2018 MOSAIC COURSES

(ALPHA LISTING)

Amazing Amusement (Bricks 4 Kidz, Coppell)
June & July: 4th-6th grades
Get your ticket to ride at Bricks 4 Kidz very own Amusement Park! Students will build a new ride each day, learning how to make things spin, roll, turn and rock. Then they will take what they have learned to design their own thrills and challenges. This fast paced fun STEM minicamp combines hands-on and program-based learning. Participants will collaborate to design, build and add challenges for their mini LEGO® Amusement Park that require 21st century skills such as problem solving, team work, creativity, critical thinking, communication and digital citizenship. Students will then learn to program the rides in the park using LEGO(r) WeDo 2.0 software and components.

Ceramics (Shannon Weaver, CMSN)
June and July: 4th-6th, 6th-8th grades
In this workshop students will explore the hand-building techniques of pinch, slab and coil with clay. They will make several projects during the week which can be picked up at a later date (will be announced during the class), once the kiln firing process has been completed. Students who wish to glaze or paint their projects will have an opportunity to do so at a later date to be announced in class. *Additional material fee – $20*

Chess (Dr Alexey Root, Senior Lecturer UTD, Author of *Prepare With Chess Strategy*)
June and July: 4th-8th grades (space is limited)
During each chess course, students in Grades 4-8 will learn or review the rules of chess, including castling, en passant, and pawn promotion. Students will also master basic checkmates, such as the two-rook checkmate. Students will read and write algebraic chess notation. Experienced chess players will help their classmates and will complete advanced chess problems. The last 30 minutes of class on Monday through Thursday is for tournament chess games. The last 45 minutes of class on Friday is for each student (and family helpers) to play against Dr. Root, a former U.S. Women's Chess Champion, in a simultaneous chess exhibition.

Chess-Advanced (Dr Alexey Root, Senior Lecturer UTD)
July: 4th-8th grades (space is limited)
For students entering grades 4-8 who previously took chess at MOSAIC from Dr. Alexey Root (author of *Prepare With Chess Strategy* and the 1989 U.S. Women's Chess Champion). Students who have a United States Chess Federation rating may also take "Chess-Advanced." Students will learn the famous endgame positions from Philidor and Lucena, as well as the outcome of king and pawn on the seventh rank versus king and queen. Students will learn standard chess openings such as the Ruy Lopez (Exchange

Variation). For the last 30 minutes each day, Monday through Friday, students will play notated chess games against one another.

"Chopped" - Nutritious Bites! (Samantha Cast, CMSE)
June and July: 4th-6th, 6th-8th grades
Do you like to pretend you are a famous chef? Do you like crazy creations? Are you interested in nutrition? In this workshop, students will learn about nutrition and create a snack everyday. They will learn basic cooking skills including mixing, following recipes, chopping ingredients, and more. At the end of the week, they will have the chance to create their own recipe with some 'special' ingredients! *Additional material fee – $15*

Coding isn't just for computer whizzes, says Mitch Resnick of MIT Media Lab — it's for everyone. If you learn to code, you can code to learn. Now some of the things you can learn are sort of obvious. You learn more about how computers work. But that's just where it starts. When you learn to code, it opens up for you to learn many other things. Now you can create new technologies! MOSAIC students learn and leave knowing (and using) the basics for a lifetime:

Scratch (UTD) June and July: 4th-5th grades Scratch is an enjoyable introduction to programming using your creativity. With Scratch, you can program your own interactive stories, games, and animations — and share your creations with others. Scratch helps young people learn to think creatively, reason systematically, and work collaboratively — essential skills for life in the 21st century. Scratch is a project of the Lifelong Kindergarten Group at the MIT Media Lab.

Drawing with Javascript (UTD) June: 5th-8th grades This workshop is perfect for students who have done a little bit of programming using Alice/Scratch/Robots, etc., but have not spent much time with C/C++/Java yet. This camp uses the Khan Academy JavaScript environment, which features a web-page with coding area and virtual canvas area for output. As you type the code, output appears/changes. This friendly environment comes with a powerful graphics library that minimizes coding effort.

Alice (UTD) June and July: 5th-8th grades This workshop is perfect for middle school students who have not done any programming so far. It uses drag and drop programming, which means there is no room for syntax errors! You can convert your idea to code quickly and see it in action! You can code 3D animations or games with ease. Alice comes with a powerful graphics library that minimizes coding effort.

Light Up Coding w Micro:bit (UTD) June: 4th-5th grades While instant drawing output keeps the students' enthusiasm, students will get used to dealing

with syntax errors in a friendly way. This workshop is perfect for students who have done little bit of programming using Alice/Scratch/Robots, etc., but have not spent much time with C/C++/Java yet.

Mobile App Development (WizeAcademy) June: 4th-6th, 6th-8th grades

Learn mobile app programming using MIT App Inventor. Build Android mobile apps and get your ideas published online. App Inventor allows the you to create real applications for Android devices. In this course students will learn:

- How to develop an idea to a Mobile app
- Use MIT App Inventor development tool
- Create Interfaces, look and feel of the app
- Implement animations and sounds

Classes are customized to age appropriate projects.

Interactive Programming in Python (WizeAcademy) July: 6th-8th grades

Python is a popular language and is widely used across multiple industries.This class is designed to help students with very little or no computing background learn the basics of building interactive applications using Python. At the end of this course a user should be able to:

- Understand Python expressions and statements User able to get the input data and manipulate it
- Understand simple and compound data types such as integers, floats, strings, lists, dictionaries, and tuples
- Implement structures such as if statements and loops
- Implement functions and call built-in Python functions
- Import and use library function modules from the Python library
- Implement useful and fun games/programs

Modding in Minecraft (WizeAcademy) July: 4th-6th grades

What better way is there for students to learn Computer Science than in the context of their favorite video game?

Students get to go beyond just playing Minecraft, they get to program it! They create mods in Minecraft by learning programming concepts and applying them to realize their ideas.

Learners start their modding journey using drag-and-drop blockly programming and then graduate to JavaScript. Once the mods are created these can be tested in a simulator and exported to private multiplayer Minecraft server.

Communicate with Confidence (Destiny Rose Murphy, SMU Student, TEDx Speaker)
June – 4th-6th grade and 6th-8th grades
Do you get nervous when you have to speak in front of the class? Do you trip over your words when you get excited or frustrated? Professional verbal communication is a skill that many people struggle with in this digital age, but it shouldn't be something that anyone fears. This class will teach students how to improve their own speaking habits even beyond the classroom. Students will self-identify opportunities for improvement and then be guided through the easiest ways to turn fidgeting and "um's" into eye contact and "therefore's." With a focus on filler words, body movements, eye contact, and speaking pace, this class will help every student to be a more confident communicator in the professional world and beyond.

Engineering of Flights, Kites, Airplanes, and Rockets (Dick Attaway - CMSE)
June and July: 4th-6th and 6th-8th grades
Curious about how things fly and beyond? Aerospace engineers begin with the ground…. You will be engaged in learning about things that take flight - Kites, Airplanes and Rockets. Experience flight in new ways - as an engineer, a pilot, and a designer! *Additional Material Fee - $20*

Fantastic Elastics (Dick Attaway - CMSE)
June and July: 4th-6th grades
Stretching your minds using Elastic Energy - Engineering focus on force and motion as learners investigate the use of elastic energy. The bulk elastic properties of a material determine how much it will compress under a given amount of external pressure. Learn about the ratio of the change in pressure to the fractional volume compression! You will investigate the impact of elastic properties and experience the concept of hyper physics. *Additional Material Fee - $10*

Future United Nation Builders! (Angela Barnes, CHS)
June and July: 4th-6th and 6th-8th grades
In September 2015, 193 world leaders agreed to 17 Global Goals for Sustainable Development. If these Goals are completed, it would mean an end to extreme poverty, inequality, and climate change by 2030. Through this course, learners will find the goal(s) they are most passionate about, and will be guided through designing a public

service campaign based on the UN's Goals for a Sustainable Future. Learners will deepen their connection with others globally by researching, developing their campaigns, and designing service-learning plans for schools to use in 2018-19 to make a difference in reaching the UN's target goals.

Instant Challenge (Mattie Oveross, UNT Grad Student)
June and July: 4th-6th grades
Quick! Use a plastic spoon, Index cards, rubber bands, and a paper cup to create a cat transportation device! Oh and you only have 3 minutes! This is just one example of an instant challenge you will be faced with this week. In this class, students will cultivate quick thinking, creativity, and leadership skills. Join us as we take on musical, engineering, acting, mathematical, and even physical challenges!

Journalism: Storytelling in the Digital Age (Chase Wofford, CHS)
June and July: 4th-6th, 6th-8th grades
Behind every person is a great story. It is your job as a journalist to find and tell this story. This week, participants will learn how to find a great story, interview your subjects and compose great content as a journalist. Just like a great handyman, today's journalists are able to utilize many tools. They can write a story, take photographs, film and edit video, post to social media, and package it all together for their audience. Participants will develop into 21st century journalists by learning how to do it all. With a smartphone, tablet or laptop, anybody can be a reporter, but not everybody can be a journalist!
Note: Students are encouraged to bring items such as laptops, cameras, tablets or smartphones if they have access to them. However, it is not required that students have any of these items for the workshop.

Memory Class (Christian Genco, SMU Graduate, Entrepreneur)
July: 6th-8th grades
Study less and get better grades! Learn simple, versatile techniques for rapidly memorizing numbers, dates, names, decks of cards, and vocabulary. Compete in daily memory challenges with the class, and track your progress to compete with yourself. An invaluable skill for high school, college, and grad school success.

Physician/Nurse Wanna Be's! (Marcia Moore, CMSW)
June and July: 6th-8th grades (Class size is limited to 8 students) Learn basics of first aid, understand CPR, and how to handle an emergency! Thinking about a career in the medical profession some day? Pediatrics? Nursing? Or do you just want to earn top money as an "expert" sitter? Safe Sitter® prepares young teens and pre-teens for the responsibility of nurturing and protecting children through hands-on training with medically-trained experts. Join us!
Book Fee - $20

Printing Explosion (Linka Behn, Denton Artist)
June & July: 4th-8th grades One of a kind, every time! Just like YOU!! During this week, we will explore making prints with unusual objects, using things we find on the grounds around the School. We will make our own stamps, cut our own stencils, and play with how colors work together. As we play, we will print in a booklet, make printed cards, and mat a couple of magnificent prints you make! At the end of the week, you will bring home all the stamps you make, your stencils as well as your own printing plate so that you can make more amazing things after the week is done… Click here and here for examples. *Additional Material Fee - $15*

Remote Control Mania (Bricks 4 Kidz, Coppell)
June & July: 4th-6th grades
Making it move is the name of the game at this exciting camp! Kids will love to see their creations in motion using LEGO(r) wireless remote controls. Each day, campers will use fascinating and challenging LEGO(r) components to create dynamic vehicles, inventions, machines and more. As they enjoy the fun of building, students will understand the basic working principles of many ingenious devices that are part of our everyday lives. Campers will also learn how to magnify, diminish and redirect force to move objects at different speeds and in different directions. Students will delve deeper with their designs by discovering and incorporating WeDO 2.0 programming to make their builds move. Students will challenge themselves and their team throughout this week of innovation.

Special Fx Makeup! (Jason Dixon, CHS Theatre Tech)
July: 6th-8th grades
Before computer generated special effects in the movies, make up artists and a whole team of people had to come up with ways to create all kinds of special effects on screen, such as fake mustaches, old age, bloody wounds, and more! Come learn some of the techniques of these make up wizards as we learn about age makeup, false facial hair, gaping wounds, and fake blood! Gross! Not recommended for those with a weak stomach, or for those with a latex allergy!
Additional Material Fee - $20

Survival of the Fittest (Mattie Oveross, UNT Grad Student)
June and July: 4th-6th grades
How can a camel go months without drinking water and why do Okapi smell using their feet? Learn the answers to these questions and more as we explore the animal kingdom! Our focus will be on adaptations and resiliency in this animal survival class! Each student will work to design their own animal species. At the end of the week, natural disasters will ensue and “predators” will be let loose. I hope your species is built to adapt as we take on this challenge of survival of the fittest!

TEAM Installation Art (Kristin Huckle, Pinkerton - Teacher of the Year)
July: 4th-6th grades
Building on the 21st Century skills of creativity, collaboration, and problem solving, artists will produce an exciting, large-scale installation inspired by artists like Yayoi Kusama, Sandy Skoglund and Felix Gonzales-Torres. Artists will produce works of art individually and assemble work to create a collaborative installation. Come put your heads together and see what we can achieve when we combine our artistic talents!

Upcycled/Reclaimed Jewelry DIY (Linka Behn, Denton Artist)
June and July: 4th-8th grades
Like one-of-a-kind jewelry? How about Green/recyling crafts? What if we combine both into a week long make-a-thon of bling+fun? Yep! We can do that! Let's take things most people throw away, bits of this and bit of that and make some FAB things to wear! Crayon, bits of paper, stuff from the garage…all transformed with your imagination into something fun and original to wear or a gift to someone special. Come on and join us for a week of making and BIG creating! Click here for examples.
Additional Material Fee - $15

Web Development. (Christian Genco, SMU Graduate, Entrepreneur)
July: 6th-8th grades (beginner to advanced) Use HTML, CSS, and Javascript to create dynamic interactive web services backed by databases. Learn the basics of creating a web page up to turning your ideas into working web and mobile apps like Snapchat, Twitter, and Facebook. Basic knowledge of HTML, CSS, and Javascript (which can be learned in the free KhanAcademy.org "HTML/CSS" and "Intro to JS" courses) will help you make the most of this self-paced class.

Writing Studio (Diane Ramsay, Media Center and Writing Educator)
July: 4th-6th, 6th-8th grades Writing Studio uses technology to inspire, explore, create, and publish writing. Inspiration often comes from moments that affect student senses: what they have seen or what they have heard. We will use powerful video clips to start the engines. We will Explore the story behind an image and engages their imaginations. Students will create several pieces of writing from different "jumping off" platforms and will transform those pieces with the magic of technology. We will create art with words and manipulate technology to present it at its finest.