

Course Descriptions

Amazed by Aztecs and Intrigued by Incas

What was life like for the Aztecs, the once-powerful civilization that ruled a large part of Mexico? Come and find out! Make crafts and weapons, and taste some foods eaten by the Aztecs, all while discovering these fierce and fascinating people. Be prepared to be amazed! Then, learn about the master engineers who built mountain palaces like Machu Picchu and 10,000 miles of roads stretching through their empire. Discover more about the ancient Incan civilization through hands-on activities and by tasting foods they developed. Instructor: Erika Zajdel. Entering grades 3–4.

Ancient Chinese Secrets

Don't know much about Ancient China? You may know more than you think! Many familiar items came to us from ancient Chinese inventors. Discover the Chinese contributions to the worlds of science, math and art while studying their long history and unique beliefs. Be prepared for some hands-on fun as you explore ancient Chinese secrets! Instructor: Erika Zajdel. Entering grades 3–5.

Architecture: Columns and Caryatids

In this fun introduction to classical architecture, draw the three primary orders of Greek columns: Ionic, Doric, and Corinthian. Compare these classic orders to caryatids, columns designed to look like people. Create a life-sized caryatid of yourself and make a classical colonnade with the class! Families are welcome to bring a camera to photograph our class "frieze!" Instructor: Kelly Lyons, Carnegie Mellon University School of Architecture. Entering grades 1-2.

The Body Central

Identify and explore the major body systems. Begin with a discussion of your prior knowledge of the five senses, then move on to the brain, spinal cord, and nervous system. Discuss lungs and respiration, the heart and circulation, and finally the skeletal system. Listen to your own heartbeat with a stethoscope, create a take-home skeleton from paper plates, and play a jeopardy game of fun facts about the human body. Instructor: Linda Mackey. Entering grades K-1.

Brain Games

Stretch your thinking muscles to find solutions to a variety of puzzles. Use your math, visual and perceptive skills to solve toothpick puzzles, money problems, geometric riddles and many more difficult brain teasers. You'll discover techniques to solve these challenging head-scratching problems. Instructor: Cathy Gialloredo. Entering grades 4-6.

Build-a-Book

Practice rhymes, rhythm, patterns and more! Read a book and create your very own. Use your thinking cap to come up with ideas and bring those ideas to life. Discuss storytelling skills. Be an author and illustrator and take your book home to share with all of your family and friends. Instructor: Denise Cartisser. Entering grades 1-2.

Build a Robot

Build a robot using the Robotix 4000 kit developed by Learning Curve Toys™. Use your mechanical engineering skills as you test your robot on flat surfaces and inclined planes. Modify the robot's design so you can win a robotics competition! Instructor: Mike Shoplik. Entering grades 5-7.

Buildings, Towers, and Bridges, Oh My!

How do buildings stay standing? Can you make a building out of paper that stands up? How strong should it be? In teams, students will create towers and bridges to see whose is the strongest. Instructor: Kelly Lyons, Carnegie Mellon University School of Architecture. Entering grades 1-2.

The Chemistry and Analysis of Water

Bring in a water sample from home and perform experiments in a university chemistry lab. Don your lab coat and safety goggles and find out what really lives in our water. Sample and test the quality of water in the Westinghouse Pond at Schenley Park. Wear comfortable clothes and shoes good for walking, because, rain or shine, you will be heading to the park. Instructors: Karen Stump, Carolyn Neiderlander, and Gizelle Sherwood, Carnegie Mellon University Chemistry Dept. Entering grades 4-6.

Design a Dragster

Did you ever wonder what it would be like to be a car engineer? What does it feel like to design a car on paper and actually test it? How does a car's shape affect the way it drives? These are a few of the questions you will be able to answer if you choose to "Design a Dragster." Gain important skills with simple wood shaping tools to mold your block of wood into a CO₂ racing machine. Instructor: Matthew Sespico. Entering grades 7–9.

Digital Autobiography

Be the star of your own production by designing a digital autobiography, complete with your digital photo, using Microsoft PowerPoint. Bring a USB flash drive to class, if you have one. Instructor: Cathy Huth. Entering grades 3-5.

DNA: The Sweet Code of Life

Experience an introduction to the code of life, DNA. Join us for a hands-on class exploring DNA structure, all with an edible twist. Look at some DNA with your own eyes, and build your own candy DNA molecule! Learn about the molecules involved in coding for your traits, while using tasty treats! Instructor: Colin Syme. Entering grades 7-9.

Electric Super Cars

Build your own battery operated vehicle using motors and batteries. Learn about electric wiring and measurement precision as well as basic circle circuits and battery currents. Make adjustments to your customized car to make it run faster. Race your finished car at the end of class, and take it home to show your family and friends! **Materials fee: \$5.** Instructor: Gina Callahan. Entering grades 5–6.

Engineering 101

Have you been building things for as long as you can remember? Put those skills to the test in a construction challenge! Discuss basic engineering principles and build strong, tall towers! Then, put your tower to the test! How long will it last? There's only one way to find out! Instructor: Matt Anticole. Entering grades 6-7.

Eye on the Sky

Explore the mysteries of the night sky. Examine stars, constellations and the moon while taking part in fun, hands-on activities! Learn about the different phases of the moon by creating your own moon shapes and designing your own crazy 3-D constellation. Discover what you are really looking at when you gaze up at the glorious night sky! Instructor: Amanda Herold. Entering grades K–1.

GPS Systems: Pirates of Carnegie Mellon

Finding treasure is not just a task for pirates. In the new millennium, graphical information systems have enabled some amazing new technologies and related “toys.” In addition to accessing online maps and satellite images, students will be able to use a gps (global positioning system) for a fun outdoor activity called goecaching. Work in small groups and use precise coordinates to find hidden “treasures” around the Carnegie Mellon campus. We will venture outdoors even if it’s raining, so dress appropriately! Instructor: Matt Sespico. Entering grades 7–9.

Growing Up Roman

Focus on the daily activities of the children who lived in Ancient Rome while learning about this important culture. Doing hands-on projects (such as making tunics and shields) as well as learning Latin words and phrases will help you feel like a typical Roman child! Instructor: Erika Zajdel. For students entering grades 3–4.

Hovercrafts and Bottle Rockets

Learn how forces help or hinder flight by creating hovercrafts, parachuting eggs, and launching bottle rockets. Make your own working model of a hovercraft and watch it float across the table. Build a bottle rocket and watch it blast off! What can you do to make it shoot higher? Find out about Newton’s third law while learning about space flight. Bring an empty 2-liter soda bottle to class. Dress for the weather. Rain or shine, we will be going outside! Instructor: Diane Fischer. Entering grades 5–6.

Ice Cream Science

Join in the fun as we explore two types of matter: solids and liquids. Receive your own science journal and conduct inquiry experiments using the same process that true scientists follow. Explore flotation, viscosity, and density. Conduct the tastiest experiment of all: making real ice cream! Instructor: Erika Zajdel. Entering grades 1–3.

Knights and Castles

How did a person become a knight long ago? Learn how boys were trained and tested before they could earn knighthood and practice chivalry. Learn all about castles and who lived in them and defended them. Create your very own castle to take home and share with your friends and family. You may even go home with a (safe) weapon! Instructor: Erika Zajdel. Entering grades 2–3.

M&M Probability

Predict, count, graph, and eat M&Ms in this edible lesson. Devise, color, and draw different types of graphs, including pie, picot, and bar graphs. Discover the secret behind each color in a bag of M&Ms! Instructor: Denise Cartisser. Entering grades 1–2.

Microscopes and the “Sea” of Life

Have you ever wondered what lurks below the surface of our local rivers? Learn how to use microscopes to view biological specimens. Use your acquired laboratory skills to examine local river samples and identify the types of organisms that live in our “neighborhood.” This workshop will “magnify” your interest in the diversity of life on Earth! Instructor: Colin Syme. Entering grades 5–7.

Mini Math Olympiad

Hey, math wiz! Participate in four mini-simulations of Math Olympiad contests with ribbons awarded for top scorers. Discuss problem-solving strategies, such as finding a pattern, drawing a picture, making a list or table, and working backwards. Try contest problems from the Mathematical Olympiads for Elementary and Middle Schools competition. Instructor: Janet Kelly. Entering grades 5–7.

Neuroscience and the Learning Brain

Chart the human brain and learn about the most recent discoveries neuroscientists have made regarding the human mind. Examine real brain images and simulate how a neuron (a brain cell) fires. Learn how to use your own brain more effectively by learning a number of reasoning strategies, such as analogical reasoning, pattern recognition, and problem solving skills. Apply what you’ve learned about the newest brain research to your own life to improve your study skills! Instructor, Bryan Matlen, doctoral student, Carnegie Mellon University Dept. of Psychology. Entering grades 6–8.

Online Virtual Stock Trading

Be introduced to the stock market, one of the oldest games in the world! Discover how to trade virtual stocks online. Explore the theories of three famous traders. Learn about candlestick charts, line charts and bar charts. Begin to recognize price patterns and trends in trading. Analyze the results of your trades. Don’t worry – you won’t lose any money in this virtual game! Instructor: Randy Harper. Entering grades 4–6.

Outrageous Oceans

Discover the wonders of ocean life in this activity-filled class! Make a book on the zones of the ocean, discover how waves are formed, measure lengths of whales, create a whale book, and do an experiment to help you learn how a shark’s oil-filled liver keeps it from sinking. Instructor: Melissa Schwarzmeier. Entering grades 1–3.

Pandemic: The Spread of Diseases

Throughout history, the worst and most contagious of infections have led to pandemics. Learn about the 1918 Spanish flu and its modern cousin, avian flu, and play a game to simulate the spread of a modern pandemic! Learn how mutations result in new forms of diseases. Can your team stop the spread of four infections diseases before they overwhelm the world? Play the part of a Dispatcher, Medic, Researcher, Operations Expert, or Scientist as you work together to eradicate disease. Instructor: Matt Anticole. Entering grades 5–7.

Physics Frenzy

Explore the world of physics! Analyze Newton’s third law of motion while releasing a balloon rocket. Will your rocket travel the farthest distance at the fastest speed? Learn about inclined planes and race cars down a track. Next, enter the world of forces and explore magnets. Your final challenge is to build an edible dome that can support the greatest amount of weight. Instructor: Jade Leung. Entering grades 1–3.

Pirate For a Day

Yo, Ho, Ho for Pirates! Prepare to set sail on a pirate adventure and learn about these bad boys (and girls) of the high seas through many hands-on activities. Beware -- you may look and talk like a scary scoundrel at the end of the voyage. Shiver me timbers! Instructor: Erika Zajdel. Entering grades 2–4.

The Raging Rainforest

Explore the life of the rainforest! What dangers face the rainforest today? Learn about the plant and animal life in the rainforest. Go on a scavenger hunt, investigate the “greenhouse effect,” and find out about life cycles, food chains, and camouflage! Sample some food from the rainforest as you learn about everyday products in your home that come from the rainforest. Instructor: Melissa Schwarzmeier. Entering grades 1–3.

RiverQuest Environmental Science on the Three Rivers

Join the adventure during a 3-hour exploration into the world of freshwater ecology. Become a scientist onboard Explorer, RiverQuest's new hybrid, eco-friendly boat that serves as a floating and fully-equipped laboratory, where students form hypotheses about the world around them. How healthy are the rivers in Pittsburgh? Will they support a wide variety of life forms?

Investigate river water quality using water sampling equipment, chemical test kits and digital meters, testing parameters including pH, dissolved oxygen, turbidity, nitrate content, and more. Assess the viability of the river valley ecosystem by collecting and identifying microscopic organisms in the plankton laboratory below deck. After learning to use a petite ponar benthic grab, search for indicators of pollution in a sample of mud taken from the river bottom, as you locate and identify benthic macroinvertebrates. Instructors: RiverQuest Education Crew. For students entering grades 3-6.

This class will be held on one of the boats belonging to the Pittsburgh RiverQuest fleet. Parents should bring their children to the Pittsburgh RiverQuest dock, which is located on the Ohio River near the Carnegie Science Center on the North Shore.

DO NOT drop off students at the Science Center main entrance. Escort students to the dock and check in with a C-MITES staff member (wearing a C-MITES t-shirt).

Rock and Mineral Exploration

Have you ever wondered how rocks are formed or how geologists identify and classify them? Learn techniques that geologists use to identify a variety of rocks and minerals. Cut and crack open your very own geode. Let's dig in! Instructor: Matt McCarthy. Entering grades 5-7.

Rolling Along

Discover potential and kinetic energy! Plan and construct your own roller coaster model. Learn about speed, momentum, and other forces that enable roller coasters to "roll." Instructor: Gena Kashak. Entering grades 3-4.

The Science of Sound

Have you ever wondered why you hear what you do? Do you know what a slinky and sound have in common? Take this class to discover those answers and many more. Experiment with sound to see if you can figure out why you hear what you do. Make your own instrument to take home. Bring any containers you may have such as shoe boxes, oatmeal containers, old Tupperware, etc. to class with you. Instructor: Michele Zappel. Entering grades 3-4.

Skeletal Remains and Fossil Dig

Build a skeleton. Sharpen your observational skills by examining owl pellets, the regurgitated remains of an owl's prey. Use your laboratory skills to dissect this hard, dry ball. Reconstruct what's inside to determine what the owl ate. Take home your reconstructed skeleton. Will it be a vole, a mouse, a shrew or none of the above? Then, spend the afternoon digging for real authentic fossils from millions of years ago. Identify, label, and keep all of the fossils you find! Students who have taken the summer course, Explorations in Science, should not take this class. Instructor: Gena Kashak. Entering grades 3-5.

Top Secret Invisible Messages

Did you ever want to write a top secret message to your friends? Join us to discover how that can be done! Explore the world of acids and bases and use that knowledge to create top secret invisible messages and the solution to make them appear before your very eyes. Instructor: Michele Zappel. Entering grades 4-5.

Video Game of Clue

You may have been clueless before but once you join this mystery class you will become one very smart detective! Learn the importance of observation, deductive thinking, as well as many fun sleuth tricks to help you solve various crimes. After you have collected all the facts, solve unique cases by determining who the criminals are and where they committed their crimes. To add to the challenge, you will secretly adopt the identity of one of the suspects. To win this game and be a successful detective you must discover: "Who done it?" and "who's who?" among your fellow game players! Instructor: Dottie Cloherly. Entering grades 5-7.

Water Works

Perform experiments to see how water works. What objects will sink or float? How does water climb? Join us as we learn about cohesion, extension, tension and displacement of water. How does the water cycle work? Discover the many amazing properties of water! Instructor: Cathy Gialloreto. Entering grades 2-3.

What's Up? Outer Space

Imagine what lies beyond planet Earth! Build your own model of a space shuttle to help you explore what lies in OUTER SPACE! Construct a simulated Moon surface and examine the complex nature of the Sun. Create a simple robot to travel to the places in space we cannot go ourselves! Instructor: Amanda Herold. Entering grades K-1.

Register online: www.cmu.edu/cmities

Registration Form

Steppingstones Classes, August 2009

Name of Student (First Name, M.I., Last Name)	Grade (entering K-9)	M/F	Date of Birth (mm/dd/yy)
Street Address	City	State	Zip
Name of Parent or Guardian	Home Phone	Work Phone	Cell Phone
School You Attend	School City	School District in Which You Reside	
Racial/Ethnic Group (optional) _____			
What type of school do you attend? (circle)	Public	Parochial	Independent
	Homeschooled	Charter	
How many Steppingstones Classes would you like to take? (circle one)	1	2	3
	4	5	6
Is a parent a CMU alumnus? (circle one)		Yes	No
Will you request a fee waiver (available to those on the free or reduced-cost lunch program)?		Yes	No
Have you participated in the C-MITES Elementary Student Talent Search by taking the EXPLORE Test?		Yes	No
To receive notices about upcoming C-MITES activities, list your email address _____			

Attention: Only students who have participated in the C-MITES Talent Search (EXPLORE testing) are on the regular mailing list for C-MITES programs and announcements. If you have not participated in the testing, list your email address above to receive notices about upcoming C-MITES classes.

Rank your choices (1, 2, 3...). Please note for yourself the names of the classes that you have requested.

Class	Grade	Time	Class	Grade	Time
Saturday, July 25, 2009			Sunday, August 2, 2009		
___ Buildings, Towers and Bridges, Oh My!	1-2	9A.M.-12P.M.	___ What's Up? Outer Space	K-1	1-4P.M.
___ Knights and Castles	2-3	9A.M.-12P.M.	___ Build-a-Book	1-2	1-4P.M.
___ Build a Robot	5-7	9A.M.-12P.M.	___ Water Works	2-3	1-4P.M.
___ Engineering 101	6-7	9A.M.-12P.M.	___ Online Virtual Stock Trading	4-6	1-4P.M.
___ Buildings, Towers and Bridges, Oh My!	1-2	1-4P.M.	___ Rock & Mineral Exploration	5-7	1-4P.M.
___ Knights and Castles	2-3	1-4P.M.	Monday, August 3, 2009		
___ Online Virtual Stock Trading	4-6	1-4P.M.	___ Physics Frenzy	1-3	9:15-4:15P.M.
___ Build a Robot	5-7	1-4P.M.	___ Growing Up Roman	3-4	9:15-4:15P.M.
___ Engineering 101	6-7	1-4P.M.	___ Pandemic: The Spread of Diseases	5-7	9:15-4:15P.M.
Tuesday, July 28, 2009			Wednesday, August 5, 2009		
___ Raging Rainforest	1-3	9:15-4:15P.M.	___ Pirate for a Day	2-4	9:15-4:15P.M.
___ Amazed by Aztecs & Intrigued by Incas	3-4	9:15-4:15P.M.	___ Electric Super Cars	5-6	9:15-4:15P.M.
___ The Chemistry and Analysis of Water	4-6	9:15-4:15P.M.	___ Microscopes and the 'See' of Life	5-7	9:15-4:15P.M.
___ GPS Systems: Pirates of Carnegie Mellon	7-9	9:15-4:15P.M.	Thursday, August 6, 2009		
Thursday, July 30, 2009			___ Physics Frenzy	1-3	9:15-4:15P.M.
___ Outrageous Oceans	1-3	9:15-4:15P.M.	___ Hovercrafts and Bottle Rockets	5-6	9:15-4:15P.M.
___ Ancient Chinese Secrets	3-5	9:15-4:15P.M.	___ Skeletal Remains and Fossil Dig	3-5	9:15-4:15P.M.
___ Hovercrafts and Bottle Rockets	5-6	9:15-4:15P.M.	Saturday, August 8, 2009		
___ Mini Math Olympiad	5-7	9:15-4:15P.M.	___ Ice Cream Science	1-3	9A.M.-12P.M.
___ DNA: The Sweet Code of Life	7-9	9:15-4:15P.M.	___ The Science of Sound	3-4	9A.M.-12P.M.
Saturday, August 1, 2009			___ Video Game of Clue	5-7	9A.M.-12P.M.
___ The Body Central	K-1	9A.M.-12P.M.	___ Neuroscience and the Learning Brain	6-8	9A.M.-12P.M.
___ Architecture: Columns & Caryatids	1-2	9A.M.-12P.M.	___ Ice Cream Science	1-3	1-4P.M.
___ Rolling Along	3-4	9A.M.-12P.M.	___ The Science of Sound	3-4	1-4P.M.
___ Top Secret Invisible Messages	4-5	9A.M.-12P.M.	___ Video Game of Clue	5-7	1-4P.M.
___ Design a Dragster	7-9	9A.M.-12P.M.	___ Neuroscience and the Learning Brain	6-8	1-4P.M.
___ The Body Central	K-1	1-4P.M.	Sunday, August 9, 2009		
___ Architecture: Columns & Caryatids	1-2	1-4P.M.	___ Eye on the Sky	K-1	1-4P.M.
___ Rolling Along	3-4	1-4P.M.	___ M&M Probability	1-2	1-4P.M.
___ Top Secret Invisible Messages	4-5	1-4P.M.	___ Digital Autobiography	3-5	1-4P.M.
___ Design a Dragster	7-9	1-4P.M.	___ Brain Games	4-6	1-4P.M.
			Sunday, September 13, 2009		
			___ RiverQuest	3-6	1-4P.M.

www.cmu.edu/cmities



C-MITES
Carnegie Mellon University
5136 Margaret Morrison St., MMP30
Pittsburgh, PA 15213
Tel: 412-268-1629
Fax: 412-268-1049



Non-Profit Org.
U.S. Postage
PAID
Pittsburgh, PA
Permit No. 251

Register online at: www.cmu.edu/cmities

OR

Return this page to:

C-MITES
Carnegie Mellon University
5136 Margaret Morrison St., MMP30
Pittsburgh, PA 15213

OR

Fax to:

(412) 268-1049



C-MITES
Carnegie Mellon

*Fun classes for
bright students
entering grades K – 9*

- **First-come, first-served**
- **No testing required**

Location:

Most classes will be held at Carnegie Mellon University. Directions will be sent with your acceptance notification.

Maps are also on our website - www.cmu.edu/cmities.

Cost:

\$57 for a half-day class.

\$99 for a full-day class.

Students on free or reduced-cost lunch pay:

\$10 for a half-day class (limit two) or

\$20 for a full-day class (limit one).

Proof of eligibility for a free or reduced-cost lunch program is required at the time of payment.

How to Register:

1. Online at www.cmu.edu/cmities. You will be notified of acceptance into a class by email.
2. Register by mailing or faxing the enclosed form. You will be notified of acceptance into class by mail.

Payment:

Once you have received the acceptance notification, either pay for the class or contact C-MITES to decline the class. If you have not paid by Friday, July 17th, you will be dropped from the class to make room for a student on the waiting list. If you must cancel after paying for the class, you will receive a refund, less a \$20 cancellation fee, if you cancel on or before July 17th. After that date, no refunds will be issued.

For more information, phone 412.268.1629 ext.1

Register online:

www.cmu.edu/cmities