STEAM Academy

Modular Curriculum

Classroom Body Stretch - Non-strenuous arm and leg stretching activities before sitting at the computers.

Activity Title - Description of the activity and some of the key concepts to touch on (In,Here, We, Show, Which, Skills, Are, Emphasized, By, Each, Lesson)

Each Activity on the Computer is followed by (Referred to as Supplemental Session):
A Game or Challenge - related to the Team (not necessarily the subject of that day). They can be individual or group challenges.

What Are Those?!?! - a talk about something that is influential, unknown or just plain ridiculous (Not necessarily about the team's subject matter)

In-Tech - Conversation with a innovator of any field.

Orientation

What is STEAM Academy? (Presentation + Questions)

What Are Thooose?!

Computers + Binary - Learn How Computers Talk + The basics of what a computer is and its internals

Color + Pixels - Showing the basic units for representing color and the theory of color

Operating Systems - Looking at the piece that brings the computer and the user together

The Internet + Websites - How The internet and browsers pull websites

Memory + Hard Drives - Looking at how computers handle instructions Money and its value - Jump from computers to money management Investors - Learn how people can buy into businesses
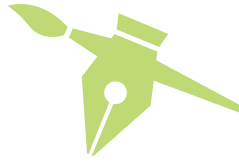
Intro Day

What is it? How does it shape your world? Examples. Why Become a _____?

Graphic Design

(**Color, Symmetry, Balance, Spacing, White Space, Contrast, Lines, Texture, Repetition, Flat design, 3D design, Shadowing, Depth, Innovation, Pen Tool, Font, Modification, Alignment, Proximity, Light Effects, Blur Effects**)

Bat signal - Create Batman's signal
(**Symmetry, Contrast, Flat design, 3D design, Shadowing, Pen Tool, Light Effects, Blur Effects**)

Shadow Letters - Create a Text/Title and add shadowing various ways
(**Color, Contrast, Flat design, 3D design, Shadowing, Depth, Innovation, Font, Modification, Alignment, Proximity, Light Effects**)

Make a Meme - Create more contributions to the Environmental Memes
(**Color, Symmetry, Balance, Spacing, White Space, Contrast, Font, Modification, Alignment, Proximity**)

Pixel Me - Create a Pixelated version of yourself (8-Bit)
(**Color, Symmetry, Balance, Contrast, Flat design, Innovation, Modification, Alignment**)

Pixel Heroes - Create a Pixelated version of your Hero
(**Color, Symmetry, Balance, Contrast, Flat design, Innovation, Modification, Alignment**)

Paint Job - Change the color of a real-life version of a vehicle
(**Color, Contrast, Lines, Texture, Repetition, 3D design, Shadowing, Depth, Innovation, Pen Tool, Modification**)

Promo for Client - A few images of the pupil in various scenarios, with their name flashing up after

(TEAM Merger - Animation) (**Color, Symmetry, Balance, Spacing, White Space, Contrast, Lines, Texture, Repetition, Shadowing, Innovation, Font, Modification, Alignment, Proximity, Light Effects, Blur Effects**)

You Look Cool - Choose a picture of yourself, choose a background, and we make it cooler (**Color, Symmetry, Balance, Spacing, White Space, Contrast, Texture, Repetition, Innovation, Modification, Alignment, Proximity, Light Effects, Blur Effects**)

Too Real - Use a real image and trace using the pen tool. If there is time, modify image with image trace
(**Color, Balance, Contrast, Texture, Shadowing, Depth, Innovation, Pen Tool, Modification, Proximity, Light Effects, Blur Effects**)

Website for the Client

(TEAM Merger Web Dev) (**Color, Symmetry, Balance, Spacing, White Space, Contrast, Lines, Texture, Repetition, Flat design, 3D design, Innovation, Font, Modification, Alignment, Proximity**)

Your Logo - Create a Logo to represent you
(**Color, Symmetry, Balance, Spacing, White Space, Contrast, Lines, Texture, Repetition, Flat design, 3D design, Shadowing, Depth, Innovation, Pen Tool, Font, Modification, Alignment, Proximity, Light Effects, Blur Effects**)

Your Business Card - If you could create one business for yourself, create the card that goes with it!
(**Color, Symmetry, Balance, Spacing, White Space, Contrast, Lines, Texture, Repetition, Flat design, 3D design, Shadowing, Depth, Innovation, Pen Tool, Font, Modification, Alignment, Proximity**)

Create the Night Sky - Make a gradient mesh sky, add constellations and planetary objects (**Color, Balance, Contrast, Texture, Innovation, Pen Tool, Modification, Light Effects, Blur Effects**) (Team Merger)

Your App Design - Create three screens of an app, we choose one use for the app (possibly the weather/flight app)
(**Color, Symmetry, Balance, Spacing, White Space, Contrast, Lines, Texture, Repetition, Flat design, 3D design, Shadowing, Depth, Innovation, Pen Tool, Font, Modification, Alignment, Proximity, Light Effects, Blur Effects**)

Animation and Motion Graphics

(**Keyframe, Trajectory, Speed, Intricacy, Masking, Timing, Flow, Realism, Surrealism, Easy Ease In and Out, Stretching, Contracting, Anticipation, Slow in and Slow out, Arc, Client Work**)

Making the Basics for Animation - We teach the basics of AI and PS which can be used in After Effects
(**Keyframe, Trajectory, Speed, Intricacy, Masking, Timing, Flow, Realism, Surrealism, Easy Ease In and Out, Stretching, Contracting, Anticipation, Slow in and Slow out, Arc**)

Animated Bat Signal - Animate the Bat Signal popping up in the sky, lighting up (**Keyframe, Trajectory, Timing, Surrealism, Easy Ease In and Out, Anticipation, Arc**)

Secret Message - Animate a message popping up, and then animate a more complicated version of it
(**Keyframe, Speed, Intricacy, Timing, Contracting, Anticipation**)

Bounce Ball - Create a (possibly 3D) ball bouncing on a page
(**Keyframe, Trajectory, Speed, Timing, Realism, Easy Ease In and Out, Stretching, Contracting, Slow in and Slow out**)

Pixel Move - Move around either your pixelated self or the hero (**Keyframe, Trajectory, Speed, Intricacy, Anticipation, Slow in and Slow out**)

Pong - Animate a quick round of Pong (**Keyframe, Trajectory, Speed, Timing**)

Self Promo - A few images of the pupil in various scenarios, with their name flashing up after (TEAM Merger - Graphic Design) (**Keyframe, Intricacy, Timing, Surrealism, Anticipation**)

Street Fighter - Animate a few hits with Pixelated Street fighter characters (Keyframe, Trajectory, Speed, Intricacy, Timing, Flow, Surrealism, Easy Ease In and Out, Stretching, Contracting, Anticipation, Slow in and Slow out, Arc) Zombie Crash - Create a league of Zombies which will be used in a video game (TEAM Merger Web Dev) (**Keyframe, Trajectory, Speed, Intricacy, Timing, Flow, Realism, Easy Ease In and Out, Stretching, Contracting, Anticipation**)

Animate the Night Sky - Create twinkling stars and glowing planetary objects (**Keyframe, Intricacy, Masking, Timing, Flow, Realism, Surrealism**)

Accurate Camera Lens - Focus and blur an image viewed through a lens (**Keyframe, Speed, Intricacy, Masking, Timing, Flow, Realism**)

The App - Animate buttons being pressed and changed screens with your app design (**Keyframe, Speed, Intricacy, Masking, Timing, Realism**)

Cinemagraph - We provide video, they select frames and create a gif of a portion of the still of the video
(**Keyframe, Intricacy, Masking, Timing, Surrealism**)

Software Development

(**Syntax, Xcode, UIKit Animation,Core Animation, Persistence, GameKit, Logic, Core Data, REST, HTTP Verbs, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, OOP, Libraries**)

Hello World! - Your first app saying hello to the world: Students create their first xcode project which displays hello world in whichever color and font they select. This gives an intro to xcode and dealing with strings.
(**Syntax, Xcode, Memory, Algorithms, Design**)

Complex made Simple - Take some complex math problems and make them simple using code:
Students create a calculator using xcode to see how problems they struggle with in school can be simplified using code (**Syntax, Xcode, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Architecture, Encapsulation, Memory, Algorithms, Design, OOP**)

Think Logic (1-4) - Using Conditionals and Recursion to make sense of problems:
Students play with recursion in a series of themed projects which teach them how conditionals, loops and recursion work. This will also begin the conversation about OOP and Objects.
(**Syntax, Xcode, Logic, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, OOP**)

Changing Things - Moving objects and Transforming sizes:
Students create their very own User Interface for the first time and move objects, alter their appearance, all through code.
(**Syntax, Xcode, UIKit Animation, Core Animation,Command Line/ Console,Methods,Calculation, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, OOP, Libraries**)

Using Tools - Using all the objects in UIKit: Students play with the UIKit to see everything it can do with UI Objects and how this can make app development easier. We then make an app using what we've learned
(**Syntax, Xcode, UIKit Animation,Core Animation, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Flow Control, Architecture, Encapsulation, Memory, Algorithms, Design, OOP, Libraries**)

Your First Game - Zombie Crash Students create their first game which uses everything they've learned from the previous lessons and makes a game which pits Swords vs. Zombies. (**Syntax, Xcode, UIKit Animation,Core Animation, Persistence, GameKit, Logic, Core Data, REST, HTTP Verbs, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, OOP, Libraries**)

Memory Man (1-4) - Persistent memory with fun games:
Students get thrown into the world persistent data by learning about different ways you can create saved data in Mobile Apps.
(**Syntax, Xcode, UIKit Animation,Core Animation, Persistence, GameKit, Logic, Core Data, REST, HTTP Verbs, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, OOP, Libraries**)

Web Development

(**Syntax, HTML, CSS, JS, Animation,SVG, Persistence, Logic, REST, HTTP Verbs, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

Let's Make a Website - Make your first beautiful website Student learn the basics of website design by adding images to a website template and making their own websites. They learn the basics of HTML and get introduced to basic CSS
(**Syntax, HTML,Strings/Literals, Architecture**)

Style it Up (1-2) - Learn about CSS:The students learn to style their websites using CSS (**Syntax, HTML, CSS, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Architecture, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

Your Profile - Make Your Own Social Media Page: The students create simple social media profiles using the CSS they just gained.
(**Syntax, HTML, CSS, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Architecture, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

About Me - Boost Your Profile Page: Add More Details and Style to your page
(**Syntax, HTML, CSS, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Architecture, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

Style it up (3-4) - Learn about more about CSS: Students take a group of html pages and make them better using CSS
(**Syntax, HTML, CSS, Strings/Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Architecture, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

You Got the Juice - Making a website for your favorite juice: Students make their own version of a website for their favorite juice
(**Syntax, HTML, CSS, JS, Animation,SVG, Persistence, Logic, REST, HTTP Verbs, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

Shake it Up - You Got the Juice Pt 2: Add javascript/CSS/HTML to make the juice shake and add other effects which increase the user experience
(**Syntax, HTML, CSS, JS, Animation,SVG, Persistence, Logic, REST, HTTP Verbs, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

SVG Me! - Use SVG parts in scaling websites: Pull Parts together to animate them for the student's site
(**Syntax, HTML, CSS, JS, Animation,SVG, Persistence, Logic, REST, HTTP Verbs, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

Build Around This - Using A Template to make a site! : Students take HTML templates and build styles around them in order to make unique websites and create a beginner's portfolio (**Syntax, HTML, CSS, JS, Animation,SVG, Persistence, Logic, REST, HTTP Verbs, Strings/ Literals,Command Line/ Console,Methods,Calculation, Number Formatting, Recursion, Flow Control,**

Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries)

Your Own Website - Make a website about your favorite thing! (TEAM Merger): Students create a website from scratch about their favorite idea (**Syntax, HTML, CSS, JS, Animation,SVG, Persistence, Logic, REST, HTTP Verbs, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

Frame it! (1-2)

Paint it!(1-2)

Build it!(1-2)

Think Database (1-4) Learn about Web techniques for Persistence and REST (**Syntax, HTML, CSS, JS, Animation,SVG, Persistence, Logic, REST, HTTP Verbs, Strings/ Literals,Command Line/Console,Methods,Calculation, Number Formatting, Recursion, Flow Control, Conditionals, Architecture, Encapsulation, Memory, Algorithms, Design, DOM, OOP, Responsive, Adaptive, Libraries**)

Entrepreneurship (Supplemental Lesson)

(**Teamwork, Delegation, Public Speaking, Pitching, Presentation Building, Tech Writing, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation,Personal Growth**)

***3 Students have a minute to pitch everyday!
(**Public Speaking, Pitching, Presentation Building,Charisma,Planning,Fulfilling A Need,Optimization, Management, Team Building, Business Planning, Marketing**)

Which one are you? - We'll figure out what type of Entrepreneur you are! We'll look into the psychology of engineers and figure out which personality traits the students share with them in order to uncover the first layer of the type of entrepreneur you are.
(**Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Talent Acquisition**)

The Biology of the Entrepreneur - What about you makes you an Entrepreneur We jump away from the examples of other entrepreneurs and look at what goes into a business and how you have already been an entrepreneur in your life.
(**Delegation, Public Speaking, Pitching, Presentation Building, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance**)

Learning to Learn - Tap into your brain and become smarter than you ever thought possible Entrepreneurs are considered some of the best learners. Students learn how to learn from mentors, the internet and how to figure out which information is useful.
(**Personal Growth, Teamwork, Delegation, Public Speaking, Focus, Business**

Development, Charisma, Motivating, Business Planning, Brainstorming, Organization, Finance,Implementation)

Ideas vs Business - How to turn your business ideas into business or businesses Now that students have collected information, learn how to turn all of your amazing ideas into amazing businesses
(**Teamwork, Delegation, Public Speaking, Pitching, Presentation Building, Tech Writing, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation**)

Speaking w/ Passion - Convince anyone to join your company by speaking from the heart We focus on pitching strategy and describing your business.
(**Public Speaking, Pitching, Presentation Building, Tech Writing, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance**)

Starting Your Business - Best way to learn starting your business is to learn from people doing it. We spend quite a few classes taking a real business and trying to start it using everything we've learned. We create and emphasis on marketing, SEO, business plans, team creation and many other skills.

(**Teamwork, Delegation, Public Speaking, Pitching, Presentation Building, Tech Writing, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation**)

Finding Talent - Have an eye for the talent around you and build a team that can help Once we have the ideas, we pull talent from other groups and allow them to form their first full start-up team.
(**Teamwork, Delegation, Public Speaking, Pitching, Presentation Building, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation**)

Funding -Straight from the mouth of a venture capitalist
We we allow the kids to stand in front of real venture capitalist and pitch so they can refine their business and make their thoughts become things!
(**Teamwork, Public Speaking, Pitching, Presentation Building, Tech Writing, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation**)

Partnerships - Find out which companies would help you in your mission to start your business! (**Teamwork, Delegation, Public Speaking, Pitching, Presentation Building, Tech Writing, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation**)

Organize + Innovate - We take all the advice we accumulate and create a solid version of our business model and create a real business with the rest of the year.
(**Teamwork, Delegation, Public Speaking, Pitching, Presentation Building, Tech Writing, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation**)

Build it! (1-5)
(**Teamwork, Delegation, Public Speaking, Pitching, Presentation Building, Tech Writing, Focus, Business Development, Charisma, Motivating, Business Planning, Brainstorming, Fulfilling A Need, Organization, Finance, Talent Acquisition, Partnering, Implementation**)