

'11-'12 Course Offerings



LEAP

Learning Enrichment & Accelerated Pace



Saturday Academy Classes that come to your school! LEAP courses are for students in grades 1–8.

Including: STEAM, Computer Technology, Math, Science & Engineering,
Language Arts & Humanities, and Creative Arts.

Give us a call to schedule a class, or go online and order: 503-200-5859; www.saturdayacademy.org

Follow Your Curiosity...[®]

Saturday Academy

LEAP Contact Information

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503-200-5859, wendy@saturdayacademy.org
Order a class! <http://tinyurl.com/SALEAP>

General Contact Information

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ABOUT LEAP

Saturday Academy, a non-profit educational organization, has provided educational enrichment classes for interested and motivated students since 1983. The mission of Saturday Academy is to academically engage motivated young people through hands-on, in-depth learning and problem solving by connecting them with community experts who serve as instructors. Through our LEAP (Learning Enrichment & Accelerated Pace) classes, students in grades 1-8 can explore a multitude of topics ranging from science, math and computer technology to humanities and the arts as well as our new STEAM category of classes that integrates the arts into STEM. Classes are small (maximum of 12 students) and delivered on site at your school in a pull-out model that enables highly-able, curious students to pursue their unique paths of inquiry with their academic peers. The instructors are community resource professionals and/or master teachers whose expertise and experience give students an opportunity to investigate the fields of astronomy, forensics, mathematics, engineering, computer programming, graphic design, writing, acting, and more. There are no tests or grades given through Saturday Academy classes, however the work completed in these classes can be added to student portfolios. The curriculum is designed to meet State standards and benchmarks in each content area.

Student Selection

LEAP classes meet during school hours. Participants are selected by the school TAG, EXCEL or Challenge coordinator based on their ability and interest in the content area. LEAP classes are intended for advanced students. The benchmark levels are higher than the student's actual grade level.

Class Size

Grades 1-3: 10 students
Grades 4-8: 12 Students

Schools sites will be charged an additional \$50 per student over the maximum.

Cost

Classes cost \$119 per contact hour. For example: a 1.5 hour class that meets 6 times will cost \$1071. Some classes may have an additional materials fee. Some companies and organizations have community giving programs available for K-12 public schools, including: Donate2Educate, Lowe's Home Improvement, Meyer Memorial Trust, Regional Arts & Culture Council, Starbucks Coffee, and Target. We are happy to assist you in the grant process, but the grants must be submitted by the school.

Scheduling Classes

Saturday Academy offers flexible scheduling to meet your school's time frame, however most classes meet once a week for 6-10 90-minute sessions. Ideally, students should be "pulled out" of the same subject as that being offered in the LEAP

class. We suggest that classroom teachers do not schedule important (tests, oral reports) or fun (field trips, parties, PE) events during these class periods.

Classes will not meet on school closure days so check your school calendar for holidays, conferences, or teacher planning days before confirming dates. If a class is cancelled due to weather, we will do our

best to reschedule. The school coordinator will be notified if a class needs to be cancelled for illness or emergency. It will be the coordinator's responsibility to notify the students. The instructor is responsible for making up classes cancelled due to illness or personal emergency. The

school is responsible for recruiting the students, and providing classroom space with basic classroom furniture. Our instructors bring only enough materials for the

agreed upon number of students. To schedule a class, please contact Wendy Thompson, Education Coordinator, at the Saturday Academy office. Email wendy@saturdayacademy.org, or call: 503-200-5859. You can also schedule your class online using our web form. Go to: <http://tinyurl.com/SALEAP>. It is advisable to schedule as early as possible since many instructors have limited availability.



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Full STEAM Ahead with Saturday Academy

STEAM classes put the Art into Science, Technology, Engineering, and Math for an integrated, holistic, and creative approach to learning. This new category of classes will engage the student in deep learning across content areas and through multiple learning styles. With the creation of this new class category, some of the classes from your catalog last year have been moved from their previous category.

Animal Audio: Chirp, Croak, Moo

Students learn how to identify animal sounds around the world, from bird calls to frog calls to the whoop of a hyena. Then they explore the use of sound effects and music in wildlife films to help tell a story. They use tools, instruments, and gadgets to record sound effects of animals and nature as they write, record, and create a radio story, using their own voices, sound effects, and music.

Grades: 2-3 or 4-5

Animal Sculpture

Do your students have a favorite pet or just love all animals? In this class they'll learn about the basic anatomy of the animal as a foundation for building wire, Paper Mache, or clay sculptures. and work with animal proportions and measurements to insure correctness in their representation. The class will work from photographs, small animal skeletons, and taxidermy examples, which provide a view from every angle (and a model that never needs a break!). Realistic poses will facilitate the impression of life and movement in their final art pieces.

Grades: 2-3, 4-6 or 6-8 Additional Supply Fee: \$50



Animatronics

When computer graphics won't do for a Hollywood movie, highly skilled puppet masters and roboticists are employed to create animatronics. Museum displays of animated dinosaurs, clad in latex and framed in steel, move their necks, open their mouths, roll their eyes and billow only by the efforts of a team of engineers, artists and story-tellers. This class will use Lego robotics and stuffed animals to create animatronics to tell a story. Students will develop skills in mechanical engineering, programming and choreography then team up with a project leader to create a high tech robot puppet. **Grades: 5-8**

Anatomy & Art

Drawing is a great way to learn anatomy. Through the rendering of images and 3D models, students learn the names and functions of various muscles and bones. Studying the different types of joints, they will examine simple motions like bending the arm at a hinge joint and more complex motions like how we walk, run, jump, and dance. We will compare and contrast human anatomy to that of other animals and learn how to accurately and artistically represent those forms. Whether students aspire to become a medical doctor or a fashion designer, this class is ideal for anyone fascinated by the artistic phenomenon that is the human form.

Grades: 5-8 Additional Supply Fee: \$25

Architectural Drawing & Modeling

Using the architectural tools of mathematics and art, students create renderings of houses and buildings. They will be introduced to different architectural styles and the elements that distinguish them. As they draw, they learn the mathematical and artistic skills behind the art of perspective and three dimensional drawing. Foam core will be used to build a model of a dream home or school

Grades: 3-5 or 6-8 Additional materials Fee: \$25 (Room with sink, slide projector, work tables)

STEAM

ARithmetic

Math is everywhere- even in works of art; masterpieces use mathematical concepts such as measurement, pattern, symmetry, and balance. In this class students will use their imagination and creativity in a variety of artistic activities. They learn how to utilize measurements and shapes to create optical illusions and discover the secrets of M.C. Escher by making their own tessellating patterns. **Grades: 2-3, 4-6 or 6-8**

Computer Graphic Art & Design

Students will design their own CD labels, greeting cards, stamps, t-shirts, or posters. Using hi-tech drawing and design software, they will turn their ideas into graphically artistic designs. Computer drawing tablets work like an artist's paintbrush to control the computer's drawing and painting tools. Projects will combine computer technology with painting, coloring, and collage to create bold and beautiful new designs. **Grades: 2-3, 4-5, 6-8 (PC Computer Lab with color printers, CD ROM drives)**

Digital Nature Photography

Through the beauty of our environment, students learn the basics of digital photography. This course is an introduction to nature photography using digital cameras. Participants learn the basic controls on digital cameras and tips to enhance pictures using different functions such as ISO, aperture, and shutter speed. We will discuss composition, lighting, and perspective and learn how to best capture an image regardless of the lighting or weather conditions. In addition to improving camera skills, students will also learn how to save, edit, and print their photographs. At the end of the course, they will be presented with finished prints of their favorite images. School or students are encouraged to provide their own cameras. **Grades: 3-5 or 6-8 Additional Materials Fee: \$25 (Computer lab required)**

STEAM Instructors • Erin Berzel • Nancy Coffelt
• Randi Douglas • Stephanie Foster • Caren Graham
• Eileen Kane • Amy Konsterlie • Jim Mattingly
• Taylor Morrison • Edwin Pilobello • Darin Schmidt
• Laura Sams • Robert Sams • Dia Varano

Electronic Music Making

FL Studio, a powerful and flexible computer program, lets students build any music they can imagine, note by note. Students are taught how to make a beat, craft harmony, and build interest that hooks listeners into their songs. They will experiment with sampling, mixing, and equalizing. Since they are building music note by note they will learn music theory as well. The class will end with an online release of their musical creation. Musical experience will be helpful but is not required. **Grades: 6-8 Additional Materials Fee: \$25 (Computer lab required)**

Food for Thought

How does the choice of local organic veggies vs. fried zucchini impact our health, local economy and even the world? Through writing and acting, students will learn persuasive messaging and marketing strategies to represent their favorite and perhaps not so favorite foods (like brussel sprouts). This class will teach them group writing and presentation skills, theater improvisation, and how to "physicalize" their ideas to create original food commercials and talk shows. We will discuss food choices, traditions, and needs across culture. "Lettuce entertain you" with this unique performing arts experience. **Grades: 3-5 or 6-8**

Go Fly a Kite

Students apply math skills of measurement and calculation to build artistic kites that really fly. They learn how kites work, what shapes are most desirable, and why kites need tails and strings. Also, students will build a wind measuring tool to test fly their kites. **Grades: 2-3, 4-6, 6-8 Additional Materials Fee: \$45**

It's Not Rocket Science

What happens when science and theater meet? In this class, students explore the inner workings of scientific principles like gravity, propulsion, $E=mc^2$, or why the sky is blue, then translate their learning into dramatic scenes. Finally, they can make sense of the solar system, habitats, or the water cycle through theatre. They will create and perform original scripts about scientific discoveries, principles, and concepts. **Grades: 2-3, 4-6 or 6-8**

STEAM

Musical Physics

The physics of sound are explored through music. This class will reveal how music is based on physics concepts such as waves, reflections, modes and harmonics. Students will learn why a trumpet sounds like a trumpet and not like a flute, and why we can play a melody on a xylophone but not on our kitchen table. By the end they will be making their own instruments out of whatever they can find! Musicians and scientists alike will see how their work collides. **Grades: 5-8**

Nature Writing

In this integrated class students will explore the nature around them: flora, fauna, the elements, geology, and landscape of our environment then record their observations and research in a nature journal. They will select one object to write about in depth, becoming experts on the scientific aspects as well as the mythology and lore of each. These writings will be included in a hand-made book with illustrations and collage that illuminate their discoveries.

Grades: 3-5 Additional Supply Fee: \$25

Non Fiction Science Picture Books

Students: illustrate your knowledge of tsunamis, wildfires, or even coastal habitats in a mock children's book. They work with a non fiction author/illustrator to gain basic skills in storyboarding, drawing, perspective, composition, and page layout to demonstrate their knowledge of different scientific or engineering concepts. The class begins with coming up with an idea for the book and then learning how to present that idea to an editor. In a picture book, the text takes shape at the same time as the images on storyboards; they view professional examples of these and learn how much research and revision goes in to making the artwork and text be as accurate as possible. By the end of the class they will have created a storyboard, an outline of text, and completed a simple drawing to add to their portfolio.

Grades: 5-8 Additional Supply Fee: \$50

Stop Motion Claymation

Oregon's own Will Vinton coined the term claymation to describe his film production company's work with such well known characters as the California Raisins and Domino's Pizza Noid. Stop motion is an animation technique which makes a physically manipulated object appear to move on its own. In this class, students learn to sculpt a 3D, pose-able, clay character, develop a storyline, paint backdrops, create scenery, experiment with lighting effects and soundtracks, and finally, shoot a short story animation sequence with their clay characters as the stars. Technical video and computer

animation skills will be expanded through the use of the Stop Motion Animation program Dragon or i-Movie. The final product will be recorded on a DVD for each student.

Grades: 4-6 or 6-8 Additional Materials Fee: \$50 (Room with sink and no carpet preferred)

Wildlife Illustrations

Using pencil, ink, charcoal and markers, students create portraits of the animals of North America as they train their eye and hand to express themselves in simple but powerful ways. Techniques for shading, contouring and perspective help students create depth and proportion in their drawings. Step by step instruction, including animals in motion will be covered. Students will choose from a variety of animals that are native to North America and learn about the habits and habitat of each species that they draw, from a spider to a large mammal.

Grades: 3-5, 6-8 Additional Materials Fee: \$50



Computer Technology

In the rare case that a school does not have the necessary technology for these classes, Saturday Academy may be able to provide a portable computer lab for LEAP class use only. The user fee for the portable lab is \$60 per 6-week course. Most classes require software provided by Saturday Academy to be temporarily loaded on the school's computers

Connect to Technology: Computer Basics

Develop computer skills in basic drawing and word processing programs. Students learn keyboarding, how to find and use Clip art, and some basic internet skills.

They can spiff up their school reports, make cards for friends, and learn computer research skills. **Grades: 2-4 (Computer Lab)**

Create a Web Site

Students combine their creative talents and technology skills as they learn the basics of web page design. They'll create their own five page web site in a Macintosh or PC environment. The basics of HTML, making images web ready in Photoshop and adding video and sound to the web pages are all elements of this class. The emphasis will be on original content, images, and multimedia enhancements.

Grades: 6-8 (Computer Lab)

Creating with Photoshop

Photoshop CS3® is powerful software that can be used to transform ordinary photos into extraordinary images. Both beginners and advanced users alike will learn the ins and outs of creating images with a computer as they build their digital portfolio. Students will learn how to blend images with layer masks, correct common photo flaws, change a photograph into a painting or animate the image. **Grades: 4-6, 6-8 (PC Computer Lab with color printers)**

Game Maker

Students learn how to design and modify their own exciting PC game by studying examples from Game Maker and analyzing the codes used. Using games such as Pong, students learn to control characters, objects, and outcomes in their game. **Grades: 4-6, 6-8 (Computer Lab with PC environment required)**

Introduction to Java Programming

Java is a sophisticated, commercial program language used primarily in Web-based development. Students will use IBM's freeware teaching system, RoboCode, to learn how to write computer codes and program using object-orientation. RoboCode is a video game played through analysis, strategy, and computer programming rather than by using a game pad. It is much like chess except that you program your "moves" against multiple players.

Grades: 6-8 (Computer Lab with Windows Environment Required)

iPod Programming: Beyond Music

Extend the functionality of an iPod/iPhone to take notes from a computer note pad or web browser or add games and personal information. "There's an app for that!" Students become the inventor and design software for the iPod; program their own application on the iPod. **Requirement: Students must have their own iPod Touch or iPhone. Grades: 6-8 (Mac Lab required)**



Computer Technology Instructors • Theresa Alexander • Lindsey Dotson • Rich Harris • Barbara Fujino-Lemon • Yolanda Frazier • Diana Mati • Edwin Pilobello • Darin Schmidt • Jason Zimmerman

Computer Technology

Lego Robotic Engineering

Students gain an understanding of programming basics as they build and control Lego Mindstorm robots. They will use computer programming basics, touch, light, rotation, and temperature sensors to gather data and program their robots. The robots will be able to navigate a map, transport materials, communicate with each other and even play games.

Grades: 3-5, 6-8 (Computer Lab Required)

Multimedia Presentations

With all the bells and whistles, students learn how to use high-tech effects to enhance their oral presentations. After learning how to distill long reports into a brief outline for presentation, we add multimedia techniques such as video, scanned and original graphics and animation to give each presentation extra pizzazz. **Grades: 4-6, 6-8**

(Computer Lab Required)

Robo Pets

Design and construct a robotic animal, then program it to act like the real thing. Students will build RoboPets using the Lego Mindstorm system. First, they will discuss animal physiology and kinesiology and unique features they would like to include in their creature. After constructing their pet, they will learn how to program it using Robolab software. In this class, we will make full use of light sensors, rotation sensors and touch sensors to make the interaction with the pets as realistic as possible. **Grades: 5-8 (PC Computer Lab Required)**

WeDo Robotics

Robotics for early elementary students. WeDo robotics introduces technology in a hands-on engaging way. As they build and program simple robotic structures, students will also reinforce skills in mathematics, communication, and science.

Grades 1-3

Creative Arts

Acting: Folk Tale Plays from Around the World

The basics of acting and staging a play will be taught as students adapt a folktale, myth, or trickster tale to the stage. After investigating the culture from which the tale originated, students will create authentic characters, props, and sets. The final production will be presented to an audience.

Grades: 3-5, 6-8 (Large, open classroom or gym required)

Art through the Centuries

“Art reflects life.” Most of history and culture can best be learned through the works of art created during a particular time period. In this class, students will learn to identify, explain and analyze different styles of art, the cultural context of the work, and key artists who have made their mark over the years. Then, they will create their own representational, abstract and decorative pieces to further their understanding and appreciation of the various styles that artists have contributed throughout history. **Grades: 4-6, 6-8**

Art: Drawing & Painting Techniques

Students will use a variety of artistic media such as watercolor, pencil, ink, and charcoal and apply fundamental techniques to create a finished work of art. They will be introduced to the work of various famous artists, explore their techniques and style, the historical context of their work, and then create their own masterpiece. **Grades: 2-3, 4-6, 6-8 Additional materials fee: \$50 (room with sink, slide projector, work tables)**

Cartoon & Character Drawing

Students use their drawing and storytelling skills to create fun and interesting characters. They learn techniques used by professional cartoonists and animators to make their characters unique and appealing. Full color characters taken from sketches to line art become ready to star in cartoons, animations, graphic novels, or an original comic book.

Grades: 1-3, 5-8

Creative Arts

Clay and Sculpture

Students learn basic coil, pinch, and slab methods of hand-building with clay. Draping clay techniques are used to create realistic animal sculptures, clay masks or Aztec sculptures. This class will explore world civilizations through various vessels from Ancient Greece to U.S. Civil War face jugs. Students work with a variety of air dry and kiln fired clay. **Grades: 1-3, 4-6, 6-8 Additional materials fee: \$50 (Room with sink, work tables, no carpet and kiln available)**

Garbage to Art: Reuse, Recycle, Invent

Save the Earth and make art at the same time. In this class students will scour their surroundings to find good, discarded “junk” that they can turn into 2D and 3D art. All the stuff scrounged up will be organized with other art materials and found objects to create individual and or group works of art to take home or donate to their school. **Grades: 6-8 Additional Materials Fee: \$25 (Room with sink and storage space ideal)**

Glass Art and Jewelry Making

In this exciting class, students create multiple fused glass projects including glass jewelry, sun-catchers, night lights, paper weights, and small dishes. Basic glass cutting techniques are taught as well as many fusing techniques. Students learn the science behind this “super cooled liquid” material and what makes the vast array of colors available for use. They learn how to create chemical reactions between different colors used in the art work and how heating and cooling of the glass affects the final result. **Grades: 2-3, 4-6, 6-8 Additional materials fee: \$90 (Room with sink, work tables, no carpet, kiln preferred)**

Globe Trotters

Students pack only their imagination for this guided tour of the world. Through storytelling, map reading, and multimedia art projects, students explore the cultures of different regions around the world. Interdisciplinary projects may include Indonesian Wayang Kulit shadow puppets, Mexican piñatas, and decorative, Australian boomerangs. They learn about a variety of cultures, traditions, and geography while they create crafts from around the world. **Grades: 2-3, 4-6, 6-8 Additional Materials Fee: \$25**

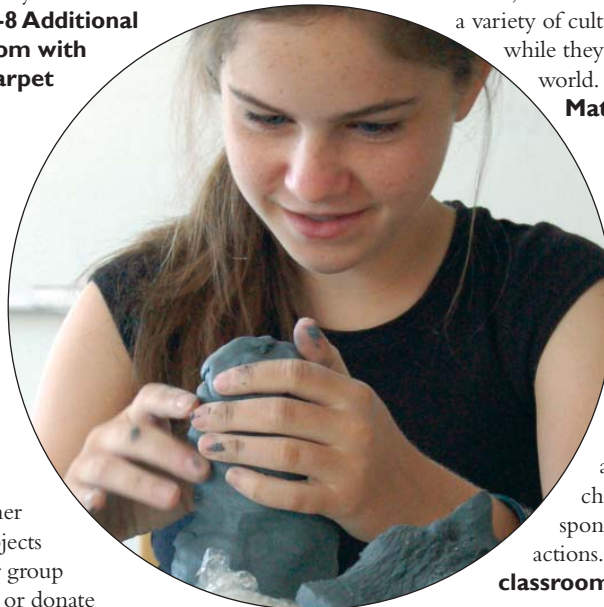
Improvisational Theater

Although much improvisational theater is funny; the same skills and techniques can also be used to explore social issues and problems. Improvisational theater uses audience suggestions to create unique scenes on the spot with no planning. Utilizing theater games and exercises, students build a repertoire of skills for creating characters, dialogue, and comedy spontaneously through their words and actions. **Grades: 4-6, 6-8 (Large, open classroom or gym required)**

Junk to Funk: Trashion Beyond the Runway

Reused and recycled materials are transformed into real fashion accessories and couture fashion in this class. Students create trashion garments and take-home usable fashion accessories from materials found at SCRAP. They will not only learn about fashion design, but also the impact of consumerism on our environment. This class culminates in a fashion show for friends and family. Save the Earth and look good doing it. **Grades: 6-8 Additional Materials Fee: \$25**

Creative Arts Instructors • Erin Berzel • Nancy Coffelt • Donna Cloud • Kathryn Elsesser • Caren Graham • Carolyn Haycraft • Eileen Kane • Jackie Kramer-Arden • Taylor Morrison • Lindsey Newkirk • Andrea Schwartz-Feit • Brandis Svendsen • Dia Varano • Jennifer Wells



Creative Arts

Masks From Around the World

Students create beautiful masks out of papier-mâché, watercolor paper, paint, and other materials. They develop their artistic design skills in drawing, painting, and sculpting while learning about the myths and traditions behind the masks. Inspiration may come from Japanese theater, Native American or African culture, or even Mardi Gras. Although a mask can hide a face, it often reveals a great deal about its wearer. What will these masks reveal about your students?

Grades: 2-3, 4-6, 6-8 Additional materials Fee: \$50 (Room with a sink, slide projector, no carpet, and work tables)

Painting with Wax: Incredible Encaustics

No experience necessary for this quick-start wax painting class. Encaustic painting uses colored pigment suspended between layers of wax and resin. Students explore the science behind the elements and compounds in this unique process of art making. Paints, collage, scraping, layering, incising, and textured finishes are used to make an original creation while gaining a basic understanding of the chemistry behind the art.

Grades: 6-8 Additional materials fee: \$75 (Room with a sink, no carpet and multiple outlets required)

Playing Shakespeare

Every generation of readers rediscovers Shakespeare. The stories, characters and language keep us returning over and over again to these classics. In this class, students perform scenes from *A Midsummer's Night Dream*, *Romeo and Juliet* or *MacBeth*—plays filled with suspense, greed, witchcraft, romance, and revenge. Preparation includes reading, writing and acting exercises.

Grades: 6-8

Puppets from Around the World

Students build amazing, colorful puppets of their own design, creating whatever kind of creature they desire out of reused materials. They choose from three styles of puppetry from around the world—a Japanese Bunraku, which ranges in size from two and-a-half to four feet tall or more, a Chinese Rod puppet, made with true-to-life features and raised overhead at the top of a stick, or an Indonesian Shadow Puppet. Puppets are showcased in a final presentation on the last day of class.

Grades: 1-3, 4-6, 6-8 (Room with a sink required)

Language Arts & Humanities

Comic Books and Graphic Novels

Basic techniques of graphic storytelling, from storyboarding to penciling and inking, are taught as students develop their knowledge of character and plot formation. The class focuses on composition, expression, lettering, and pencil and ink drawing. By the end of class, students will self-publish a short graphic story. **Grades: 4-6 or 6-8 Additional Materials Fee: \$25**

Creating an Illustrated Storybook

After learning the elements of story writing: character, dialogue, setting, plot, and action, students will write and edit group and/or individual stories. Different art media such as oil pastel, water color, or colored pencil will be used to create illustrations to accompany the stories. These stories will then be bound through a variety of techniques to create a one-of-a-kind, hand-made storybook. Group books are donated to the school library and individual books are taken home to share with friends and family.

Grades: 1-3 or 4-5

Civil Writes

Is the pen truly mightier than the sword? Over the years, people have used the written word to bring about social justice and cultural awareness to situations of conflict. From the Darfur Diaries to Holocaust poetry, students will be encouraged to think about issues of race, class, gender, ethnicity, injustice, and justice. This class will use reading, writing, video, and group activities that encourage students to explore the power of their voice and help them to “be the change” in the world they’d like to see. **Grades: 7-8**

Critical Reading: A Multicultural Coming of Age

In this class, students read from a variety of texts that seek to describe the process of growing up in America’s “melting pot.” Responding to the literature both in writing and in structured class discussions, students learn to read think critically and to engage actively and respectfully with their peers about thought provoking topics. Possible authors include: James Baldwin, Frank Chin, Sandra Cisneros, Langston Hughes, Jamaica Kincaid, James McBride, and/or Toni Morrison.

Grades: 6-8

Language Arts & Humanities

Critical Thinking Skills

Argumentative students will improve their ability to think clearly, critically and on their feet in this introduction to informal logic. Techniques for constructing and deconstructing arguments will be emphasized as the class considers issues relevant to young people today. The class will be introduced to the rudiments of critical thinking such as logical fallacies, causation versus correlation, basic syllogisms, and informal fallacies. **Grades: 6-8**

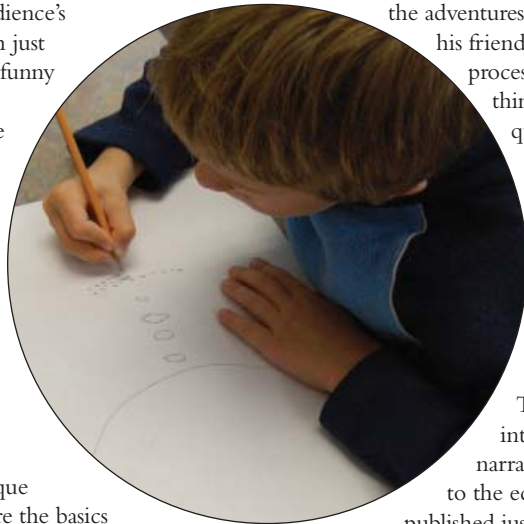
Dramatic Writing & Reader's Theater

Learn the art of script writing. How do script writers and playwrights capture an audience's attention and imagination with just dialogue? What makes a scene funny or dramatic? Working in pairs and groups, students will create characters and storylines then draft, edit, and perform their scripts in class. Students will ham it up using intonation and gestures appropriate to their characters while becoming better readers.

Grades: 3-5 or 6-8 (Large space needed)

Fiction Writing

Student authors find their unique writing style while they explore the basics of fiction. They learn techniques to captivate readers, methods of storytelling and ways to develop realistic and memorable characters. They practice weaving carefully crafted sentences into a work of lasting impression. Through in-class exercises, such as writing "flash" fiction, students will learn to write stories that will engage and satisfy both author and reader. **Grades: 3-5 or 6-8**



Get Ready to Write

Budding young writers use their senses, life stories and imagination to create unique stories and poems. They work in pairs and groups to tell their stories, create characters, explore outrageous places, and practice putting their great ideas on to paper. Emphasis will be placed on word choice, voice, fluency, and organization. **Grades: 1-2**

Harry's Discovery

Aspiring philosophers learn to think quickly and clearly as they solve mysteries and resolve dilemmas presented in the story Harry Stottlemeier's Discovery. The class discusses the adventures, mysteries and questions Harry and his friends encounter in their daily lives. In the process, students will develop reasoning and thinking skills they can use to solve their own questions and dilemmas. **Grades: 4-5**

Journalism & Newspaper Writing

Looking for some help with a school newspaper? Students in this class will learn to write compelling feature stories that pop, jump and "lede" the reader by the hand into delightful territory.

They will discover how to harvest ideas, interview sources, dig beyond Google, add narrative and think visually. And yes, yield to the editor's knife. Your first edition can be published just like community newspapers.

Grades 3-5 or 6-8 Additional Materials Fee: \$100 for 500 copies printed on newsprint

Language Arts Instructors • Brian Christopher • Nancy Coffelt • Randi Douglas • Liz Hibbard • Carolyn Haycraft • Joseph Gallivan • Caren Graham • Paul Kennison • Jackie Kramer • Amy Minato • Taylor Morrison • Rosanne Parry • Mark Pomeroy • Donna Prinzmatal • Jacqueline Raphael • Anne Rutherford • Katie Schneider • Wendy Thompson

Language Arts & Humanities

The 'Not So Daily' Show

Current events come to life for the stage. We will combine acting, writing, comedy, and student interest in current events to create our own version of "The Daily Show." Students will investigate current events using national and international media then interpret these events to create a live performance. They will have the opportunity to write, direct, or perform events as newscasters, readers, and/or reporters in this highly collaborative class. **Grades: 4-5) or 6-8 (Large movement space ideal)**

Pixie

Pixie is a reasoning and language arts class that concentrates on the development of thinking skills in young students. Students boost their brain power by exploring where ideas come from and how they get into the mind.

This class will explore logical reasoning and creative writing through games and activities. As students read the children's book Pixie, they'll develop their thinking skills and see how various meanings can be communicated by using language in different ways. **Grades: 1-3**

Playbuilding

How do script writers and playwrights capture an audience's attention and imagination with just dialogue? What makes a scene funny or dramatic? In Playbuilding we use prompts to uncover our ideas, engage in dialogue, experiment with stand-up improvisations, and refine and rehearse our work for an informal performance for friends and family. Students will experience intense opportunities for individual creativity while building their skills in group cooperation and commitment. **Grades: 3-5 or 6-8 (Large space needed)**

Poetry Jam and Slam

Poetry is everywhere, in the music we listen to and even on our refrigerators doors. Students will learn about different types of poetry, both free verse and formally structured. Emphasis will be placed on the use of figurative language including simile, metaphor, alliteration, personification, and word choice. They will work individually and in groups to create explosively descriptive poems. The poems will be published in a small book and/or shared with the class in an informal 'poetry slam'. **Grades: 1-3, 4-5 or 6-8 Additional materials Fee: \$25**

Railroad Tycoons

Working in pairs, students will play a number of railroad-building board games in which they build their own rail network from scratch, pick up goods from their locations of origin, and fulfill contracts by delivering these goods to cities where they are in demand. By actively engaging with the geography of cities, resources, rivers, mountain ranges, deserts, and more, students learn about geography in a way that is more meaningful than the mere memorization of facts. They will also discover the colorful history of the northwest railway systems. Because students work in teams, they will have to negotiate, argue, compromise, and cooperate with each other to be successful. **Grades: 4-8**

Short Stories

Students develop their own writing style to create gripping, evocative short stories. Each session focuses on a different aspect of imaginative writing: character, setting, plot, point of view, and editing. Through in-class exercises, such as writing "flash" fiction, students will work toward a polished, final draft that includes: a compelling opening, realized characters, vivid settings, clear conflict/resolution, and well organized prose. **Grades: 3-5 or 6-8**

Speech Easy: The Art of Public Speaking

Turn your students into fearless and effective public speakers. This class covers the basics of public speaking including eye contact, speaking rate, volume, enunciation, oral fluency, vocal energy, and gestures. Students learn how to prepare a speech and practice impromptu, expository and persuasive speaking. **Grades: 4-5 or 6-8**

Storytelling

Storytelling is one of the oldest art forms; while it is easy to tell a story, it takes skill to tell a story well. This class will teach beginner storytellers the basic public speaking skills needed to be an entertaining storyteller. Participants will learn how to create different voices for various characters, how to add gestures, facial expressions, and flow to their stories. They will practice projecting their voice and using eye contact to keep their audience engaged. Stories from a variety of genres from creation myths to personal narrative will be rehearsed and then presented to the class to record as a DVD and/or podcast. **Grades: 1-3, 4-6, 6-8 Additional Materials Fee: \$5/ student for DVD copy**

Language Arts

World History: Strategy & Diplomacy

Instead of memorizing events, names, and dates, students will actively control nation-states, important historical figures, and civilizations through several board games. Doing so, they will experience first-hand some of the historical constraints on and impulses for action, as well as encountering the potential effects of their own history-altering decisions. Interacting with world and area maps fosters memory not merely of place names, but of the political, strategic, and economic importance of places. Working in pairs or small teams, they will create and implement their own long-term strategies, negotiate deals, and maneuver toward victory. Negotiating with other teams will be crucial for success, they will practice and develop negotiation, interpersonal, argument, and speaking skills.

Grades: 6-8

Write Now! Improve Your Writing

We will learn effective strategies for writing academic papers and performing well on writing skills assessment tests. Through creative exercises, students will practice the mechanics of first-rate writing and learn how to convey clear, compelling, and focused ideas on the page. The primary emphasis will be placed on the 6-Traits of Writing with exercises in narrative, persuasive, descriptive, and expository writing modes. Students will learn a variety of self-editing techniques to strengthen their school writing assignments.

Grades: 3-5 or 6-8

Write Your Life

Students learn how to capture ordinary moments from their personal lives into something extraordinary. Through a series of writing exercises, they will discover how a single memory—an image, a smell, a snippet of dialogue—can open up into an engaging piece of writing. In addition to writing their own story, they will read and discuss work from a variety of published authors.

Grades: 4-5 or 6-8

Math

Algebra Challenge

We will explore the applications of algebra through the concept of mathematical models. As students apply their algebra skills to real-world problems and experiments, they will expand their appreciation for math and improve their grasp of the concepts involved. Algebra topics that will be used include slope, linear equations and inequalities, direct and inverse variation, graphing functions, quadratic equations, exponents and growth and decay. Students must have completed or be currently enrolled in an algebra class.

Grades: 6-8

Cryptography: Making and Breaking Secret Codes

Creating secret codes, decoding encrypted messages, and understanding why it is safe to type a password on the Internet are all elements of cryptography: the study of making and breaking codes. Students will learn about shift ciphers, the Vigenere cipher, and the Enigma machine. They will also learn about the history of cryptography from the days of Julius Caesar to World War II. Advanced problem solving skills are applied to crack codes and for students to create their own codes. **Grades: 6-8**

Do Statistics Lie?

A British politician once said, “There are three kinds of lies: lies, darned lies, and statistics.” In this course, students will explore newspapers, magazines and the Internet to find how people use statistics. Can we believe the statistics we read? How are polls taken and are they accurate? Do politicians use the same set of statistics to argue opposite positions? Who really is the best baseball hitter of all time? These investigations will lead to a better understanding of probability and statistics as well as the world of media literacy. **Grades: 6-8**

Fun with Fibonacci

We will discover the hidden order behind pine cones, sea shells, tree branches, rabbits, and the Egyptian Pyramids encapsulated in a single number. Through investigations into statistics, Platonic solids, bee genealogy, plant growth, and architecture, students will discover ways to generate and uncover Fibonacci numbers. They will delve into the fascinating and beautiful world of Penrose tilings, creating some unique and gorgeous works of art with mathematical meaning. **Grades: 4-6, 6-8**

Math

Geometry: Welcome to Flatland

Flatland, the two-dimensional world of Edwin A. Abbott's 1884 math fiction novel is as challenging today as it was 125 years ago. Using Abbott's story, students will design and build a 2D city. In Flatland nothing has thickness, not even its inhabitants. Is this possible? What challenges does the 3D world have in common with Flatland? This math adventure will include the relationship between one-, two-, and three-dimensional figures; angles, polygons, and their properties; and mastering Euclidean geometry constructions, using only a compass and straight edge.

Grades: 3-5

Math Gems for Math Masters

Young mathematicians will learn to solve seemingly impossible math problems. In this class, students will play probability and logic games to learn math strategies. They will work independently and in teams while having a good time with puzzles. Students will discover number patterns, sequences, and cryptography (secret codes) that help them build problem-solving skills.

Grades: 4-5

Math Quest: Time & Place

Using maps and math, students will find their place in the world. They will compute distances and trace their ancestors' journey. As they make their own map and compass, student will learn how cartographers combine math, science, and design. The math tools will include coordinate systems, ratios, proportion, scale, area, and angles. This class also uses math to investigate history and increase students' understanding of their place in time as they create a time table for planet Earth. The mathematical concepts of powers, variables, negative numbers, fractions, and decimals will be used to answer questions such as: How has population grown over time? How long ago did people first have computers, telephones, or the wheel? Are their patterns in the history of civilizations? Students will attempt to use the math in historic and geographic patterns to predict the future.

Grades: 4-5

Math Trek

Students' thinking and problem solving skills will be challenged in this exploration of number systems from around the world. They will begin with Roman Numerals then on to Chinese numerals while learning to use an abacus. The journey continues with Egyptian hieroglyphs and the Rosetta Stone. Students investigate Babylonian numerals and the 60 based number system. The trek ends with Indian numerals and the invention of the zero. **Grades: 2-3 , 4-5**

Money \$ Math

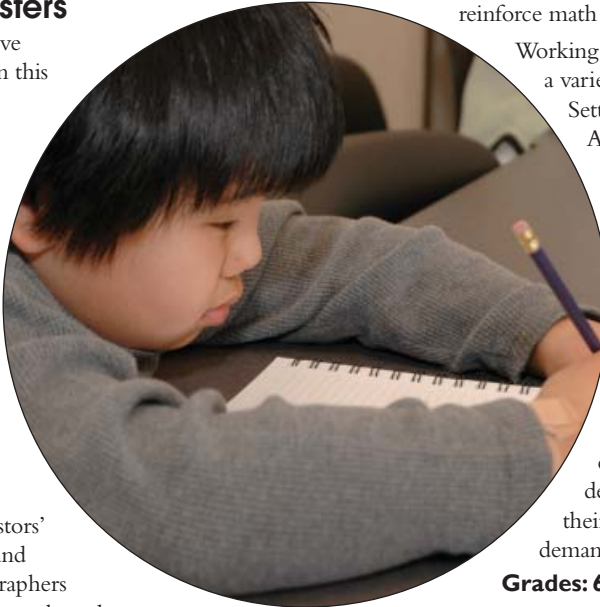
Instead of learning equations and graphs, students will engage in economic simulation board games to reinforce math skills.

Working in pairs, they will play a variety of board games, like Settlers of Catan, Modern Art, Tinnert's Trail, and Stone Age, featuring various economic mechanisms, starting with simpler games and advancing to the more complex. They will learn to manage scarce resources, experience first-hand the importance of capital investment and development, and alter their strategies as supply and demand fluctuates.

Grades: 6-8

The Number Devil

Higher math concepts become more approachable as students step into the magical world of a young math student's dreams in the book *The Number Devil*. While listening in on his conversations with his mathematical mentor, the class will explore prime numbers, square roots, exponents, irrational numbers, Fibonacci numbers, triangular numbers, Pascal's triangle, infinite series, and other higher mathematical concepts. **Grades: 4-8**



Math

Pre-Algebra Lab

Using non-traditional exercises and games, students will develop a concrete understanding of pre-algebra material such as integer operations, variables, coordinate graphing, and simple equations. This class emphasizes hands-on activities for concept introduction followed by written work and games for practicing new skills.

Grade: 5

Puzzles and Games for Math Lovers

Students will stretch their thought processes with riddles, logic problems, Japanese Nanograms, mazes, and math games. In hands-on explorations into geometry they will create Pascal's triangle, Pythagora's wild triples, and build structures out of paper plates, including a grand tower of tetrahedron and the hexa-flexagon. **Grades: 2-3, 4-5, 6-8**

Math Instructors • Mary Carroll • Lindsey Dotson
• Roger Eiss • Stefanie Foster • Rich Harris • Soenke Hollstein • Barbara Kerr • Joseph Wasserman



Science & Engineering

Aeronautics

What makes an airplane stay in the sky? Students will learn about the principals of flight and how airplanes are engineered. They will explore the properties of air, flight, and aviation through hands-on activities, including investigating the geometry of kites, experimenting with rotary wings, modeling Bernoulli's principal of air flow, and making a flight plan. After learning how aeronautical engineers shape the airplane, its wing and tail so that it can lift itself off the ground and fly easily through the air, they will experiment with their own designs.

Grades: 3-5 or 6-8 Additional materials fee: \$25.
Field trip to Evergreen Air and Space Museum can accompany this class for an additional fee.

Astronomy: Super Stars

Take a quick tour of our solar system then on to the stars! This cosmic adventure starts with our own sun. Students travel to planets and moons and explore their unique landscapes. They fly past the Oort Cloud and head toward

Proxima Centauri, the next closest star. Also on the tour, blue stars, giant reds, brown dwarfs, and nebulas. During the journey, students will make their own spectroscope, sun clock, and telescope to aid in their investigations.

Grades: 1-3, 4-6 or 6-8 Additional materials fee: \$25

Biodiversity: Life at the Extremes

Living things are everywhere—in deserts and hot springs, under ice caps, and even in the Dead Sea! How do they do it? Where does their food come from? How can they escape the sun, live without water, keep from freezing, or keep from burning up? By studying plant and animal life in the harshest conditions on Earth, students will learn how organisms adapt to live in extreme environments. We'll also look beyond Earth and apply this knowledge to possible life on other planets.

Grades 4-6, 6-8 Additional materials fee: \$50 (Room with a sink required)

Science & Engineering

Cat Genetics

Why do some cats have stripes and others patches or spots? Cats provide the perfect family tree for studying the basics of Mendelian genetics. Students trace the inherited traits of cats: from the common such as coat color, to the rare, such as absence of a tail, extra toes, baldness, and dwarfism. They learn about DNA, RNA, and genes in order to “design a cat” to fit a specific environment. **Grades: 6-8 (Classroom with a sink)**

Chemistry Experiments

Students will conduct fascinating experiments as they learn about elements, compounds, atoms, molecules, chemical bonds, and states of matter. They will experiment with mixtures and identify unknown ingredients by their properties and reactions. Students will also explore acid/base reactions and experiment with color, energy, and matter changes.

Grades: 3-5 or 6-8 Additional materials Fee: \$25 (Classroom with a sink)

Cool Wheels

Students will discover firsthand how engineering principles work as they design, build and race a CO₂-powered race car. How fast will their cars travel? The answer will depend on design and ingenuity; the more aerodynamic the design, the faster the speed. When complete, the car must meet weight and design specifications. Statistics will be gathered as students clock their speeds using a digital timer, analyze the data, and fine-tune the design to increase their cars' speed. **Grades: 6-8 Additional materials Fee: \$50 (Hallway space to race cars)**

Creative Engineering

Toys are a great way to learn about science, engineering, and the design process. Students will explore the creative thinking and problem solving techniques needed to bring their ingenious ideas for toys and games to reality. They will brainstorm innovative solutions and learn about basic engineering at the same time. **Grades: 3-5 or 6-8**

Disease Detectives

A mysterious illness has been reported, and it's up to your students to figure out what it is, where it came from, and how it can be treated. Students will discover the differences between bacteria, viruses, and other micro-organisms. They will learn how diseases spread in an age of international travel, and will follow clues to trace the outbreak to its source. Students see how science is used to fight disease and save lives around the world. **Grades: 3-5, 6-8**

Explorations in Electronics

Students experiment with basic electronic components using circuits, capacitors, and by building a simple radio transmitter. They learn to solder as they build circuits for an electronic siren and a flashing LED robot! They will explore electronics in their everyday world with a take-home digital multimeter to measure voltage, current, and resistance. In all of these activities they will develop their troubleshooting ability, one of the most important tricks of the trade for any future electronics engineer. **Grades: 4-8 Additional Materials Fee: \$25**

Forensics: Science of Crime Solving

A mysterious crime, an unidentified victim and no suspects – but wait! Whose footprint is this? Could that piece of fabric be a clue? We will explore the scientific techniques used to investigate crimes. Students examine a mock crime scene for clues on how the crime was committed and learn ways to identify the victim and possible suspects. They analyze blood spatters, collect samples for examination and chemical analysis, explore the intricacies of fingerprinting, and are introduced to the science of genetics and DNA forensics. Using the scientific method and deductive reasoning, students evaluate motive and opportunity and then, in teams, ultimately solve the crime. **Grades: 4-5 or 6-8 Additional materials fee: \$25 (Classroom with a sink)**

Science & Engineering Instructors • Theresa Alexander • Annie Corbett • Richard Duncan
• Stephanie English • Candice Gossen • Soenke Hollstein • Scott Isler • Eileen Kane • Mollie Murphy
• Dawn Nilson • Amber Roesler • Emily Shields • Roger Weber • Sharese Williams • Veronica Zonick

Science & Engineering

FutureMakers

What does it take to turn a clever idea into a marketable product? We'll begin by exploring creative thinking and problem solving techniques. Visit several local businesses to identify specific problems or needs that could be solved by our ingenious inventions. Learn about patents and trademarks from a visiting patent lawyer and research ideas to see if they are patentable. Students will receive instruction to guide them through the concept and design stage to a product presentation for the last class. **Grades: 6-8**

Science & Robotics

Using Vernier sensors and Lego Mindstorm robots, students will learn the latest in lab technology as they conduct a variety of inquiry-based science labs. The class begins with measuring temperature through evaporation while being introduced to scientific process and robotic skills. Students build and program the robots to carry out data collection and automation. They use the data logging capability to graph and analyze their data. Further experiments could be conducted in acid rain, soil testing, water quality, and UV lighting.

Grades: 6-8

Lego Physics: Introduction

Students become expert Lego builders as they learn the principles of physics and engineering. They explore concepts such as balance and symmetry, acceleration and inertia, and shape and strength while constructing their Lego projects. They build bridges and other devices using gears and motors to add movement. Students learn how simple machines like levers, pulleys, and gears are used in everyday life and in their Lego projects. **Grades: 2-3**

Lego Physics Level I: Gears & Cams

How tall can a tower rise? How far can a bridge span? Can a tower be built three times taller by using three times the amount of materials? Students will find out the answers to these questions as they discover how physics principles are put to practical use. Using Lego building components, they will investigate structural designs and employ gears, cams, and pendulums to explore kinetic and stored energy.

Grades: 3-5 or 6-8

Lego Physics Level II: Motors & Movement

Learn more about gears and stored energy by putting the principles of physics to work. With the addition of electric motors, students will build and improve a motorized crane, a "Tug-Bot," and steerable car. They will investigate the fundamentals of robotic development while constructing and operating Lego components. Finally, they will use acceleration, velocity, and electric motors to create truly sophisticated projects. In this advanced class students can choose a project of their own or work on challenges suggested by the instructor.

Grades: 3-5 or 6-8

Light Fantastic

Two hundred thousand times faster than a speeding bullet; more than 300 sextillion times more powerful than a locomotive; able to leap the tallest building in 7 millionths of a second. Look, what's in the sky? It's SUNLIGHT! Using prisms, lenses, mirrors, filters and lasers, we will investigate how light can be separated, concentrated, and bent. We will experiment with a pin hole camera, mirrors, kaleidoscopes, Jello optics, and even start a fire using solar energy and a biconvex lens (weather permitting)! We will investigate how lasers work and explore the very nature of this amplified light. Finally, we will recreate Newton's experiments in spectroscopy, colors, lenses, reflection, refraction and more.

Grades: 3-5 or 6-8 Additional materials fee: \$50



Science & Engineering

Marine Biology

We will explore the behavior and biology of the northwest's marine animals. Students dissect a squid and examine intertidal invertebrates to study their anatomy and physiology. They examine preserved specimens of animals found in tide pools and will be able to identify them on their next trip to the coast. In-class activities will teach students about whales and other marine mammals. **Grades: 3-5 or 6-8 Additional materials fee: \$50 (Classroom with a sink, DVD/VCR/TV)**

Microbiology

Investigate the invisible world of microorganisms in this introduction to microbiology. Students will look at the diversity of bacteria and how it occurs. Then they learn to identify the different forms of microorganisms by observing colonies under a microscope and by staining techniques. They grow their own culture from milk then count and identify the bacterial communities within. Using scientific skills to conduct experiments, students test the effects of various disinfectants on bacterial growth.

Grades: 3-5 or 6-8 Additional materials Fee: \$50 (Classroom with a sink)

Rocket Science

By exploring Newton's Three Laws of Motion and how they apply to rockets and aeronautics, students learn how things fly. In this class, students build a balloon powered rocket car, paper rockets with drinking straw propulsion, or litersize pop bottle rockets. They investigate the principals of flight, and gain hands-on experience designing, building, and launching a model rocket. In addition, they learn how rocket fuel can be improved by conducting antacid tablet races. In the final class, students launch their rockets and learn how to use triangulation and altitude trackers to calculate how high the rocket flies.

Grades: 3-5 or 6-8 Additional Materials Fee: \$25

Solar Power

Students will learn to harness the sun's energy to fuel their own solar projects. They will explore the science and principles of renewable energy by drawing sun diagrams, building solar profiles, and then constructing projects such as solar cookers, 3D sun path models, and toy cars.

Grades 4-6 or 6-8 Additional Materials Fee: \$25

Switched on to Electricity

Volts! Coulombs! Amperes! In this class you can wave your handmade magic wand and mysteriously turn on a light bulb. Learn the difference in current between a round and long light bulb. Discover why spiral light bulbs are better for the environment. Get a charge out of the inner workings of batteries and learn the right hand rule of generators. Get wired up for a great time.

Grades: 6-8 Additional materials fee: \$50

Wacky Weird World of Science

From the most bizarre to the most fascinating, explore the mysteries of our universe through science. Conduct hair-raising experiments with electricity and discover the three laws of motion in action through stomp rockets and air cannons. You will explore the chemistry of freaky, creepy dry ice and find out what's up with the parasitic tapeworm and its totally gross relationship to its host. Don't miss these amazing adventures in science!

Grades: 1-2 (Room with sink required)

World's Greatest Inventions

From the wheels to the computer, students learn how creative thinkers made ground breaking products, and how early inventions like transistors laid the groundwork for modern technology like laptops and iPods. Students investigate how money and even the number zero were invented. As they dive into the thinking behind these inventions, they will learn about design, engineering, and the evolution of modern science.

Grades: 3-5, 6-8

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