Play, Remix and Share an invention through the littleBits Invention Cycle by recording their processes in the Invention Log
- Summarize their process and share the results by creating a skit, or a print or video advertisement to explain what they've invented and how it can help make life better for the customer
  - Explain how to make a vehicle turn using code blocks.
  - Construct and program a car that can move forward and stop.
  - Write and modify code until it makes a car turn left and right at a specific angle, then modify this code to get the vehicle to go straight for a specified distance.
  - Modify the car to fix any issues or add new functions!

### **Unit 2 (4 Weeks) Sphero Engineering**

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**Dates:** 10/16, 10/23, 10/30, 11/6

**Tuition:** \$96

Sphero robotics Engineering is a 4 week unit that will introduce students to a new way of coding, designing and using robotics! In this unit we will have two projects. In our first project, students will research and explore the history of Chariots & identify how Sphero can power a land-based vehicle constructed with Makerspace materials. In our second project, students will use the engineering design process to brainstorm, design and construct a bridge for Sphero to cross while adhering to the constraints of the project. Students will then code Sphero to perform the functions they want in order to cross their bridge successfully. In this unit, students will:

- drive Sphero around a defined course with a chariot attached.
- analyze the effectiveness of their work with supporting facts; reflect on the learning.
- identify how Sphero can cross a bridge constructed by students with Makerspace materials.
- illustrate the process of determining which code elements would be best suited to accomplish an objective.
- Drive and create a program that moves Sphero over a bridge students design.
- Analyze the effectiveness of work with supporting facts; reflect on the learning.

### **Unit 3 (3 Weeks) Hummingbird: Basic Mechanisms (3 weeks)**

**Dates:** 11/13, 11/27, 12/4

**Tuition:** \$72

In this 3 week unit students will use cardboard and motors to build a Cable System, Piston, Crank, Winch using a servo motor, makerspace materials, and circuit:bits.

### **Unit 4 (4 Weeks) Hummingbird: Simple Robots (4 weeks)**

**Dates:** 12/11, 12/18, 1/8, 1/22

**Tuition:** \$96

Students will use materials in our "maker robotics kits" to create one-of-a-kind simple robots.

Materials students will be able to invent with include: cardboard, makerspace materials, servos, LED lights, ipads for coding. Our final robot build will culminate in building a robotic petting zoo and parents will be welcome to come and see it in action!

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### WEDNESDAY CLASSES

#### **Art Electives (High School & Middle School (ages 11+))**

**Instructor:** Lisa Young

#### **UNIT 1: TRADITIONAL CRAFTS** (Wednesdays, 9/13 - 11/8)

**Tuition** (includes all class supplies): \$225

##### *Weaving*

Students will learn how to use a loom to weave yarn into a piece of fabric. Once woven students will sew the piece of fabric into a finished item such as money pouch, phone case or small bag.

##### *Wood Burning*

Students will learn how to use a wood burning tool to create a unique piece of wall art on a wooden plaque.

##### *Glass Painting*

Using special glass paints students will paint a glass bottle to make a lamp and a matching glass.

##### *Polymer Clay*

Students will make a clay figurine and paint and seal it.

##### *Quilling*

Quilling is the art of rolling and gluing strips of paper to make beautiful designs. Students will learn how to roll the paper and shape it using quilling boards and will create a piece of wall art.

##### *Stenciling*

Students will design and make their own stencils from Mylar sheets. They will then use the stencils to make a piece of art. Stencils are multi-use so students will be able to bring them home and use over and over again.

##### *Printing*

Students will be introduced to the art of printing.

#### **UNIT 2: ABSTRACT ART WORKSHOP** (Wednesdays 11/15 - 1/24)

**Tuition** (includes all class supplies): \$225

*Abstract art* offers wonderful opportunities for self-expression and the creation of unique artwork. As part of this workshop students will be introduced to the art of acrylic paint pouring or fluid art as it is sometimes referred to, Alcohol inks, acrylic inks, liquid watercolors, mixed media collage and mosaic tile collage.



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### **Foundations in Writing (High School & Middle School; full year or semester option)**

This class will focus on improving academic writing and strengthening foundational skills in grammar/mechanics, paragraph construction, and text analysis. Students will learn how to craft paragraph and essay responses with clear, evidence-based reasoning. Students will use the standard MLA format to structure their essays. Along the way, they will learn strategies for revision, editing and proofreading, and reflection on the writing process. Students will hone their abilities to formulate and develop a thesis based on a text and defend that thesis using citations from a text as well as outside sources. In this highly personalized writing class, students will meet individually with each other and the instructor in order to sharpen their writing skills and develop their own style of written expression. What makes the workshop come alive is the ability for the students to share their writing within a supportive class community and to receive and offer constructive feedback.

**Instructor:** Sachi Tripp

**Tuition:** \$360/semester

### **Screenwriting & Film (High School & Middle School; full year or semester option)**

In this hands-on filmmaking workshop, students will learn the art of filmmaking from script to screen. Students will work together as a film crew to generate ideas, write short screenplays, direct actors, and learn camera, lighting, and sound techniques. Students will also learn the basics of editing in Adobe Premiere Pro. In each class, students will work both behind and in front of the camera, in both exterior and interior locations, so that they can gain as much experience as possible.

This class will build on skills learned from previous Screenwriting & Filmmaking classes offered at Mosaic and is appropriate for both returning and new students.

**Instructor:** Montclair Film

**Tuition:** \$400/semester, includes all equipment and supplies

### **Strategic Games Club: Play & Create! (Fall Semester, All ages)**

Students will engage in friendly competitive play as they learn various board games. Focusing on strategy, skill, and critical thinking, the strategic games club will be a fun and interactive way to build confidence, social skills, and sportsmanship. Students will have the opportunity to spend time strategizing through the games of Risk, Settlers of Catan, Monopoly, and Ticket to Ride – along with others of their choosing. And, interested students may design and create their own board games using Makerspace supplies!

**Instructor:** Jayne Besjak

**Tuition:** \$180/semester

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### **Creative Writing for Budding Authors (Fall Semester, Ages 10-12)**

Do you love to make up creative imaginary places where interesting characters follow their dreams, encountering all sorts of adventures along the way? Do you find yourself getting so wrapped up in writing a story only to realize that time has flown by? In this class, we will get our creativity flowing as we work individually and in small groups to brainstorm characters, plots, settings, villains, and heroes. Students will set personal word-count goals for their very own pieces. The focus will be on unleashing imaginations and creativity as we put our personal editors aside and just write, write, write! Some editing will be done in class and some will be done at home. The class will include instruction on grammar conventions such as writing dialogue, use of adjectives and adverbs, punctuation and capitalization, etc. as well as discussions on writing style and organization.

**Instructor:** Sachi Tripp

**Tuition:** \$320/semester

### **Invention, Innovation, & Robotics (All ages)**

This class is designed to increase student interest in STEM and to provide students the opportunity to design, build, and program robots in a hands-on environment. Students will

have the opportunity to work with all of the Makerspace materials to design, build and program a personally meaningful robot using their choice of programming language.

Students will move at their own pace and be able to advance through coding curriculum to gain experience with a variety of robotics tech including Hummingbird, Sphero, and VEX.

**Instructors:** Jayne Besjak & Mariya Kovalyov

**Tuition:** \$360/semester

### **Student-Led Service Learning Project (All ages)**

In this student-led class, we will design a service learning project that addresses a need in our larger community. With the help of a facilitator, students will organize their ideas, develop a plan, and spring into action. Working in a group, students will execute their plan with specific student strengths in mind. They will collaborate with community members and parents to garner support where needed. Students will deliver the service and then reflect on the execution of their service.

**Tuition:** \$150/semester

### **Future City Teams (Fall Semester, ages 11 - 14)**

*Mosaic will sponsor one or more teams depending on the number and ages of interested students. The program provides flexibility for teams to utilize all resources for full competition, partial competition (1 or 2 deliverables), or city creation experience without competing (highly valuable as a stand-alone activity!). We'll meet in late summer to determine which path is best for those enrolled.*

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The Future City Competition is a collaborative, project-based learning activity that introduces students to the Engineering Design Process. Future City starts with a question – How can we make the world a better place? To answer it, students imagine, research, design, and build model cities of the future that showcase their solution to a citywide sustainability issue while assessing risk and meeting a schedule of deliverables.

The theme for 2023-24 is “Electrify Your Future”

Through active participation on a team, students will:

- Apply math and science concepts to real-world issues
- Develop writing, public speaking, problem-solving, teamwork, project management, and time management skills
- Learn how their community functions to improve citizenship.
- Build a scale model using recycled materials.
- Research and design solutions to engineering challenges.
- Present and defend their design to a panel of technical judges (if they choose to compete)

Competition teams consist of 3 or more students, a coach, and an engineering/design mentor. Teams complete five deliverables:

- 1,500-word city essay
- Scale model (or multiple model segments) built from recycled materials
- Project Plan
- City Presentation
- Q&A session with judges

\*\*Regional Competition in January, National Competition in February

**Tuition:** \$360/semester