



STEM to STEAM  
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Science | Technology | Engineering | [+ART] | Mathematics

**K-12 & ADULTS**  
EDUCATION

*Leagues of Learning*  
*Esports in Education, The New Norm*



**eSports Education**

Commissioned by Mufasa Esports Gaming STEM 2 STEAM Education  
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## *Introduction*

Video games, as with all gaming, have almost always included a competitive element, even in the earliest video games such as Pong.\* However, it wasn't until the early 2000s that technological innovations provided the environment for esports to thrive. Broadband Internet allowed gamers to join multi-player competitions, first through local-area network connections (a LAN party) and later through wireless ones.

Gaming consoles like Xbox,\* PlayStation,\* and Nintendo\* created their own online networks to keep pace. Streaming services like Twitch\* and YouTube\* popularized watching others play video games. Additionally, a host of new games, such as StarCraft,\* FIFA,\* and Counter-Strike,\* and game types, including first-person shooter and multi-player online battle arena, capitalized on the vastly improved power, performance, and graphics of modern computing. While still rapidly evolving, the esports industry is now mature enough to include niches for almost anyone with any affinity toward gaming, no matter their age, interest, or level of enthusiasm.

With this rise in popularity has also come a rise in the professionalization of gaming. Professional esports competitors routinely earn thousands of dollars, and the largest competitions can have purses totaling in the millions. And, it is estimated that in 2019, nearly half a billion people will watch esports online or at a competition, which is more than just about any other professional sport.

It's no surprise, then, that this popularity has trickled down first to colleges and universities, and now to K-12 schools. Many high schools adopt a gradual approach to implementing an esports program. We will start by providing a space for students to bring in their own gaming consoles and compete against one another after school. As our esports programs become more competitive, the natural next step is moving to PC-based gaming, which allows for more powerful cross-platform competition.

Purchasing for esports programs is different than for other education technology. With esports, system performance can often correlate directly to a player's performance in a game. As a result, purchasing tends to be more modular. Instead of purchasing all new devices, we shall begin with a powerful Intel® Core™ i5, i7, or i9 device, and then upgrade the graphics card or add more memory over time.

This guide will help educators and leaders begin to understand the esports movement and how they can leverage the excitement and engagement that have fueled the growth of this industry over the past few years. It will do this by reviewing four areas: (1) what esports are (2) what the benefits of esports are for K-12 education (3) how to start an esports program, and (4) what type of hardware is required for an esports program.



## Introduction to Esports

### Types of Video Games



**Multi-player:** In the early years of competitive gaming, individuals played games like Space Invaders\* to see who could get the highest score. Today, players compete against others in real time.



**Online:** An Internet connection allows players to compete against opponents in the same room or on the other side of the globe. The Internet also allows esports competitions to be streamed through services like Twitch for live online viewing.



**Competitive:** Esports is the competitive arm of the gaming industry. As opposed to the casual gamer who plays for fun, esports players compete. At the professional level, gamers compete for large cash prizes and global rankings, while at the high school level, players record wins for their schools.



**Team-based:** Esports players compete as part of a team. While players may compete as individuals, they are doing so on behalf of their team.

Esports are multi-player, online video games played competitively as part of a team.



### What Are Esports?

The first step to considering the role of esports in education is a definition that works for schools and students: *Esports are multi-player, online video games played competitively as part of a team.*

Although some esports are console-based (e.g., Xbox or PlayStation), the majority of K-12 schools are using laptops and desktops in a computer lab or lab-like setting. As a result, most of the games and leagues discussed in this paper can be played on a Microsoft\* Windows\*-based PCs. This also allows schools to invest in equipment that can be used for other purposes, such as a computer lab during the day, and dictates what games can and cannot be played as part of the school's team. For example, if Xbox or Nintendo Switch\* is the only gaming console that will host a game, the school will likely not take part in the game. If the game is cross-console, however, it is eligible for PC play.

There is also the argument that esports are not true sports. This argument is similar to the debate over which sports should and should not be included in the Olympic Games. For example, is cheer-leading a sport? Is dance a sport? Is the World Series of Poker a "sporting event"?

To be clear, esports do not necessarily require the physical exertion of many traditional sports. However, esports do require competitors to perfect their game. Similar to other quintessential high school extracurricular activities, such as debate or Model UN, esports require dedication, practice and, in many cases, a certain innate skill. Esports also include the same team requirements as traditional sports. Being part of a strong team requires effective planning,

communication, and decision-making skills. Most importantly, esports, like traditional sports, are competitive, allowing the best gamers to rise to the top.

And although some may still hesitate to consider esports a true sport, it's impossible to ignore esports' meteoric rise in popularity around the globe. In 2021, an estimated 553.8 million viewers will tune in to esports competitions, up 15% from 2020. And where there are viewers, there is money. Revenue from sponsorships (media, advertising, and more) will total 1.8 billion in 2022. If this pace continues, by 2025, esports will be a 2.5 billion dollar market!<sup>1</sup> The mainstream sports industry is beginning to take notice as well. ESPN now maintains an esports page filled with the latest news and league results.<sup>2</sup> And, organizers of the Olympic Games have even considered including esports as a demonstration sport at the 2024 Paris Games.<sup>3</sup>

<sup>1</sup> Source: <https://newzoo.com/insights/articles/newzoo-global-esports-economy-will-top-1-billion-for-the-first-time-in-2019/>

<sup>2</sup> Source: <https://www.espn.com/esports/>

<sup>3</sup> Source: <https://www.bbc.com/sport/olympics/46495396>

### Esport Revenue Predictions from Media and Advertising Sponsorships

In 2021, an estimated 553.8 million viewers will tune in to esports competitions, up 15% from 2020. And where there are viewers, there is money.



## What Are the Types of Esports?

A search for ball sports on Wikipedia yields a long list, from baseball to tennis. Similarly, esports encompasses a wide variety of competitive games.

### Sports Games

Sports video games parallel their real-world alternatives. Games like FIFA let gamers take on the roles of their favorite soccer players in their favorite clubs. Another sports game popular with many high school esports teams is Rocket League,\* a fantastical game that crosses cars and soccer. The team-based element and generally tame content make sports games ideal for new high school clubs and teams.



Released in 2015 by Psyonix, this popular video game crosses cars and soccer in 3 versus 3 competition. Many high schools choose *Rocket League* for their game of choice, because it captures the interest of their students and the content is rated E for Everyone.

### Fighting Games

In this type of esports, a limited number of players (frequently two) fight in a contained space. Different characters have different strengths and different abilities. Like a boxing match, the game takes place over a period of rounds until time expires or one player is defeated. Many fighting games, including *Street Fighter*\* and *Mortal Kombat*\*, have found a role in esports. Some consider these two games to be too violent for the high school environment. More appropriate games, like *Super Smash Bros.*\*, are only available on gaming consoles, however, not PCs.

### Real-Time Strategy (RTS) Games

Real-time strategy games are not turn-based; players compete simultaneously and games progress in real time. Players often build, position, and maintain structures and characters, called units. Players gather resources, build bases, and develop technology with the goal of taking over or destroying their opponents' units. RTS games popular with esports leagues include *StarCraft II*\* and *Age of Empires*.\*

### First-Person Shooter (FPS) Games

First-person shooter games are weapon-based games that place the player inside the body of a character. The player, seeing the world through the eyes of a character, tries to eliminate an enemy. First popularized with games like *Doom*\* and *Halo*\*, multi-player versions of FPS games have become popular in esports. While the realistic violence in games like *Call of Duty*\* and *Counter Strike: Global Offensive*\* make many FPS games inaccessible to high school esports teams, other games like *Overwatch*\* (see below) are finding a niche in high school and collegiate esports environments. It's important to note that other game types, like *Battle Royale* and multi-player Online Arena (both discussed below), may have first-person shooter elements.



In *Overwatch*, an FPS game from Blizzard Entertainment, players work together in teams of six to secure and control their territory and transport a "payload" to another part of the map. Players can choose from 31 different characters, each with unique abilities. Released in 2016, *Overwatch* currently has over 40 million players worldwide.<sup>4</sup> Blizzard operates Overwatch League, a competitive league of 20 professional teams, from an esports arena in Los Angeles. The communication and teamwork involved, as well as the relatively obscured violence, make *Overwatch* a popular high school esports game as well.

<sup>4</sup> Source: <https://www.pcgamer.com/overwatch-has-more-than-40-million-players/>

### Multi-player Online Battle Arena (MOBA) Games

Multi-player online battle arena games are a sub-genre of RTS games. Teams try to destroy the opposing team's structure or base and eliminate their adversaries, whether other player- or computer-controlled. *League of Legends*\*, *Dota 2*\*, and *Smite*\* are currently three of the most popular MOBA games. *League of Legends*, from the developer Riot Games, is one of the most-watched games on streaming services like Twitch and is finding a role in high school esports programs.



*League of Legends*, commonly referred to as *LoL*, is one of the more popular MOBA games, with an estimated 100 million monthly players worldwide.<sup>5</sup> In the game, players compete in squads of five to capture the opposing team's base structure, called a Nexus. Each character has different strengths and roles, and teamwork and communication are key to becoming a winning squad. Riot Games, the developer of *LoL*, organizes the Championship Series, during which ten professional teams located in Los Angeles and Berlin compete for prizes in the millions of dollars.

### Battle Royale Games

In Battle Royale games, players gather resources and compete to be the last player (or group of players) remaining. Unlike in MOBA games, the map in Battle Royale games gradually gets smaller, meaning players are forced to interact with each other as the number of living players dwindles. Currently, *Fortnite*\* is the most talked-about Battle Royale (and is also an FPS game). Although the violence is cartoonish, many parents object to the amount of violence, the sexualized depiction of female characters, as well as the addictiveness of the game and its freemium model. *Fortnite*'s role in the esports scene can not be ignored,

<sup>5</sup> Source: <https://www.forbes.com/sites/insertcoin/2016/09/13/riot-games-reveals-league-of-legends-has-100-million-monthly-players/#1fc035a15aa8>

but many high school esports teams are choosing not to use it as a competitive platform due to its negative stigma.

## How is Competition Organized?

At the professional level, gamers compete in leagues and tournaments all over the world. The competitions, mostly organized by the game developers themselves, are broadcast to global audiences via Twitch\* and other streaming services. Teams compete for lucrative prize money and sponsorships.

To date, the National Collegiate Athletic Association (NCAA) has been reticent to recognize esports, citing concerns about violence and misogynistic themes.<sup>6</sup> However, noticing the interest of their students as well as the potential for future careers, more and more colleges and universities are forming esports clubs and teams on their own. Starting from just one program at Robert Morris University Illinois in 2014, collegiate esports programs now number in the hundreds. Many are actively recruiting athletes and offering millions of dollars in scholarship money, and some are even creating degrees in esports.<sup>7</sup> Over 90% of collegiate esports programs have joined the National Association of Collegiate Esports (NACE). However, other leagues, like Collegiate Starleague (CSL), Tespa, and Electronic Gaming Federation (EGF) are also competing in the space. Even game developers are jumping into the mix. Riot Games launched its own governing body, the Riot Scholastic Association of America (RSAA) in May 2019.<sup>8</sup> Because esports at the college level remains largely unregulated, teams frequently join more than one league.

Early adopters are forming high school esports clubs and teams across the country. Similar to the collegiate landscape, high schools have a plethora of options when it comes to selecting a league. Most leagues promote themselves as turnkey solutions, and not

<sup>6</sup> Source: <https://www.apnews.com/1cd02c47b7004823a8a41f84090465f0>

<sup>7</sup> Source: <https://www.insidehighered.com/news/2019/02/12/new-frontier-college-athletics-video-games>

<sup>8</sup> Source: <https://esportsinsider.com/2019/05/riot-games-announces-governing-body-for-collegiate-lol/>

only organize the leagues and tournaments, but also provide solutions and consulting to help high schools get their programs up and running. Below is a short list of the most popular esports league options for high schools.



High School  
Esports League

### High School Esports League (HSEL)

HSEL touts itself as “the largest and longest-running competitive gaming organization” for after-school activities.<sup>9</sup> In addition to offering resources including Getting Started guides and one-on-one consultation to help schools navigate the process of organizing a team, HSEL organizes a fall and winter league for its over 1,500 schools. HSEL’s mission promotes the academic benefits of esports in high schools and offers an in-school curriculum. HSEL also partners with gaming hardware manufacturer to sell “equipment bundles” of esports gaming stations..



### PlayVS

In the summer of 2018, the National Federation of State High School Associations (NFHS), the organization that sets the official rules for many high school sports, officially sanctioned esports as a high school sport.<sup>10</sup> NFHS formed a partnership with PlayVS, and at least 15 separate states have signed on. After schools sign up and pay the \$17 annual fee per student, PlayVS helps teams get started and organizes league play.

<sup>9</sup> Source: <https://www.highschoolsportsleague.com/>

<sup>10</sup> Source: <https://www.nfhs.org/sports-resource-content/esports/>



### North American Scholastic Esports Federation (NASEF)

Unlike many of its competitors, NASEF is a nonprofit organization. Partnering with the flourishing UC Irvine collegiate program, NASEF is particularly popular in California school districts like Orange County. Their mission focuses on equity and the career skills of esports: “To provide opportunities for ALL students to use esports as a platform to acquire critical communication, collaboration, and problem-solving skills needed to thrive in work and in life.” To support their mission, NASEF provides a free English Language Arts (ELA) and Career Technical Education (CTE) curriculum.



### Electronic Gaming Federation (EGF)

EGF is focused on organizing interscholastic varsity esports leagues at both the collegiate and high school levels. It also offers media production services to help “showcase leagues to a global audience through the production of live match broadcasts, original content, and event production.”<sup>11</sup>

<sup>11</sup> Source: <http://egfederation.com/media/>



### Legacy Esports

Legacy Esports is another option that targets athletic associations as opposed to individual schools. It partners with athletic associations “to create custom league and tournament plans that focus on engaging, inclusive and community-oriented gameplay.”<sup>12</sup>

Similar to the collegiate landscape, there is no single league high schools should join. High schools have to decide whether they will join a national organization like HSEL or NASEF or follow the league adopted by their local athletic association. The good news is, in this decentralized landscape, schools are free to choose the league (or leagues) that work best for their program goals.

<sup>12</sup> Source: <https://legaciesports.com/legacy-esports-faq/>





## National High School Esports

### Championship

EGF recently partnered with Disney to launch the first-ever national high school esports championship. The event, which features the most competitive high school teams, will be held at the ESPN Wide World of Sports Complex at Walt Disney World Resort. This site also hosts other high-profile championships, including Amateur Athletic Union (AAU) championships in basketball, volleyball, and gymnastics.

“We share the core belief with Disney that well-organized and managed esports competitions can have a positive and beneficial impact on students, parents and schools. The opportunity to work with Disney, a global leader, known for its responsible approach in everything it does, is not only in line with our values, but represents a unique opportunity for the increased growth of esports.”

—Tyler Schrod, CEO of EGF

## Who’s Involved in Esports?

Think about a traditional sport like basketball. Obviously, the players on the court are key, but many more people are involved, including the coaches and extra players on the bench, as well as the spectators in the stands. There are also video crews and producers, announcers, and even more fans watching at home. Like these traditional sports, esports also support a large ecosystem of involved citizens. For high schools, this is an exciting way to form a new community, and is opening a door to a wide variety of new career opportunities for students who enjoy esports.

Figure 1<sup>13</sup> shows the maturity of the ecosystem at the professional level and highlights just some of the possible career paths for high school students preparing for a future economy. Esports fosters careers that include journalists, shout-casters (esports announcers), game developers, streamers, advertisers, social media managers, coaches, analysts, and more.



Figure 1: The esports ecosystem and learning opportunities for students





## The Impact of Esports in Education



Figure 2: HSEL reports over 1,500 schools participating in their league as of summer 2019.<sup>14</sup>

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**WAYS HIGH SCHOOL STUDENTS BENEFIT FROM ESPORTS**

- GAIN COLLEGE SKILLS**  
Like many high school clubs and sports, esports helps students learn valuable skills that will serve them well throughout their life. Among the skills developed through esports are: strategic thinking, teamwork, collaboration, goal setting, preparation, and managing success.
- EXPAND CAREER OPS**  
Esports is a fast-growing industry that offers many job opportunities including careers related to production, programming, streaming, management of esports teams, game development, graphic design, marketing, video production, and even STEM fields.
- PATHWAY TO COLLEGE**  
Scholarships to help students pay for a college are a top prize. Because of this, esports at the high school level can motivate previously uninterested students to continue on to higher education.
- IMPROVE RETENTION**  
A host of research shows that students who compete in high school activities do better in school. This includes higher grades, higher achievement test scores, and higher education expectations beyond high school.
- HEALTHIER BEHAVIORS**  
Students who participate in after school activities smoke less and eat in a healthier way. After school participants -- like members of your esports team -- are likely to do more homework and less drinking, drugs and other harmful behaviors.
- SOCIAL DEVELOPMENT**  
Competitive esports provides a way for like-minded students to meet in person on a regular basis, in pursuit of common goals - providing a sense of belonging for those who might otherwise opt out of school activities.
- BENEFITS FOR SCHOOL**  
When students do well, schools do well. High schools that support esports during its early days are likely to receive positive media exposure from the community and even nationally. An esports team can also bring in new sources of revenue for a school from sponsors and advertising.

### A Growing Trend in K-12

Esports in high school is undeniably a big business and growing trend worldwide. This new popularity suggests that esports may soon become as mainstream as high school football or baseball, since competitive gaming is now a varsity sport in high schools across the United States. As of June 2019, NASEF reported 260 clubs in 27 US states and three Canadian provinces, with more than 3,000 students participating.

Outside the United States and Canada, high school competitions in Taiwan, Hong Kong, Singapore, Malaysia, and China are generally run independent of collegiate tournaments. Students in the Philippines, Indonesia, Vietnam, and Taiwan have created their own high school tournaments. In New Zealand, the organization Let's Play Live has partnered with multiple high schools to host a varsity competitive program for the whole nation. Another organization, Riot Games, has launched a portal for students in Australia and New Zealand to create and locate after-school clubs for their schools.

Furthermore, in Europe and Asia, there is support for esports being taught in classes. Students can elect to supplement their physical education classes with *League of Legends*, *Dota 2*, or *Counter-Strike*. In Bergen, Norway, *Garnes Vidaregåande Skule* introduced an esports elective into the 2016 curriculum, where students were evaluated "based partly on theoretical knowledge and partly on gaming skills, ability to cooperate, ability to communicate, mastery of tactics, mastery of strategy, and so forth."

## Esports Benefits

There's little argument about the benefits of extracurricular activities for high school students. Studies have shown that students who are involved in extracurricular activities are more successful in a number of ways,<sup>17</sup> including:

- Higher graduation rates and higher attendance
- Improved scores in math and reading
- More students aspiring to higher education
- Higher focus in class
- Higher self-esteem, with fewer engagements of smoking and drinking

Apart from tangible benefits such as these, students who engage in extracurricular activities (athletic, artistic, scholarly, or otherwise) experience an essential sense of belonging. They must learn to negotiate the dynamics of a team; they must attend meetings and practices regularly; and they are held accountable for a nominative performance of some kind (a debate,

playoff, theatrical performance, spelling bee). Esports represent a unique opportunity to capitalize on an after-school activity that is already occurring and to formalize the gathering by creating a school-sponsored, constructive activity.

## Esports and Career-Ready Skills

Esports can also help students develop the soft skills required in higher education and careers, ones that may not develop through involvement with traditional sports. According to Gregory Rothwell and Michael Shaffer in their paper, *ESports in K-12 and Post-Secondary Schools*, "Soft skills are defined as intra- and interpersonal skills essential for human development, social participation, and success in the workplace, such as communication, teamwork, and solving problems under pressure." Esports require an additional set of soft skills relating to preparedness, technical skills, tactics, and mental preparedness. See figures below for more information.

**Table 1: Physical and Mental Preparation**

Activity	Description of Activity
Physical conditioning	Rest, relaxation, and balanced state of mind.
Technical preparation	Fast reaction time aids decision-making and deductive reasoning.
Tactical preparation	Mastering nuances of the games for strategy purposes.
Goals	The players should be cognizant of the goals.
Values	The team establishes a set of values.
Motivation	What drives the team?
Sensing/Concentration	The team is aware of what causes loss of concentration and intervenes where needed.
Emotions	Improving in team member reactions to certain situations.
Thoughts	Maintain control of our thoughts and not allowing them to hinder our progress.
Knowing the self	Balancing the ego, allowing self-awareness.

**Table 2: Skills Developed by Esports**

Skill	Description of Skill
Communication	Students develop communication skills b participation in esports because of the dependent nature of team members to achieve certain tasks within the game.
Teamwork	Esports games have goals and objectives which can only be achieved by the team.
High-pressure problem solving	Because of the competitive nature of the game, team members have to make quick decisions and plan strategies.

## Equity and Inclusion

In traditional sports, players are often segregated by gender, age, weight, and able-bodiedness. They are confined to a team that, in many ways, looks like them. And, depending on the region where the team is located, they are playing against opponents who also look like them. In esports, gender assignments and their restrictions fall away: the best player may be the youngest; a player in a wheelchair is just as competitive; and opponents may not speak the same language. An esports team is a transcendent one; opponents are truly global.

Still, much work remains when it comes to gender equity in esports. Based on research conducted by Dr. Anesa Hosein, girls considered “heavy video game players” were three times more likely to major in a STEM undergraduate degree than non-gamers. Despite the fact that 45% of US video gamers are female,<sup>19</sup> the number of girls participating in esports is significantly lower than their male gaming counterparts. According to Mark Deppe, Acting Director of esports at the University of California Irvine, this may be because:

- Boys are generally pushed toward playing more competitive games at an early age.
- The online gaming community can be hostile. In-game communications and chats can be “misogynistic and hurtful.”

- Women report feeling marginalized within the gaming community and being routinely subject to nasty comments about their abilities, knowledge, appearance, and tone of voice.

Because this is a real issue in the gaming community, K-12 esports curriculum can help shift the tide with the next generation of gamers. Instead of learning toxic behavior in an isolated gaming environment, esports teams can model inclusive behavior, hold gamers accountable for their online and in-person conduct, and provide experiences where male and female players collaborate. As discussed previously, esports provide a unique opportunity for traditional gender restrictions to fall away.

Many schools are also looking to all-girls esports teams in an effort to attract more female players:

- Ladies of League at Troy High School in Fullerton, California, may be the first all-female high school esports team that is part of NASEF. The team focuses on *League of Legends*, and female students play alongside male students on *Overwatch* teams.
- Fountain Valley High School in Fountain Valley, CA has an all-female *Overwatch* team in its esports club.

On the other hand, although creating a safe, all-female environment for female players offers many benefits, it also perpetuates a gender binary that esports can uniquely afford to break down. Furthermore, the lack of mention of non-binary individuals in esports studies

is apparent. With the increasing awareness of LGBTQI students taking part in traditional sports, esports offers an arena where dissenting arguments, such as weight/strength factors in contact sports, no longer apply. As esports popularity continues to rise, it will be worth watching how much the trajectory follows traditional sporting gender binaries versus how much it transcends them.

“Competitive video gaming is enjoyed by players around the world, and our goal with this pilot tournament is to challenge biases and break down barriers while providing fun experiences for all players.”

— Phil Spencer, Executive Vice President of Gaming for Microsoft

Fortunately, another binary breaks down in the face of esports: abled versus disabled. The 2018 Special Olympics USA Games, hosted by Special Olympics and Microsoft, included esports for the first time.

The Xbox Gaming Tournament included eight teams playing *Forza Motorsport*.<sup>\*</sup> Phil Spencer, Executive Vice President of Gaming for Microsoft, said about the Special Olympics tournament that “competitive video gaming is enjoyed by players around the world, and our goal with this pilot tournament is to challenge biases and break down barriers while providing fun experiences for all players.”<sup>20</sup> As schools implement their own teams, tryouts, rankings, and tournaments, the composition of teams will depend more on players’ gaming acumen than on their physical attributes.

<sup>20</sup> Source: <https://fmtofficesport.com/microsoft-esports-special-olympics/>

## STEM Readiness

Offering esports is a smart way for high schools to encourage students to pursue careers in STEM fields. Students who are drawn to gaming are often equally interested in technology in general. In 2018, Riot Games’ director of collegiate esports said that nearly two-thirds of their *League of Legends* players were majoring in STEM fields. “Although we don’t think there is one type of student that makes up top League of Legends talent, 62% of our participants are from STEM majors.” This number compares to the national average of 36% of undergraduates who are in STEM majors.<sup>21</sup>

<sup>21</sup> Source: <https://www.sporttechie.com/stem-esports-league-of-legends-columbia-college-oregon-syracuse/>

In 2018 **nearly 2/3** of League of Legends players were majoring in STEM fields.

That’s **about 62%** of participants from STEM majors.

Compared to the **national average of 36%** of undergraduates who are STEM majors.

Co-founder and CEO of HSEL, Mason Mullenieux, believes STEM majors connect on a deeper level than simply an interest in computer science, and likens their success in esports to their science/math problem-solving orientation. Naturally, students who major in STEM are drawn to STEM careers, which, according to the US Bureau of Labor Statistics, have higher wages than the national average. Computer-related occupations are the largest projected category of new jobs between now and 2024.



When students take part in esports in school, coaches can nurture a passion for STEM and guide students to explore a STEM future in college. By correlation, colleges with a strong esports culture tend to offer robust STEM curriculum for such students. Shawnee State University in Portsmouth, Ohio, for example, is a pioneering leader in game design and esports competition. The university offers a BS in Gaming Programming through the Engineering Department as well as a BA in Game Art through the Fine Arts Department. The school also offers a minor in Game Design.

The field of esports can offer students the academic and technical skills necessary to succeed in STEM- and nonSTEM-related learning opportunities and careers. NASEF is developing a CTE curriculum that involves a multi-year sequence of courses for students in grades 8-12 that will integrate core academic and technical knowledge with 25 courses organized around the four major esports sectors:

- Strategists
- Organizers
- Content Creators
- Entrepreneurs

The curriculum will provide pathways to at least 15 careers, including:

- Event Planner
- Analyst
- Fandom Art
- Marketing
- Theory Crafter
- Shoutcaster
- Streamer
- Journalist
- Web Developer
- Animation
- Game Design & more

When teachers incorporate esports or gaming into their curriculum, they help students learn to use technology appropriately. Students who might not otherwise have access to sophisticated technology can now use high-performance computers and learn to use gaming platforms to compete and collaborate. Hard skills like maintaining equipment and troubleshooting software are a part of the curriculum, as are soft skills like appropriate online interaction and safe digital practices.



**K -12, ADULTS & ALL GENDERS**



## Integrating Esports into the Curriculum

Esports integration into the K-12 education environment represents a low-risk, high-yield opportunity, since these students will continue to play esports whether their school is involved or not. Schools must simply decide whether it's worth the effort to positively influence a narrative already in place. The University of California Irvine developed high school English courses that build ELA skills while students develop specific skills for an esports career.<sup>23</sup> The courses and descriptions include:

### English 9 + Game Design

Students will build a foundational understanding of esports, their history, and their evolution over time, through research in multiple genres and methodologies. They will use critical thinking skills and argumentative, analytical, narrative, expository, and descriptive pieces of writing on self-selected topics within each unit's main framework to apply their esports enthusiasm to their English study.

### English 10 + Entrepreneurship

Throughout the course, using a district approved anthology and other diverse literature, students will read a combination of fiction and nonfiction pieces that reflect the themes and ideas related to both entrepreneurship and esports.

### English 11 + Marketing

Students will gain the foundational knowledge of marketing in esports through the framework of English in order to enhance students' critical thinking, writing, reading, analysis, and communication skills. Students will begin with narrative and explanatory writing, building to argumentation and research.

### English 12 + Hospitality

Students will learn the communication, writing, and vocabulary skills essential to planning, managing, and executing an esports tournament. During this course students will engage in activities designed to impart the necessary competence in and understanding of the video game industry, event planning sequence, and valuable collaborative mindset to achieve success in these industries.



## A Pathway to College and Career

There are many opportunities for high school students interested in esports to attend colleges with esports teams. In 2016, seven colleges and universities had esports programs, and by 2018, 63 institutions had esports programs. Figure 3 shows a sampling of 20 colleges with esports varsity programs.<sup>22</sup>



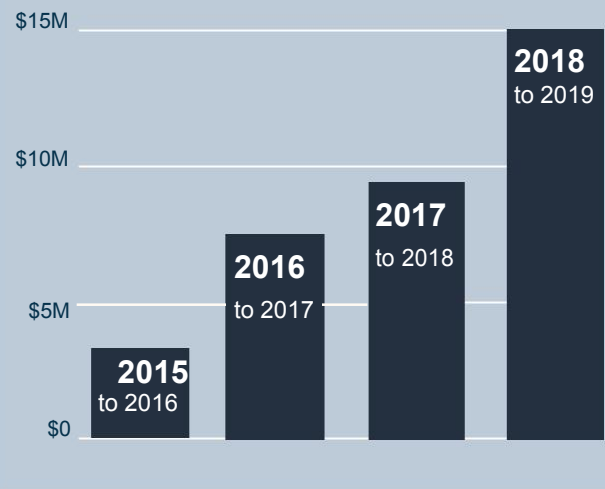
**Figure 3: A geographic sampling of 20 colleges with esports programs.**

Nearly 200 US colleges and universities are offering approximately \$15 million per year in combined scholarships for esports, and teams can earn millions in tournament prizes. According to NACE, the average esports scholarship a student receives toward tuition per year is \$ 4,800. However, some students may receive up to half off on tuition. NACE also notes there are over \$15 million in scholarship funds available to aspiring gamers.<sup>23</sup>



## Esports College Scholarships

### Awarded By School Year (Millions)



Source: National Association of Collegiate Esports

## Health and Wellness

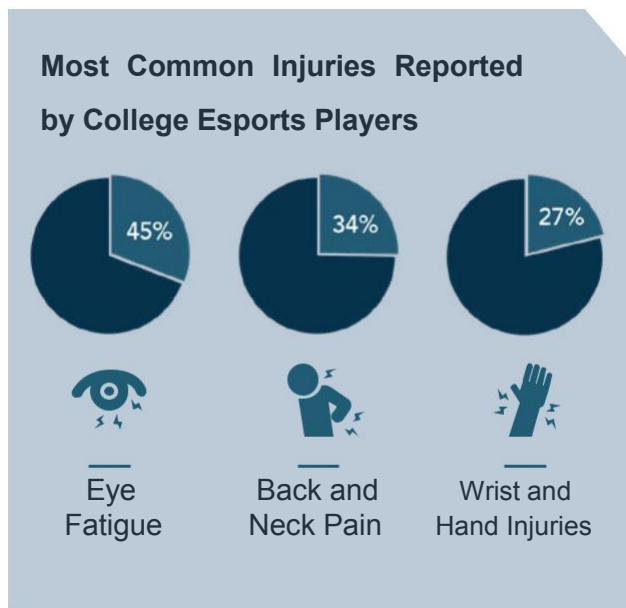
It's important to note that alongside the essential, future-ready skills that esports can foster, students involved in their school's esports team are more social, more team-oriented, and more collaborative than their solo-gamer peers. They are less isolated, because they are held accountable for their own growth in a team environment. And for some students, this may be the first time they have ever been on a team sport. Because gaming can be isolating, getting students involved in esports teams shifts their experience from a solo to a social experience, where they can feel like an accepted member of their school community—which has been shown to boost physical and mental health.<sup>25</sup>

When comparing traditional sports to esports, the issue of physical fitness frequently comes up. For example, while soccer players gain exercise and stamina through practice and game play, esports players may not. Furthermore, while a soccer player will experience fatigue and diminishing returns



after hours of play, a gamer may extend their play almost indefinitely. These realities can and should be addressed by the school, and in fact provide an opportunity to “round out” students for whom gaming is a priority. Similar to GPA requirements in traditional sports, athletic requirements can be placed on an esports team as well. For example, the team could implement “walking meetings” for a change of pace and scenery or include wellness equipment in the gaming room. Games Vidaregåande Skule’s esports classes consist of 30 students, and the class is arranged “so that at any given time 15 students are gaming, while 15 students are working out physically.”

According to a survey at five universities, collegiate esports players practice an average of four hours a day. Like their counterparts who play physical sports, esports players are also prone to certain ailments.



Source: Current Sports Medicine Reports

At the University of Washington, attention is being paid to the health and wellness of esports players. Structures have been set up to encourage participants to take breaks and disconnect. According to Justin Camputaro, UW’s Director of the Husky Union Building, home of the Esports Arena and Gaming Lounge, UW has established the following health and wellness guidelines:

- Students are charged to play, which encourages them to make good financial decisions and to limit their play.
- Players can only purchase up to ten hours at a time.
- Food and drink aren’t allowed in the space.
- Staff regularly roam the space so they can get to know the students and encourage them to take breaks.<sup>27</sup>

Serious esports players face potential health concerns; however, currently the National Collegiate Athletic Association (NCAA) does not recognize esports as a sanctioned sport, and therefore there are no management protocols for health and injury required for these teams—at least not yet.

Schools can positively influence gamers’ physical health in their esports programs and can actively shape the curriculum to include healthy habits. In Maize, Kansas, Complete High School students can take a class that promotes healthy gaming. The curriculum and Gaming Concepts, teaches students interpersonal and problem-solving skills, and focuses on appropriate online behavior strategies. Students also keep an exercise and food log. Results from a trial have demonstrated increased attendance rates and a rise in GPAs, spiking 1.5 points above the average for the school.<sup>28</sup>



## Starting an Esports Program

“It is no longer “cutting edge” to have an esports team at your school. What is cutting edge is what you propose to do with this opportunity through esports...The games should provide an experience to something beyond the games. To focus solely on gaming is missing why esports is so important in school culture.”

—James O’Hagen, Rockford IL Public Schools<sup>31</sup>

chance not only to hone their craft but also to learn how to be team players.”

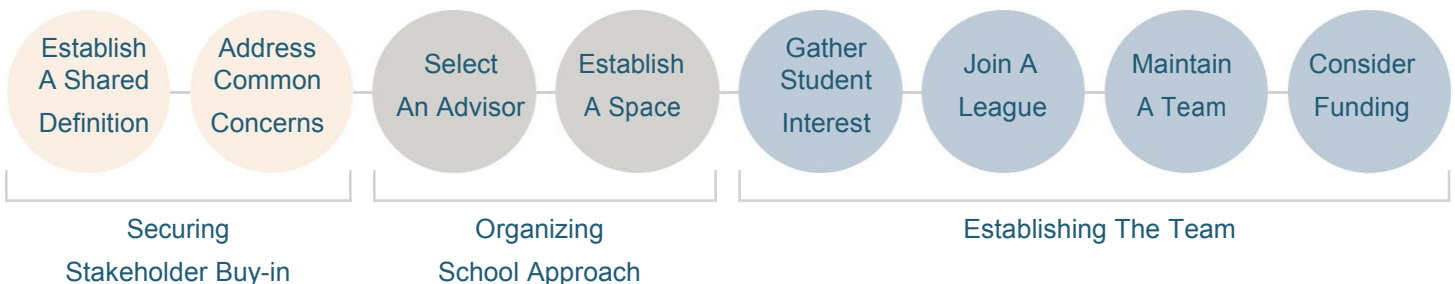
The primary obstacle for many nascent high school esports programs lies in convincing other stakeholders—teachers, administrators, and families—of the value of a high school esports program. Often this is because these stakeholders do not have a strong grasp of the what, why, and how of esports. Therefore, instead of simply asking for permission to start an esports program, potential coaches and advisors should be prepared to teach their community about esports, preemptively addressing concerns and, more importantly, highlighting the benefits that an esports program will offer students.

High schools generally have little trouble attracting students to esports. According to the Pew Research Center, 81% of teens have access to a gaming system and 72% of teens actively play video games outside of school.<sup>29</sup> Playing games formally as a school is a natural next step, one that schools can have a positive role in shaping. Esports programs have the power to “transform what is often an isolating activity into a social experience...giving their student gamers a

**81%** of teens have access to a gaming system.

**72%** of teens actively play video games outside of school.

### The Path to Esports





## Establishing a Shared Definition of Esports

When starting an esports program, esports advocates too often skip the “educational stage,” forgoing the process of securing stakeholder buy-in. Many enter into esports evangelism and participation without first establishing a shared definition of esports. Parents, administrators, and community members may have no shared vision of what an esports team would entail at their school. They may not understand that these games are played online in real time, and are therefore collaborative, energized, and competitive. Therefore, when advocating for an esports program, it’s important to clearly state what esports are by breaking down the definition and addressing each component of the definition with stakeholders:

“Esports are **multi-player, online video games** played **competitively** as a part of a **team**.”



**Multiplayer:** Address the stigma that gaming is an isolated event between a single basement-dwelling teenager and their device. One of the most popular and most watched games, *League of Legends*, is a capture-the-flag style game played as a five-person team, all of whom are collaborating to achieve a common goal.



**Online:** Original games like *Pong*, *Tetris*, and *Pac-Man* were played on consoles in solo, offline experiences. With the advent of the Internet, games became interconnected. Broadband Internet first allowed gamers playing together in the same room to join multiplayer competitions through LAN connections. Later, through wireless connections, players could engage in game play from across cities, states, and now the entire globe. This has elevated game play from arcade high-scorers to nail-biting live events.



**Video Games:** The world of video games is as varied as the world of athletic sports, and includes side-scrolling arcade games to role-playing games with “persistent worlds” that continue to evolve even when a character is logged out of play. Emphasizing this variety helps stakeholders understand that not all games are violent; in fact, not all games’

goals are destruction. Goals can be shared accomplishments, like scoring a goal before time expires in *Rocket League* or simply having a better deck, like in the digital card game *Hearthstone*.\*



**Competitive:** An esports team plays head-to-head with other teams in scrimmages, organized matches, and tournaments. Teams are then ranked in the leagues and divisions in which they play, for example NASEF or HSEL, both of which organize and host tournaments. Teams have rankings; players have statistics. Players can even be featured (and scouted for scholarships) on Twitch, a streaming platform where video games can be reviewed or watched live—video games’ current answer to ESPN. Because these players’ reputations are Internet-based, college recruiting becomes less limited by proximity, giving recruiters a “pipeline” for scouting future players.



**Team:** Just as traditional athletics involves team and individual sports, the same holds true for esports, where there are cooperative games and player-versus-player (PvP) games. Regardless of the game, esports players also convene in a shared space, talk with a coach about tactics, scrimmage, analyze opponents, and adhere to the team’s expectations and schedule.



## Addressing Common Concerns

After establishing a shared definition, it's essential to further educate stakeholders on the value of esports and to articulate justifications in the face of common concerns. Depending on the level of reticence, it may be valuable to address these concerns prior to or in conjunction with introducing the benefits."

Our students already spend too much time in front of a screen."

Screen time is a reality in all aspects of life, for professionals, adults, and children. Therefore, it's not about avoiding participation so screen time will diminish; it's about positively influencing a current phenomena in a monitored environment. An esports program can become a part of the solution by teaching students how to create balanced screen habits. Bringing esports into the school environment provides an opportunity to set expectations around practice time to not only manage screen time, but also to prevent over-fatigue and burnout.

"Player anonymity gives way to online bullying and toxicity."

This unfortunate reality exists everywhere on the Internet, and as with in-person bullying, students need protection. Fortunately, playing games in a supervised, positive environment provides a safe haven for players who might otherwise face this toxicity alone. In HSEL's *Gaming Concepts* curriculum, the first lesson recommends establishing a Code of Conduct for players that addresses such concerns. "

Online games pose student security and privacy issues."

As with just about every Internet-connected tool, technology, or service, users must be careful to safeguard their personal information and avoid behaviors that could put their digital security at risk. Some K-12 esports players might use their personal accounts (as opposed to school accounts), which can pose a risk. Regardless of the account setup, students still must be taught to practice safe and ethical online behavior to safeguard their identity and information.

-20-



“Real’ sports are healthy.  
Esports aren’t.”

Sedentary concerns are valid, but physical fitness and wellness is essential to peak esports performance too. In a monitored environment, students can be held accountable for physical requirements for team participation. Just as athletic teams pose academic requirements on players, esports teams can address physical wellness requirements in their team charters, such as mandatory, whole-team morning workouts, walking meetings, or even having workout equipment in the player room.

As with traditional sports, esports include a rigorous mental component that can challenge and foster adolescent emotions, which is better done in a team environment.

### Add A Mindful & Balanced Approach to Your Esport Curriculum



Pre & Post  
Game  
Stretches



Scheduled  
Half-time  
Breaks



Healthy  
Snack  
Options

“Esports athletes are removed from a team environment. Such isolation doesn’t foster sportsmanship like traditional sports.”

Even if the sport in question is a PvP game, sharing a room with other students may be the first time that those students are engaged in an organized sport, with a shared experiences and goals. Chris Aviles, coach of a middle school team in New Jersey, says, “Everything that students can learn playing “real” sports can be learned in esports including social skills and teamwork.”<sup>31</sup> Anytime you have the opportunity to influence a gathering of young adults, you have the opportunity to foster sportsmanship.

“Esports glorify violence and misogyny.”

This is a very real concern in the world of video games, for stakeholders and gamers themselves. As a result, handbooks in popular tournaments dictate player etiquette. Gamers have spoken out against negative behaviors, and game makers have begun designing and producing games that think outside of the violent or sexualized box, such as *Rocket League*. Violence, while undeniably present in games like *Call of Duty* and *Grand Theft Auto*,\* is not a requirement for esports games. If we can popularize through league play games that are not violent but instead require strategy, quick decision making, and collaborative problem solving, those are the games students will gravitate to. High school esports programs can choose to compete in games that fit their level of appropriateness.

It's important to consider that these concerns are not unique to online gaming. The athletic environment is rife with violence and misogyny. As with any organized competition, competitiveness can bring out unfavorable behavior from participants. It's already any school's mission to monitor, manage, and model good behavior, with esports and with any other communities within the school.

“Hardware, licensing, and physical space represent significant costs.”

Luckily, an esports team can start small and grow big. In the beginning, players can bring in their own equipment from home and play in a school-designated space. Then, schools can start to build what they can afford, for example, a nicer lounge area with comfortable chairs and tables where students can place their consoles or PCs. Organizations including Intel, CDW, and many others can offer advice and solutions based on their years of experience helping professionals, colleges and universities, and K-12 schools engage in esports.

As a team gets more competitive, a school may want to invest in gaming setups that give their athletes all advantages possible. Again, this can be done slowly. And unlike traditional sports teams, travel expenses and uniforms aren't really necessary.



## Implementing an Esports Team

Once all stakeholders are on board, the rest is relatively easy, because it will never be a challenge to attract students to an esports program. In fact, as with many new school initiatives, the students themselves can and will lead the charge.

Many leagues provide resources to help high school esports clubs or teams get started. *HSEL's Handbook* walks students and stakeholders through the entire process, covering topics such as identifying a coach or advisor, hosting the first meeting, and preparing for the first competition. HSEL also offers a free curriculum, *Gaming Concepts*, that covers everything from gaming history and appreciation to troubleshooting and field trips.<sup>32</sup> NASEF's guide to starting an esports program offers an Activation Kit,<sup>33</sup> and it too offers curriculum for different formats of esports: ELA, CTE, Middle School, and Out-of-School Time.<sup>34</sup>

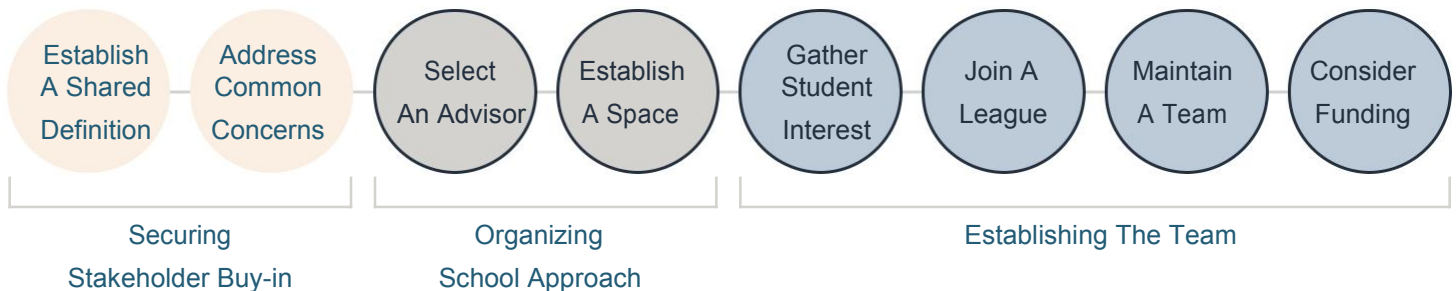
There are many pathways to creating a successful program, but the following diagram outlines a typical path.

### Selecting a Coach or an Advisor

The most important qualities of an esports coach or advisor are passion and a belief in the legitimacy of esports as an endeavor. Coaches should be excited to facilitate a positive, inclusive environment where gamers can hone their teamwork and sportsmanship skills in a supervised sport, and celebrate their shared accomplishments.

In traditional athletics, coaches usually have some experience in the sport themselves (and may even excel at it). In esports, coaches are often adult gamers who play the same game(s) the students will play. For instance, if students choose *Rocket League* as their competitive focus, the coach would ideally be versed in that game as well. Alternatively, if a coach is an *Overwatch* player, then the team might naturally prioritize that game. Of course, multiple games can also be explored and played competitively on an esports team—these are just considerations for selecting a coach or an advisor.

### The Path to Esports



If a potential coach is not a gamer at all—which is common—NASEF would consider this coach a “General Manager,” in which case, a student who is an expert in the game might be appointed the “shot caller,” “game coach,” or “team captain.”

Once established, the coach can then help determine meeting times based on their availability. Considerations include whether the team will be an elective during the school day or will meet and practice before or after school. Meeting more than once a week, allows players to practice together, discuss strategy, scrimmage, and engage in tournament play.

“The only thing a bit different is that most of my players have never been part of an organized sport. When I was a varsity coach, most of my players had been part of a team before. Most of my esports players have not. I’m spending a lot of time teaching my esports players how to be part of a team. I think the difference between video games for fun and esports sunk in when I starting using the same coaching line I used with my varsity athletes: ‘We’re not here to have fun. We’re here to become better players, become better people, and win games. We’re getting better every practice. Our communication is improving, along with our ability to win and lose with class, and our ability to lift up our teammates.’”

— Chris Aviles, @TechedUpTeacher

## Establishing a Space to Play

Technically, esports team players can meet online in their own homes at a coordinated time, which means the school need not supply any equipment or space at all. However, if schools plan to take their participation in esports to the next level, they will want to think about establishing and investing in a space where the team can meet, discuss strategy, plan practices, scrimmage, and bond. A natural place to start is an existing computer lab in the school, where students can access and reserve computer time. As participation and funding grow, teams can look to adding furniture and equipment.

## Assembling the Team

Once it’s clear a team is possible—or perhaps even beforehand, as a school is trying to establish potential participation—the coach or advisor should have an Interest Meeting. This will help establish game preferences and allow students to share what they would like out of an esports team, as well as establish future meeting times.

It’s important that this meeting be separate from the first Team Meeting, since that meeting will potentially involve writing a team charter, appointing student officers, prioritizing games for competitive play, and other decisions that affect the team’s future.

## Joining a League

The next step is to join a league for full-scale involvement in regional, national, and international competitions. NASEF, EGF, and HSEL all offer resources to help teams get started with league play. Similar to traditional athletics, esports leagues can have seasons. But unlike traditional sports, weather doesn’t affect play, so esports seasons are more frequent and can accommodate almost any schedule. HSEL, for example, has two types of leagues (Majors and Opens) that run in the fall, winter, spring, and summer.

### ESPORTS & GAMING TIME



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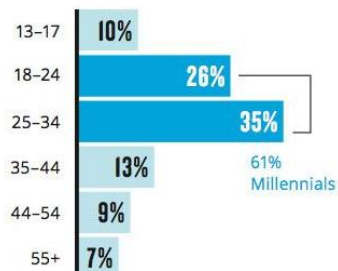
Weekly eSports hours



~6:50

Weekly video game playing hours

### AVERAGE AGE: 31





## Managing the Team

After the team is up and running, what will ensure it stays successful? As with any team, it's important that teams not only achieve wins in their chosen competitions, but that they have a healthy culture that helps ensure their continued presence in their school.

Team culture is fostered over time as players and coaches build trust. To begin, a team charter can be helpful in articulating the team's goal and norming behaviors. A few items to include in the charter might be:

- The teams' hierarchy
- The articulated goals for why the team exists
- What is viewed and expected as respectful behavior. The Code of Behavior section of HSEL's Gaming Curriculum provides guidance for such an activity.<sup>40</sup>
- Wellness and GPA requirements
- Schedules, practices, and other expectations

Finally, for an esports coach (or any other type of organization), there is no substitute for communing with and learning from other esports coaches. New coaches can reach out on social media, locate other coaches at nearby schools, and research meet-ups and conferences to foster fellowship and exchange advice.

As esports coach Chris Aviles says, "You don't need coaching experience or game experience to use esports to help make your kids better players and better people; there is a wonderful #esportsedu community willing to help. Everything that students can learn playing 'real' sports can be learned in esports including social skills and teamwork. And esports taps into a segment of your school that may not have a home-school connection while getting them excited for a career path they might not have known existed."<sup>41</sup>

## Funding

As with other sports, esports represent an investment, not only of time, but of school dollars. Players need a place to practice, meet, and play; they need specialized equipment that doesn't limit their ability to be competitive; and coaches/advisors need compensation for their time and expertise.

Articulating this need to stakeholders can be challenging, especially if steps toward education and buy-in haven't been taken.

Fortunately, start-up costs of an esports team are low, and every purchase can be phased in as the team grows. Eventually, schools may need to reevaluate how much money they can contribute.

If they are budgeting a large amount for their traditional athletics and none to esports, it may be worthwhile to ask if the dollar amount supporting traditional athletics mirrors the economy of the real world.

Especially as esports grows in terms of participation, advertising, and viewership—all of which lead to revenue. As this industry grows, so do the associated careers an esports team can equip students to enter.





## Esports Hardware and Innovation Spaces

Think for a moment about the spaces available to athletes in a traditional sport at the professional, collegiate, and high school level. Professional basketball teams play in huge arenas and have tremendous facilities for training and practice. Collegiate basketball players don't have quite the same caliber of spaces, but colleges do strive to provide the best resources possible to attract the best athletes and coaches. The average high school basketball player competes and practices in spaces that pale in comparison, but high schools attempt to provide at least a minimum level of requirement.

The players also need locker rooms, uniforms, and a place to practice and compete.

Esports teams operate in a similarly wide spectrum across the professional, collegiate, and high school levels. And while high schools aren't expected to provide professional-level spaces and hardware, they do need to meet a basic level of support for their esports athletes.

The following graphic organizer summarizes the space and hardware considerations for an esports program:



The good news for high schools is this set of minimum requirements can and should be multi-purpose.

In addition to being the home base for the esports program, the hardware and space provide the foundations for modern learning environments for all sorts of CTE applications and can even begin in an existing computer lab. Indeed, when deciding about the space and hardware for their esports teams, high school decision makers should consider their larger vision. Instead of basing their purchasing on the requirements for specific games, they should base their decisions on how the technology and space will benefit students both in their esports program and in the entire school community.

Often schools adopt a gradual approach to implementing an esports program. They might start small, providing a space for students to bring in their own gaming consoles and compete against one another after school. As the esports team becomes more competitive, the natural next step is moving to PC-based gaming that allows for more powerful cross-platform competition.



Purchasing for esports programs is different than for other education technology. With esports, system performance can correlate directly to an athlete's performance in a game. It can cause the refresh cycle to be faster, avoiding "lag" that drastically shifts a player's ability to compete in an online, real-time environment. However, purchasing also tends to be more modular. Instead of purchasing all new computers, often a new video/graphics card is all that is needed. In fact, many schools begin their esports programs with existing technology infrastructure and a handful of upgrades.

When deciding about the space and hardware for their esports teams, high school decision makers should consider their larger vision. Instead of basing their purchasing on the requirements for specific games, they should base their decisions on how the technology and space will benefit students both in their esports program and in the entire school community.

## Hardware Options

### Computers

Different games publish their own set of minimum computing requirements. Here are some general considerations to ensure athletes can compete.

**Operating System:** Some games can be played across platforms, but Windows-based PCs dominate the esports landscape and will generally give an esports program the most versatility.

**Laptop vs. Desktop:** Laptops provide the added benefit of easy portability when a team travels to esports competitions. But because travel is minimal in the world of esports—a fortunate money-saving feature— desktops can give players more power and at a somewhat more economical price point.

**CPU:** The processor inside of a gaming computer affects everything from frame rate to general stability to battery life (for laptops). At a minimum, a device with an Intel Core i5 processor will provide a decent clock speed. Higher-end processors may be needed if the esports program plans on streaming and/or recording gameplay, since encoding video requires additional CPU. Purchasing an unlocked Intel Core i9 processor allows a PC to be overclocked to maximize frequency and minimize voltage for extreme gaming performance.

**Memory:** RAM, or the short-term memory of a computer, is vital to smooth and fast gaming. Many games list 8GB of memory as the minimum requirement, but 16GB may soon become the standard in gaming setups.

**Storage:** High-speed, solid-state drives (SSD) give systems quicker access to gaming and media storage. The absence of moving parts decreases the likelihood of hardware failure. Intel Optane Technology offers a variety of accelerated storage options that can help devices perform at their best.

**GPU:** If planning to play games at 4K resolution, the gaming systems will need to push twice the number of pixels as 1080p. Many current professional, collegiate, and K-12 schools use NVIDIA\* GeForce\* GTX 1060 graphics cards as their starting point, because they offer high performance at a reasonable price.

When deciding on the number of gaming computers an esports program will need, consider the team's game of choice. Teams of three compete in *Rocket League*, so at least three devices are needed, and up to six if athletes will scrimmage internally for practice. Other games will require additional gaming setups. *League of Legends*, *Dota 2*, and *Overwatch* have five and six players on a team respectively.

## Monitors

More so than with other education technology applications, the monitor is extremely important in esports. A slight lag in response time can have an enormous impact on game play and viewing a live tournament. While the computer hardware outlined above will ensure a balanced gaming system, choosing the right gaming monitors will ensure the computer power is actualized in the gaming experience. When choosing a monitor, it is important to consider the following:

**Resolution:** the number of horizontal and vertical pixels

**Screen size:** the view-able area of a monitor

**Refresh rate:** the frequency with which the image on the screen is refreshed, measured in hertz or frame per second

At a minimum, high school esports programs should consider a 1080p monitor with a 144Hz refresh rate, twice as fast as the standard 60Hz monitors.

## Networking

While most other parts of high school technology are prioritizing WiFi, hard-wired Internet is still preferable in esports. For reliability and speed, ensure that the locations of esports practices and competitions have access to Ethernet connections.



## Input-Output Devices

Esports also require a different set of input and output accessories for gaming setups, and many high schools are also adding these items as their programs grow:

**Keyboards:** Many players prefer mechanical keyboards over the traditional and more common membrane variety. The spring-activated switches give players a much better feel.

**Headsets:** Players will need headsets with mics so they can communicate with their teammates inside a game during competition.

**Controllers:** Depending on the games chosen, external controllers or gaming mice for gameplay may be required.

### Sample Collegiate Gaming Setup

What lies ahead for the aspirational high school esports player? Take a look at the hardware the University of California Irvine purchased through iBuyPower for their athletes:

Motherboard: ASUS Z170 Pro Gaming

Graphics: NVIDIA GeForce GTX 1080 8GB

Gaming Accessories: Logitech

Monitors: ASUS 24" 144Hz FreeSync



## Esports Spaces

In addition to planning for appropriate hardware, decision makers need to think about where their esports club or team will meet, practice, and compete. Again, as with the hardware, the space can grow as an esports program develops. Remember, the space can and serve multiple purposes. Consider how the space can benefit students in other classes and programs, including CTE applications.

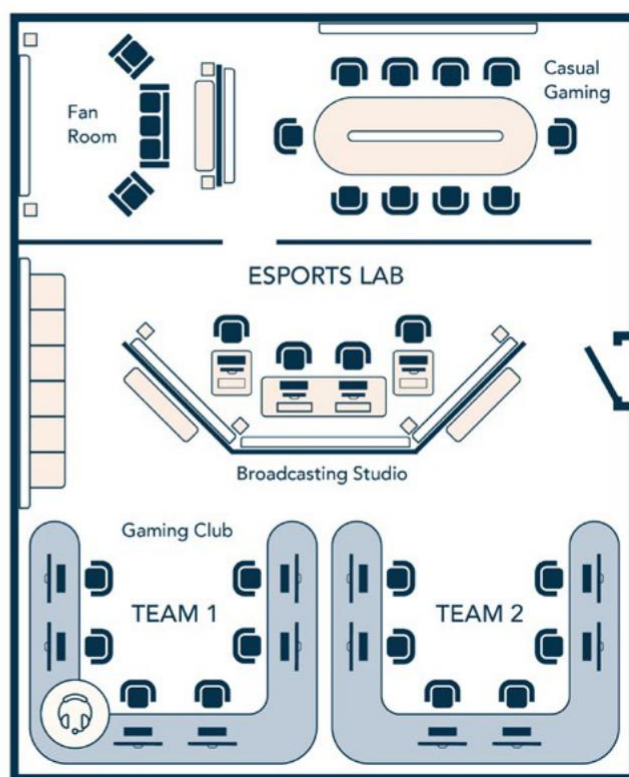
“Our STEM classroom will be able to hold 26 students. Plenty of space, we thought, for an introductory meeting about a new esports program...[as] students start to pile into the room, we can expand our room capacity to accommodate the attendance within minutes—and then expand it again if needed. By the end of that first meeting, our goal is to have more than 130 students signed up.”

## Chairs and Desks

Banks of gaming setups are often placed against a wall. The chairs don't need to be gaming chairs, but they should be ergonomically designed and reinforce healthy computing habits. Esports is not a couch-based activity. Computers are often set up in groups based on the number of players on an Esport squad. For example, if a school is playing Overwatch competitively, they may set up their computers in two groups of six.

## Meeting Areas

Esports programs need places for athletes and coaches to work together, plan, and debrief in both large and small groups. It is helpful to include a larger monitor in these areas, so players can review film and strategy,



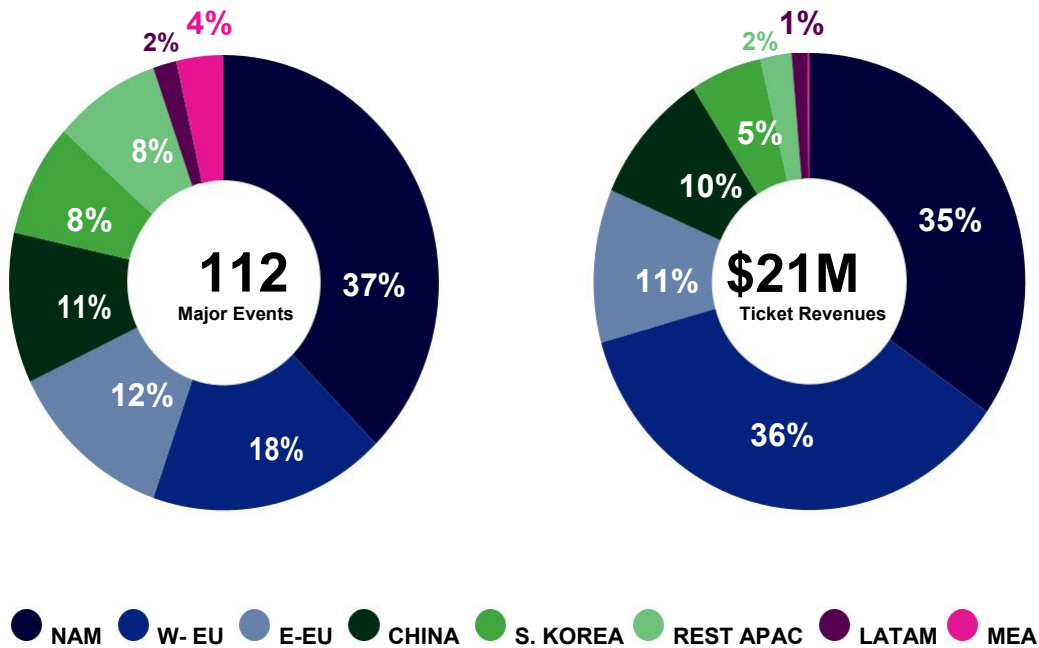
as well as a whiteboard for discussion. These areas can also include couches and comfortable seating options, because players likely won't be in front of a computer. Fortunately, there is a lot of overlap between these types of spaces and collaboration spaces in the modern, active classroom. Many programs are also converting extra space in shout-casting and media production rooms by separating them from the larger room and including AV equipment.

## Arena or Competition Spaces

Because many tournaments and matches are played remotely, a dedicated competition space is usually not necessary, especially at the start. Consider how meeting areas can double as places where audience members can watch their peers compete. As a program develops, decision makers can start thinking about how to use some of a school's larger assembly areas, such as gymnasiums or theaters, as esports arenas.

# GLOBAL EVENT NUMBERS & TICKET REVENUES

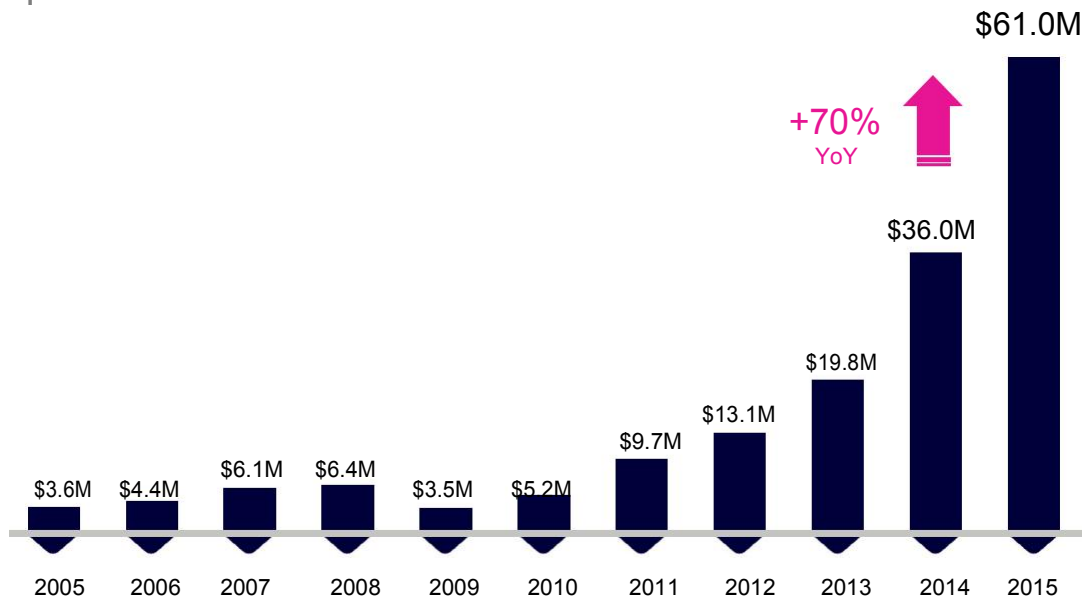
MAJOR ESPORTS EVENTS AND TICKET REVENUES | 2015 | GLOBAL



Source: 2016 Global Esports Market Report

# GLOBAL EVENT PRIZE MONEY

2005 -2015 | GLOBAL



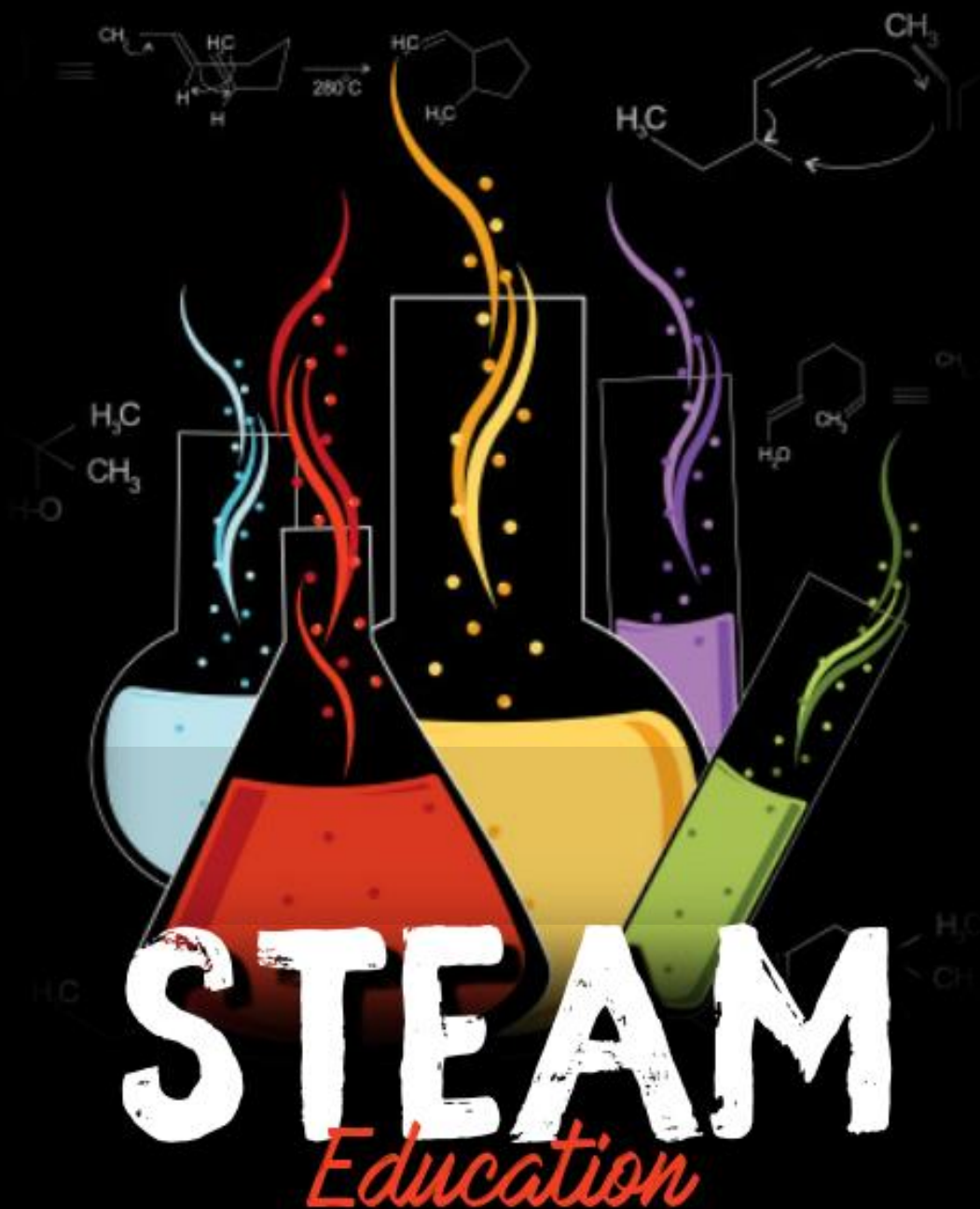
Source: Global Esports Market Report

“The thing we do have which is incredible is the donation piece. As a 501c3 federal exempt non profit, people can subscribe to our gamers’ channels, receive some virtual goods and contribute to show their support.



# Path SUCCESS

*Education is Key,  
Knowledge is Power!*





## and eSports Gaming Education

### What Is STEAM Education?

If you're familiar with STEM education, then you already know a bit about STEAM education. STEAM stands for Science, Technology, Engineering, Art, and Math—a powerful combination of topics and techniques for educating our society.

When it comes to art, it goes beyond aesthetics. The 'A' includes the liberal arts as well, meaning language arts, social studies, physical arts, fine arts, and music. However, we've added Agriculture as well.

### The Difference Between STEM and STEAM

STEM is a building block for STEAM. **STEAM education makes its focus the application of science, technology, engineering and math through art and design.** Another way of looking at this is that STEAM educators can help students connect what they learn in these critical areas (STEM) with art practices and design elements. Ultimately, students should feel like they can wonder, critique, inquire and innovate.

Our Steam program is designed for all ages; from children ages 3 to adults over 55 years of age. You never too old to learn something new in life, just apply and dedicate yourself to the task, it's that simple. Student will be teach Robotics, Agriculture, Music Production, BMX Bike Racing, Race Car & Drone building challenge just to name a few. Student will learn five (5) different skill trades within one course.

#### STEAM Course Includes;

- Science
- Technology
- Engineering
- **Art / Agriculture**
- Mathematics

What does it mean to turn STEM to STEAM? The problem-solving, the fearlessness, and the critical thinking and making skills that I see every day are the same skills that will keep our country innovating, and their development needs to start in the K-12 schools. Design creates the innovative products and solutions that will propel our economy forward, and artists ask the deep questions about humanity that reveal which way forward actually is. Sustaining arts education in its own right remains critically important.





*Getting Students Excited About STEM with*

***DRONES***



## The Drone Challenge

Unmanned Aerial Vehicles (UAVs) are driving one of the most exciting areas of innovation today. Pilots, engineers and entrepreneurial leaders are teaming up to change the way we think of videography, disaster recovery, agriculture, conservation, marketing and so much more.

After exploring basics of aeronautics and developing skills as pilots, students hack into a standard UAV brain, replace it with a custom programmable flight controller and configure it to fly different missions.

## Standards Alignments

All programs align to the Common Core State Standards for Mathematics and English Language Arts and Next Generation Science Standards (NGSS). The Student UAV Challenge also aligns to CSTA level 3 standards.

## Available Formats

- CLASS: Individual student accounts
- CLUB: Team accounts
- CAMP: 30 contact hours

## Technology

The base technology is a remote controlled quadcopter. Focus lessons use electronics components and an Arduino microprocessor.

## Curriculum Overview

Students fly, configure, reverse engineer, design, build and code.

The Student UAV Challenge curriculum begins with principles of aeronautics and flight for a variety of industries (ex. film vs. inspection). It ultimately leads students through a series of focus lessons that reverse engineer how each system of the UAV brain works. The culminating challenge is to replace the stock system with a customized Arduino-based flight controller.

In working with electrical components, students develop skills like soldering and critical thinking through troubleshooting.

Key focus lessons dive into concepts such as aerodynamics, electricity, computer programming and physical laws of motion.

As with all Student STEM Challenges, these concepts and skills are cultivated through the framework of innovation. Students model a business or organization that applies the technology to improve society.

## Competition Overview (Optional)

UAV teams can compete in the National STEM League (NSL) through Face-to-Face (F2F) Competitions and the Online Points Race. Points leaders and F2F competition winners are invited to the NSL Finals.



# STUDENT DRONE CHALLENGE

## CLASS vs. CLUB Options

Click-through lessons direct students' physical activity and analysis. Engineering logbooks are fundamental to the learning experience. In a CLASS, educators assess students with a mix of online quizzes and rubric-based evaluation of documentation, results and physical products.

The CLASS format provides one login per student while the CLUB provides one login per team. Both provide two educator logins.

## Materials Options

Each UAV station serves up to 3 students with a very hands-on experience or 4-6 students who divide & conquer the various aspects of operating a team. Add additional UAV's to increase the hands-on team to 10 members. In addition to actively working with the UAV, team roles can include user interface design, graphic design, web design, marketing, public relations, project management, research & development, fabrication, community outreach, etc.

### 1, 2, 4 or 6-Station Contents

- 1, 2, 4 or 6 Booster Kits (contents shown below)
- 1 additional Quadcopter UAV per station  
(This one is to fly. The Booster UAV will be hacked & flown.)
- Focus lesson kit on aeronautics that includes 2 x Bluetooth gliders per Station
- 1 Set of shared tools per two stations
- Student access to the SolidWorks® Student Edition

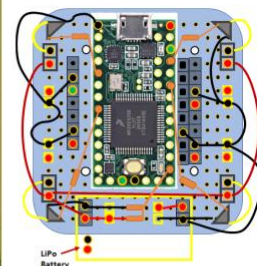
### 1-UAV Booster Kit Contents

- 1 x Quadcopter UAV (a.k.a. the Drone)
- 2 x UAV Lipo batteries
- 1 x UAV spare parts kit
- 1 x Flight Controller Brain kit including Arduino microcontroller, sensors, receiver, transmitter, electronic components, breadboard, cables and wires
- 1 x Soldering Kit
- 1 x Tool Kit

# DRONE CAMP KIT

This camp-specific curriculum is organized into a 5-day format with 25-40 contact hours depending on your program organization. Curriculum can also be organized into 1, 2 or 4- week summer camps.

The 6-UAV CAMP kit includes materials and printable student pack for six teams which is 18-30 students. Curriculum is appropriate for middle or high school students. Middle grade students spend more time on problem-solving and flight skills. High school students can focus more on programming and building flight controller hardware.



## DRONE CLASS & CLUB Startup Options

Should teams choose to participate in the National STEM League (NSL) the number of eligible teams is equal to the number of cars in their base kit. See the order forms for more details.

Class kits provide 1 curriculum login per student.

UAV CLASS Kit	Educator Licenses	Student Licenses	NSL Teams	Kit
Home	2	5	1	1-Station
Small	2	10	2	2-Station
Medium	2	16	4	4-Station
Full	2	24	6	6-Station

Club kits provide 1 curriculum login per team.

UAV CLUB Base Kit	Educator Licenses	Team Licenses	NSL Teams
1-Station	2	1	1
2-Station	2	2	2
4-Station	2	4	4
6-Station	2	6	6





THE MORE YOU KNOW . . . THE FASTER YOU GO.

## The Storyline & Challenge

Students own a motorsports business and their ultimate goal is to engineer personal performance, team performance and of course, race performance. Students apply physical science concepts, practice math modeling and how to use the appropriate technology to engineer solutions to problems that parallel those encountered by professional teams.

## Standards Alignments

All programs align to the Common Core State Standards for Mathematics and English Language Arts and Next Generation Science Standards (NGSS). The Student Racing Challenge also aligns to International Technology and Engineering Educators Association (ITEEA) Standards for Technological Literacy.

## Available Formats

- **CLASS & CLUB:** curriculum organized for a 3-week formal classroom unit (~15 hours) and semester long OST club.
- **CAMP:** 20-30 contact hours, computer access not required

## Technology

The base technology is a fully operational 1:18 scale electric radio-controlled (RC) car that can be setup in over 1 million ways before re-engineering a single part. Optional technology for specialization projects includes 3D-CAD, rapid prototyping tools, physical computing with microprocessors and sensors. SolidWorks 3D CAD software is free to Ten80 students.



## Curriculum Overview

The Elementary Racing Challenge (ERC) car arrives fully operational. Through the early units students reverse engineer the electromechanical systems, following Good Investigation Practices (GIP). The Problem-Solving unit introduces the power of math modeling in making data-driven decisions then those lessons learned are applied to optimize the car's performance and ultimately redesign the car.

Enterprise & Innovation units motivate students to manage their time and resources, to market themselves and to develop 21st Century Skills like leadership that are required to turn ideas into realities.

Extension projects include: Robotic RaCeCar in which students automate the car and Energy Challenge in which students charge batteries with renewable sources.

## Competition Overview (Optional)

Elementary Racing Challenge teams compete in the National STEM League (NSL) through Face-to-Face (F2F) Competitions and the Online Points Race. Points leaders and F2F competition winners are invited to the NSL Finals.



# ELEMENTARY RACING

## CHALLENGE CLASS & CLUB

### Curriculum

Implement the Elementary Racing Challenge over 3 weeks, 6 weeks or full semester.

Students conduct investigations in three areas of race engineering:

- Problem-Solving Strategies (& Math Modeling)
- Driving through Data
- Mechanical Systems (& Science Behind Them)

Through focus lessons they drive deeper into key concepts such as energy, electricity, forces and motion.

Once students complete the fundamentals of race engineering they can work on these specialization projects:

- Enterprise & Innovation - manage and market the team
- Race Team - Engineer the car for speed and stability
- Physical Computing - Automate the RC car
- Energy - Charge batteries using renewable energies

### Startup Materials

Start with non-consumable 1, 2, 4 or 6-Car Base Kit. Add materials with 1-Car Booster Kits. Each 1-Car station serves four students with a very hands-on experience or six students who divide & conquer the various aspects of operating a team. Team roles can include graphic design, fabrication, marketing, project management, engineering R&D, community outreach, etc.

#### 1, 2 or 4-Car Base Kit Contents

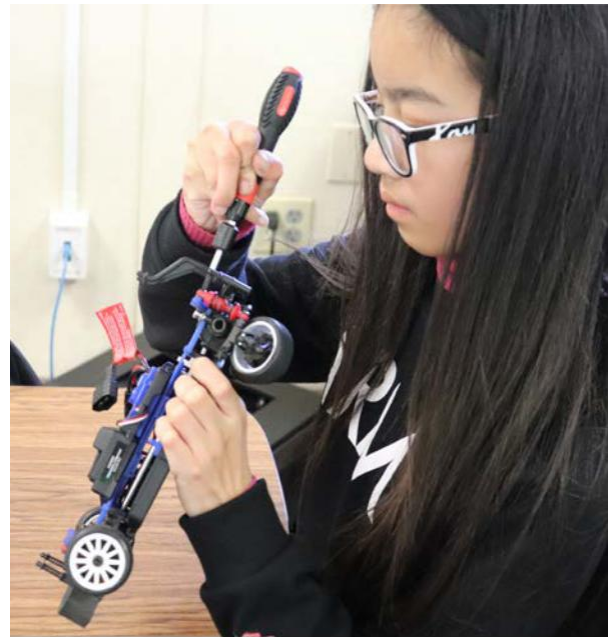
- 1, 2 or 4 × Booster Kits (contents shown below)
- 1 or 2 × Caliper, soldering station & weigh scale
- 1 x Ride Height Gauge

#### 6-Car Base Kit

- 6 × Booster Kits (contents shown below)
- 3 × Calipers, soldering stations, weigh scales
- 3 × Ride Height Gauges
- 3 × Additional Rechargeable 7.2V car batteries
- 1 × Spare Parts Pack

#### 1-Car Booster Kit

- 1 × Elementary Competition RC car (1:18 scale)
- 1 × Simple RC car (1:18 scale) required for some investigations
- 1 × Set of measurement tools
- 2 × Rechargeable car batteries with 1 Smart battery charger
- 1 × Extra set of tires
- 2 × Extra gears
- 1 × Clear car body
- Misc. spare parts



### CLASS & CLUB Startup Options

NSL Face-to-Face (F2F) series included in start-up kit. NSL Points Race series is optional and provides additional support and competition opportunities.

License renewal and NSL registration required in years after initial start-up.

See order forms for details.

Kit	Educator Licenses	Team Licenses	NSL F2F Teams
1-Station	2	1	1
2-Stations	2	2	2
4-Stations	2	4	4
6-Stations	2	6	6



# ELEMENTARY SUMMER

## RACING CAMP

This camp-specific curriculum is organized into a 5-day format with 25-40 contact hours depending on your program organization.

The 6-Car CAMP kit includes materials and print pack for six teams which is 18-30 students. Curriculum is appropriate for grades 4 - 6.

Specialize into green transportation by adding Energy Challenge projects. Build and optimize solar or wind charging stations.

The materials are NOT consumable and can be used to run multiple camps.

- 23 6 × Booster Kits (contents shown below)
- 24 3 × Caliper, soldering station, weigh scale & ride height gauges
- 25 3 × Additional Rechargeable 7.2V car batteries
- 26 1 × Spare Parts Pack
- 27 Online CAMP Curriculum with downloadable facilitator's guide, downloadable team activity guide (logbook), videos and presentations

After the first camp, a per student license fee is required to maintain license and access to curriculum, resources and training.

## ADDITIONAL MATERIALS & TECH

See the order forms and online store for additional options and info.

- 36 Replacement Cars (Sets of 2, 4 or 6)
- 37 Energy Pack (2 x 7.2V RC car batteries)
- 38 Power Pack (Battery Bundle + Smart Charger)
- 39 Tire Pack (2 sets of replacement tires)
- 40 Clear 1:10 Scale Car Body
- 41 Spare Parts Pack for one car
- 42 Gear Set (2 spur & 2 pinion)
- 43 Aluminum, adjustable shock / spring assembly
- 44 Robotic RaCecar - automate your simple RC car with Micro:bit
- 45 Chassis Geometry Setup System
- 46 Data Acquisition System
- 47 LED Show Focus Lesson, 3-Set
- 48 Make a Motor Focus Lesson, 3-Set
- 49 Track Rail & Transponder Systems
- 50 Solar and Wind Power Projects





## COLLABORATE. CREATE. NOW COMPETE!

Students own a racing team. Like the professionals, their team is a business that thrives only when individuals excel in jobs that range from engineering to 3D design to marketing and management. Their competitive car is electric, one-eighteenth the size of a typical stock car and remotely controlled.

### Startup Year

A non-consumable CLASS & CLUB kit is required in a team's startup year to compete.

All CLUB and CLASS kits include entry into the National STEM League (NSL) Face-to-Face (F2F) Competition in the startup year\*. The number of teams matches the number of stations in the startup kit.

For an additional fee teams can enter the Online NSL Points Race where students earn points for work done throughout the season and teachers/coaches earn valuable feedback from Ten80's team.

### Renewal Years

The kit is reusable in years two and beyond. All that's required to participate after a team's startup year is the the annual registration fee. Annual registration provides continued access to the updated curriculum, ongoing support, entry into the NSL Face-to-Face Series and (optional) a discounted replacement car.

Teams enter the Online NSL Points Race for an additional fee.

### Competition Categories

F2F categories are below. Online Points Race categories are too many to list. Check [www.Ten80Education.com](http://www.Ten80Education.com) for more info.

- Head-to-Head Roadcourse Races
- Head-to-Head Oval Races
- Data-Driven Design (Engineering Logbook Review)
- Enterprise - Team Pitches & Business Plan Presentations
- Enterprise - Graphic Design
  - Team Identity
  - Car Body Design

# S.T.E.M.

## BMX AFTER SCHOOL CURRICULUM





# Sample Lesson

# SEAT POSITION

CORR

## INQUIRY QUESTION(S)

What is the best seat position to allow for maximum pedaling force?

### Science Summary

Your leg muscles work together, from the pelvis and hips all the way to the feet and toes, to produce a force, called leverage, that pushes the bicycle pedals down as you pedal. The seat should be positioned so that your legs are just beginning their extension when the pedal is at the top of its circular path and can extend through the bottom of the pedal path without being fully extended. If the seat is too low, you are not able to extend your legs very far and are not able to push with much force.

If the seat is too high, your legs are already extended and cannot apply much, if any, downward force to move the pedals. Rider comfort is a factor in determining the best seat position, but is not as important as creating the correct leg angle to produce the most power, force, and leverage possible.

### BMX APPLICATION

BMX riders are only sitting on the bicycle seat for part of a BMX race. Riders need to position their seat so that they can produce the maximum power and leverage when they are seated. Most BMX races are decided by a



Seat at medium height.



Highest seat position.

## THE MOST COMFORTABLE SEAT HEIGHT ACTIVITY

Activity Learning Objective(s): Students Will Be Able To Observe And Explain . . .

- Leg muscles apply maximum force as they are extending.
- BMX bike seats that are too high or too low do not allow for maximum force because legs do not extend far enough, or too far.

### Materials

BMX bikes

Bike Helmets

Cones or markers to lay out 100 ft.

track 1 stopwatch per 2 students

Wrench to raise and lower seat height (if needed)

### Procedure

- Instruct all students to set their bike seat as low as possible.
- Ride the bike for 30 seconds to 1 minute. Make observations about comfort and the amount your legs could extend.
- Set the bike seat as high as possible.
- Ride the bike for 30 seconds to 1 minute. Make observations about comfort and the amount your legs could extend.
- Allow students to pick a seat height between low and high.
- Ride the bike for 30 seconds to 1 minute. Make observations about comfort and the amount your legs could extend. Compare different seat heights compared to the height of the rider and comfort.

# SEAT POSITION FOR COMFORT OR POWER



You can get few hundredths of a second, created by a fraction of an increase in pedaling power because of the seat position.

## HANDS-ON ACTIVITIES SUMMARY

**The Most Comfortable Seat Height:** Students will ride for 30 seconds to 1 minute with their seat as low as possible. Students then raise their seat as high as possible and ride for 30 seconds to 1 minute. Students are then able to pick a seat height “in the middle” and ride for 30 seconds to 1 minute.

**The Most Powerful Seat Position:** Students will raise their seat position from low to high and race for 100 ft. at max power for each trial. Students will work in pairs to time each trial to determine the seat position that produces the quickest ride (maximum power because of seat height).



Proper way to raise and lower seat.

## THE MOST POWERFUL SEAT POSITION ACTIVITY

Activity Learning Objective(s): Students Will Be Able To Observe And Explain . . .

- Leg muscles apply maximum force as they are extending.
- BMX bike seats that are too high or too low do not allow for maximum force because legs do not extend far enough, or too far.

### Materials

BMX bikes

Bike helmets

Cones or markers to lay out 100 ft.

track 1 stopwatch per 2 students

Wrench to raise and lower seat height (if needed) Tape measure

1 pencil per 2 students

1 Seat position for Max Power Data Sheet per student

### Procedure

1. Divide the students into groups of 2.
2. Assign each group a BMX bike, helmet, stopwatch, and pencil.
3. Give each student a Seat Position for Max Power Data Sheet.
4. Mark of a 100 ft. long track (make sure the surface is the same for all riders).
5. Instruct students to measure the time it takes to ride the 100 ft. track for each trial.
6. Start with the seat as low as possible.
7. Continue to raise the seat by 2 inches for each trial until you reach the highest possible seat height.
8. Make sure the rider is exerting maximum power for each trial.
9. Record the time to ride 100 ft. on the Seat Position for Max Power Data Sheet.
10. Use the fastest time to determine the seat position for max power.

# SEAT POSITION FOR MAX POWER

## DATA SHEET

Position the seat as low as it will go. Measure the distance (in inches) from the top tube to the top of the seat and record for each trial.

Seat Height Above Top Tube (inches)	Time to ride 100 ft. (seconds)	How did it feel? Circle One Each Trial				
		1=very uncomfortable 5=very comfortable				
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5

Which seat height allowed you to ride the fastest and felt the best? \_\_\_\_\_

# SEAT POSITION FOR MAX POWER

## Seat Position for Max DATA SHEET

Name \_\_\_\_\_

### Power Data Sheet

Position the seat as low as it will go. Measure the distance (in inches) from the top tube to the top of the seat and record for each trial.

Seat Height Above Top Tube (inches)	Time to ride 100 ft. (seconds)	How did it feel? Circle One Each Trial				
		1=very uncomfortable 5=very comfortable				
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5
		1	2	3	4	5

Which seat height allowed you to ride the fastest and felt the best? \_\_\_\_\_



# Music Production STEAM, Grades 6-12



**Music Production STEAM 9th-12th** is a 4 unit, 20 lesson plan project-based curriculum. The purpose of the Music Production curriculum is to use a student run record label to engage as well as educate students in the areas of Science, Technology, Engineering, Arts, and Math. Students will actively run their own entertainment company by taking on the responsibilities and job functions of each position from CEO to Audio Engineer. Students will learn to produce, compose, record, and market their music.

## **Includes:**

- Instructor guide
- 20 Student Workbooks
- FL Studio Producer Edition Software with compatible Interface
- 1 MIDI Keyboard
- 2 Studio Monitors
- 1 Microphone complete with Stand
- 1 Headphone
- Cables to connect it all

Pop culture is a major source of influence for most Americans between the ages of 13-19 years old. Most of our youth are first introduced to pop culture between 3-9 years of age, which per Neilson ratings is the 2nd largest age group in this country. The primary source of exposure to pop culture is through music. According to the Stanford University Department of Anthropology, on average, American youth listen to music and watch music videos four to five hours a day. This is more time than they spend with their friends outside of school or watching television shows. Music matters to adolescents, and they cannot be understood without a serious consideration of how it affects their lives. The scholastic community must rise to the occasion and bridge the gap between pop culture and education. Music Production S.T.E.A.M is an innovative program that does just that through the use of disguised learning. The purpose of this curriculum is to use a student run record label to successfully educate students in the areas of Science, Technology, Engineering, Arts, and Math in an affordable, exciting, and applicable way.

## **Music Production: Students Run Record/ Entertainment Company**

Music Production is a creative engaging approach for students to gain hands on experience in running a record/entertainment company to expand their knowledge of the recording industry by signing, recording and marketing student artist through their own entertainment company.

Students work in teams related to advertising, recording, production, publishing, artist and repertoire, legal, marketing, touring, sales, web development and finance. Students will be exposed to the different career opportunities available within the entertainment industry.

In addition students will learn about performance rights, music distribution, unions, guilds, entertainment agencies, live performances venues, concessions, recording studios, manufacturing, production, wholesale and retail merchandising.

- Subject Areas: English, Social Studies, Computer Science, Research Methods, Mathematics, Strategies, Communication, & Evaluation Strategies
- Skills: Creative thinking, Decision making, Drawing, Following directions, Illustration, Imaginative discussion, Interpreting information, Listening responsively, Responsibility, Sequencing, Teamwork, Applying information, Brainstorming, Conducting research, Decision making, News writing, Role-playing,

### **Production & Music**

Through a structured step by step curriculum students will learn DJing, music theory, engineering, studio management, and music production. Participants create and produce their own studio quality music tracks and record an instrumental compilation CD.

- Subject Area: Production, Perspective, Science Theory, Evaluation Strategies, Mathematics, Communication Strategies, & Developing Research Skills
- Skills: Comparing, Critical thinking, Decision making, Differentiating, Identifying choices, Interpreting data, Listening responsively, Math computations, Making observations, Matching, Problem solving, Role-playing, Teamwork, Brainstorming, Comparing, Compiling data, Conducting research, Decision making, Differentiating, Identifying choices, Listening responsively, Making observations, Problem solving, Reading

### **Urban Visual Art**

Students will explore and discuss the many areas of visual arts to include photography, drawing, painting, digital imaging as well as some alternative processes. Visual and hands on stimulation will be provided through engaging interactive activities. In addition the program gives students who are more visually stimulated the advantage of learning through alternative methods.

- Subject Area: Artistic Perception, Creative Expression, Historian, & Cultural Content
- Skills: Conceptualizing and designing advertisements, Creative thinking, Critical thinking, Decision making, Drawing conclusions, Reading and writing, Reasoning, Role-playing, Teamwork, Verbal communication, Working in groups.

### **Get your Paper Right**

This Hip Hop financial literacy empowerment workshop will provide valuable information on budgeting, saving and building wealth.

During this workshop we will provide youth important financial related information and opportunities for economic advancement and empowerment. Topics will include: Building Credit, Basics of Banking, Wealth Building, Asset Management, Home Ownership, Auto Financing and Entrepreneurship.

- Subject Area: Strategies, Problem Solving, Concepts of Probability, Human Experience, Evaluating Data, Mathematics, & Applying Knowledge
- Skills: Comparing, Compiling data, Conducting research, Decision making, Differentiating, Giving reports, Interpreting data, Math computations, Problem solving, Reading, Teamwork, Understanding symbols

### **STEAM Tour**

The STEAM Tour is a nationwide tour that gathers the young, hip, influential, and powerful entrepreneurial trendsetters of today whose careers encompass the core components of Science Technology Engineering Arts & Mathematics (STEAM). The tour brings a day of seminars, workshops, and forums that points the youth in the direction of success.

Students are introduced to the fundamentals behind creating/designing high fashion sneakers, the technological know-how to develop high quality headphones (Beats by Dr. Dre), and the chemical combinations/formulas for energy drinks (Gatorade) & developing beauty products (Carroll's Daughter).

**Education Through Entertainment & Arts Partnership (EEAP)** is a culturally-relevant educational lifestyle company which strives to assist students by offering a fundamentally different approach to education that is designed to address the needs of 21st century learners through project-based learning.

This is accomplished by personalizing their education curriculum, engaging the student using disguised/non-traditional learning methods, and making it applicable to the real world outside the classroom. We provide student-centered arts instruction in film-making, recording arts music production, photography, visual arts, theatre, design, dance, and language arts.

These programs are designed to continually capture student's imaginations and turn their academics into relevant experiences and skills which can be used throughout their lives. EEAP provides positive mentoring for our students, a hands-on approach, and a student-centered academic component that is aligned to Common Core Standards.

While we work primarily with students in grades K-12 who are enrolled in Title 1 schools, we also work with nonprofit organizations, school districts, charter schools, and community-based organizations. We serve these students through after school programs, in-school integration, summer programs, outreach programs and art-based programs.

### **Expected Outcome**

- Create an individualized student learning plan based on weaknesses identified in assessments and include academic, community and family components to help the student make gains in those areas
- Improve standardized test scores and/or academic subject area achievement by providing interactive curriculum and small group tutoring sessions
- Increase student dedication to school and motivation to remain active in school
- Improve academic achievement core areas
- Promote positive correlations in youth between popular culture and traditional learning to enhance motivation and dedication toward academic performance
- Incorporate Hip Hop based education in traditional learning environments as a valuable teaching tool

### **Case Study Statistics**

In 2011, EEAP worked with a non-profit organization and had 488 students participate in our STEAM program. Results for this one program are as follows:

- 80+% Showed gains in academics, student attendance, student participation in class work, student morale, and vigor towards learning
- 87% Increase in academic improvement in certain classes, mostly language arts and reading from actively participating students
- 85% Decrease in absenteeism

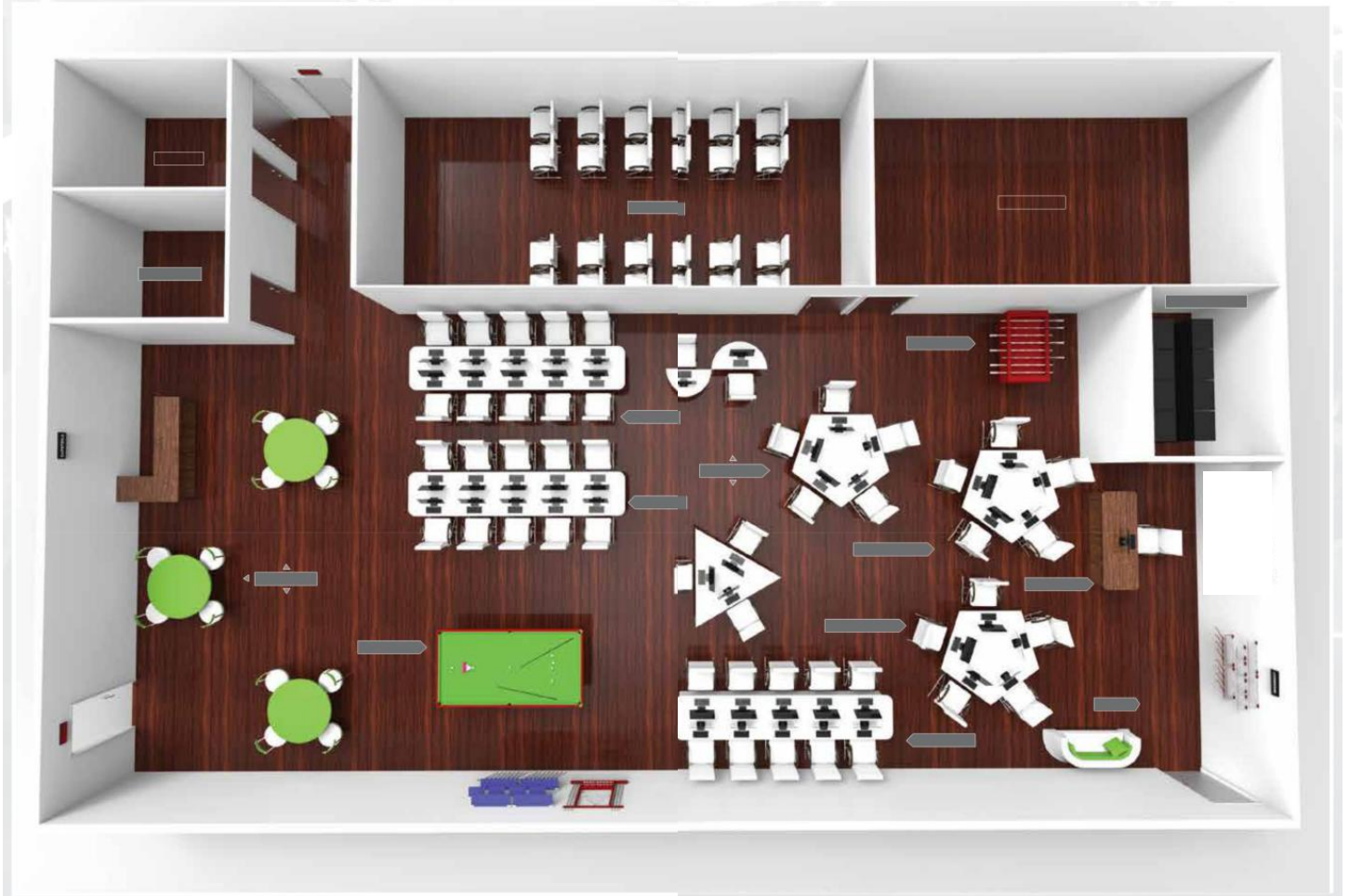




# STEAM Laboratory

The estimated annual total revenue that will be generated by esports in 2023 (nearly half of which will come from media rights), up from \$655 million 2017.

## 5,000 sq ft STEAM Laboratory & Education Facility





eSports Education

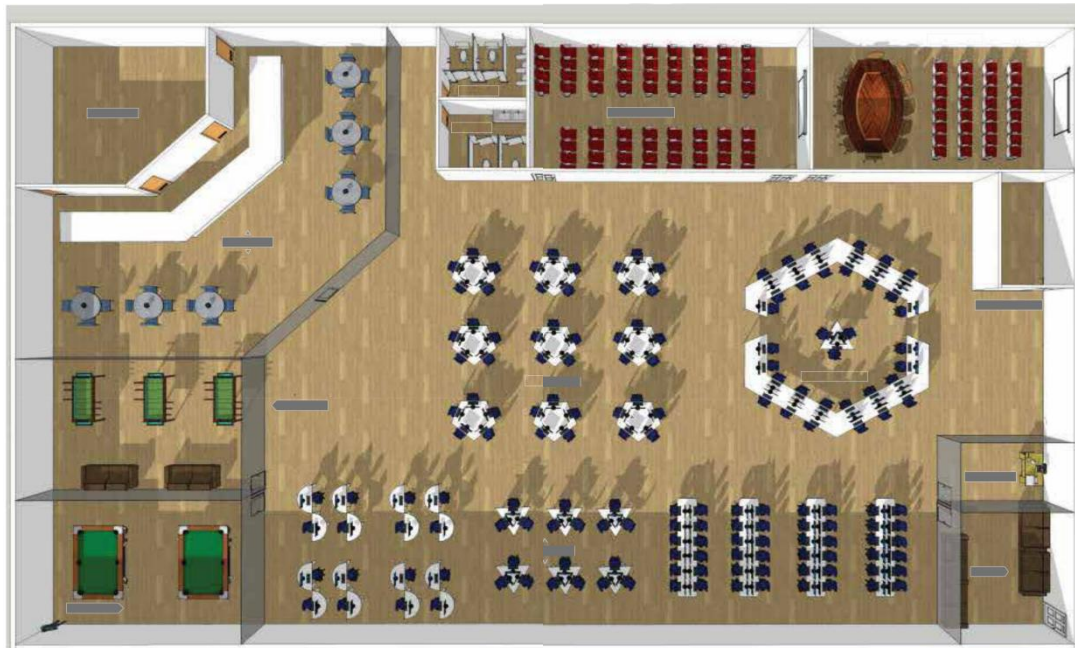
WORLD OF GAMERS



# eSports Gaming Facility

The estimated annual total revenue that will be generated by esports in 2023 (nearly half of which will come from media rights), up from \$655 million 2017.

## 10,000 sqft Esports Gaming & Education Facility



### ESPORTS GAMES CHART

1	2	3
LEAGUE LEGENDS	SMITE	VAIN GLORY
COUNTER STRIKE GLOBAL OFFENSIVE	HEROES OF THE STORM	HEROES OF THE STORM
DOTA 2	CALL OF DUTY	HEROES NEWBORN
OVERWATCH	STAR CRAFT	SUPER SMASHERS WII U
HEARTHSTONE	WORLD OF WARCRAFT	X
	HALO	GUILD WARS 2
	WORLD OF TANKS	BATTLEFIELD
	FIFA 17	

# Entertainment Arena (Future Expansion)

Nevada - April 2022  
California - December 2022

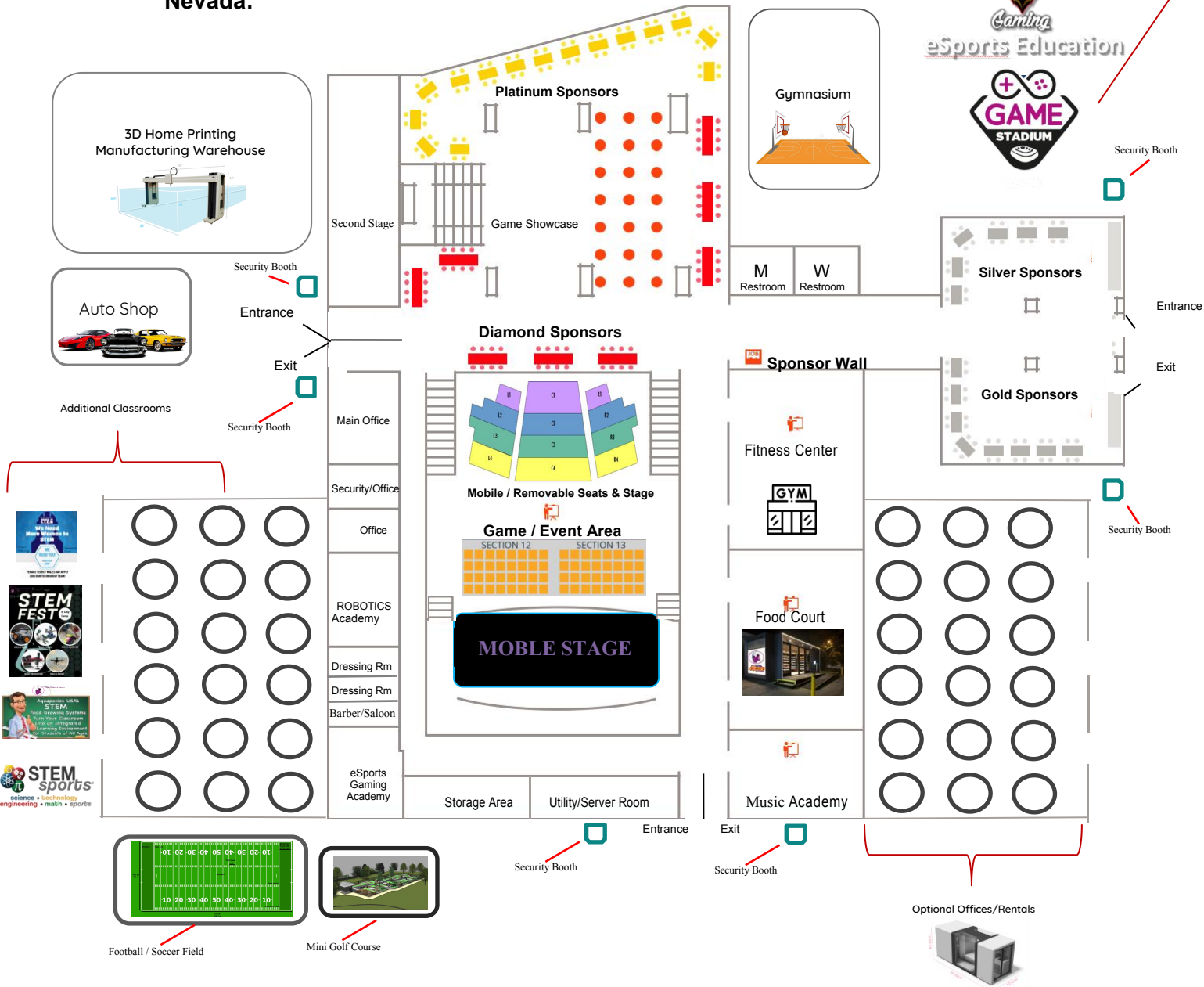
500,000+ Sq Ft

## Layout of Mufasa Esports (“STEAM”) Education & Gaming Entertainment Arena

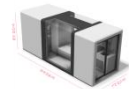
The layout may be changed regarding the number of sponsors.

### Nevada:

Sponsored By  
YOUR LOGO  
BRANDED NEXT TO  
OUR SIGNAGE!



Optional Offices/Rentals



# ORGANIC MATTERS



## Education Program



### What is Aquaponics?

Aquaponics is a hybrid food growing technology combining the best of aquaculture (growing fish) and hydroponics (growing veggies without soil).

It's completely organic because the fish produce natural fertilizer used by the plants and that means no man-made chemicals.

Aquaculture has been around for a long time. The fish that are easiest for novices to grow are Tilapia. Tilapia are tropical fish whose native home is Africa and the Nile River. They are perhaps the oldest farmed fish on the planet as the Egyptians held them captive in natural ponds along the Nile over 4,000 years ago.

They are the best fish for a new Aquaponic farmer to raise because they are so tolerant and hardy. They are also one of the fastest growing fish, growing from a small fry to over a one pound meal in about eight months. You raise these delicious fish in a Tank. It only takes 1½ pounds of inexpensive fish food to grow one pound of fish.

The fish tank and the grow bed are inter-linked. The water is pumped from the fish tank to the raised Grow Bed and gravity flows back to the Fish Tank. The fish produce ammonia and with the help of naturally occurring beneficial bacteria, the ammonia changes into nitrate thereby becoming the plants' natural fertilizer. In turn, the plants clean the water for the fish by absorbing the nitrate. It's a symbiotic relationship—nature's way when left undisturbed by humans. This is why Aquaponics Food Growing Systems can turn an ordinary classroom into a STEM Laboratory in a matter of hours.

# AQUAPONICS SYSTEMS

**A**QUAPONICS might sound as if it's complicated, but the clever technique is quite simple. If you've seen how fish are kept in an aquarium, you already know most of what you need to know about this interesting way of growing plants.

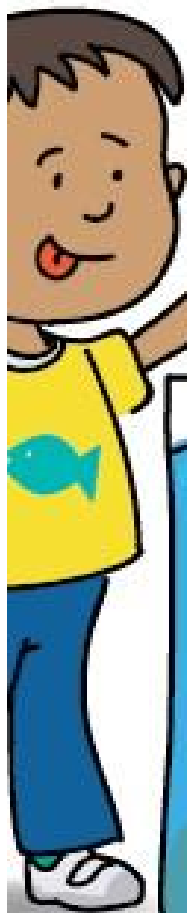
Aquaponics is a way of growing fish and plants where each uses the other to grow more effectively. Instead of putting plants in soil, they're grown in water that has one or more fish in it.

It's a win-win set-up: the fish get fresh water from the plants and the plants get nutrients (food), from the fish. You guessed it – the fish poop feeds the plants!

Let's look at this symbiosis in action.

## FISH FOOD

It's the only thing you have to add to the system to grow your fish and plants.



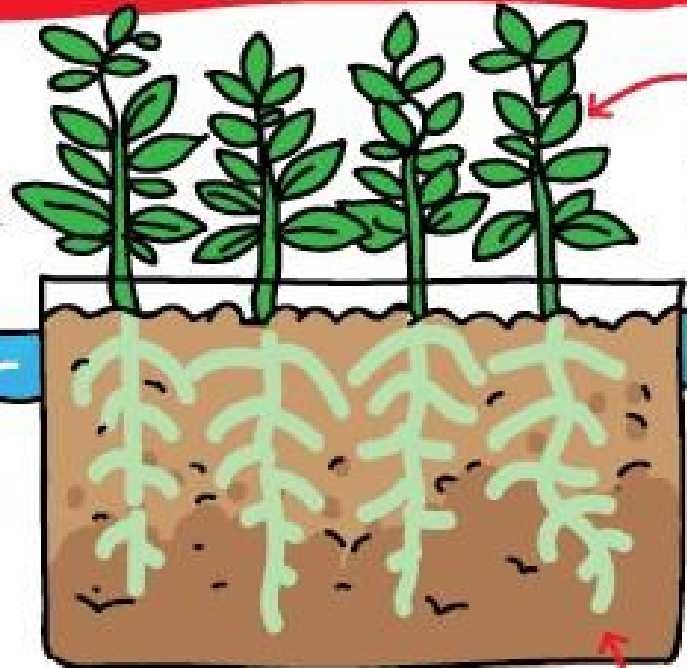
## HOW AQUAPONICS WORKS

### FRESH WATER

After being cleaned by the plants, it makes its way to the fish tank.

### PLANTS

They absorb nutrients from the fish water and in the process filter it.



### GRAVITY

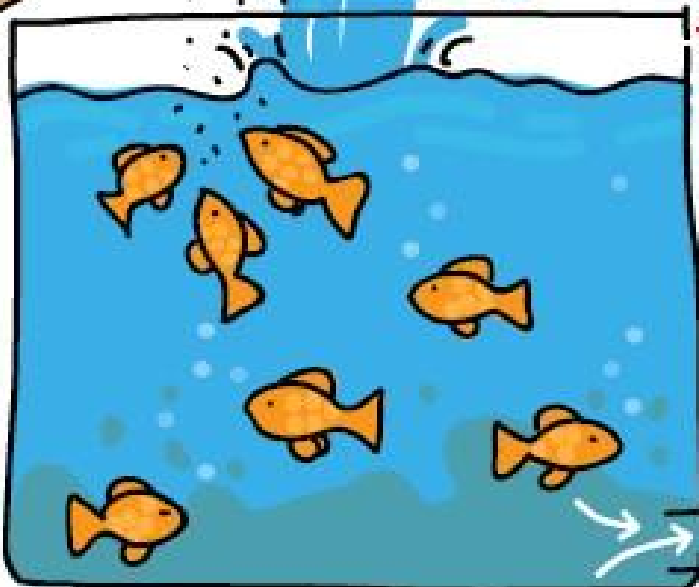
The force of gravity moves clean, filtered water down to the fish tank.

### GRAVEL

This keeps the plants upright and helps with the filtration of the water.

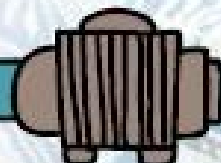
### FISH TANK

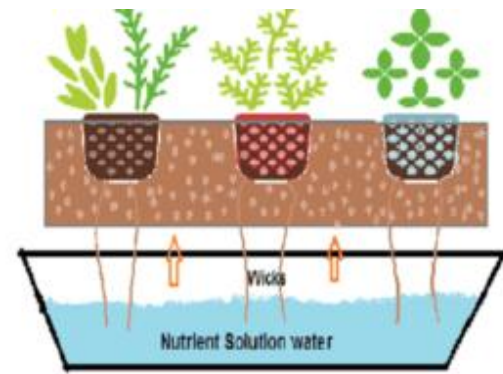
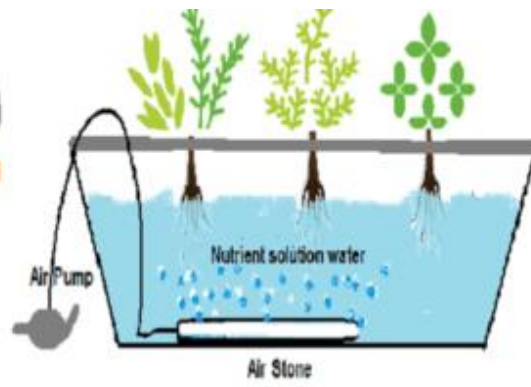
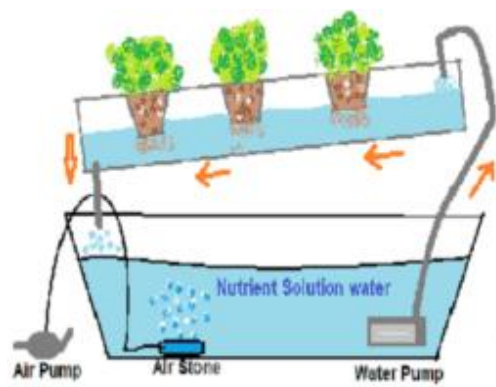
Here is where the fish live and produce nutrient-rich water for the plants.



### WATER PUMP

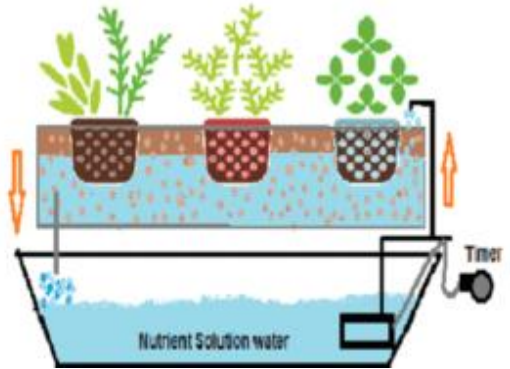
It moves nutrient-rich water up to the plants.





## Type of Hydroponics System

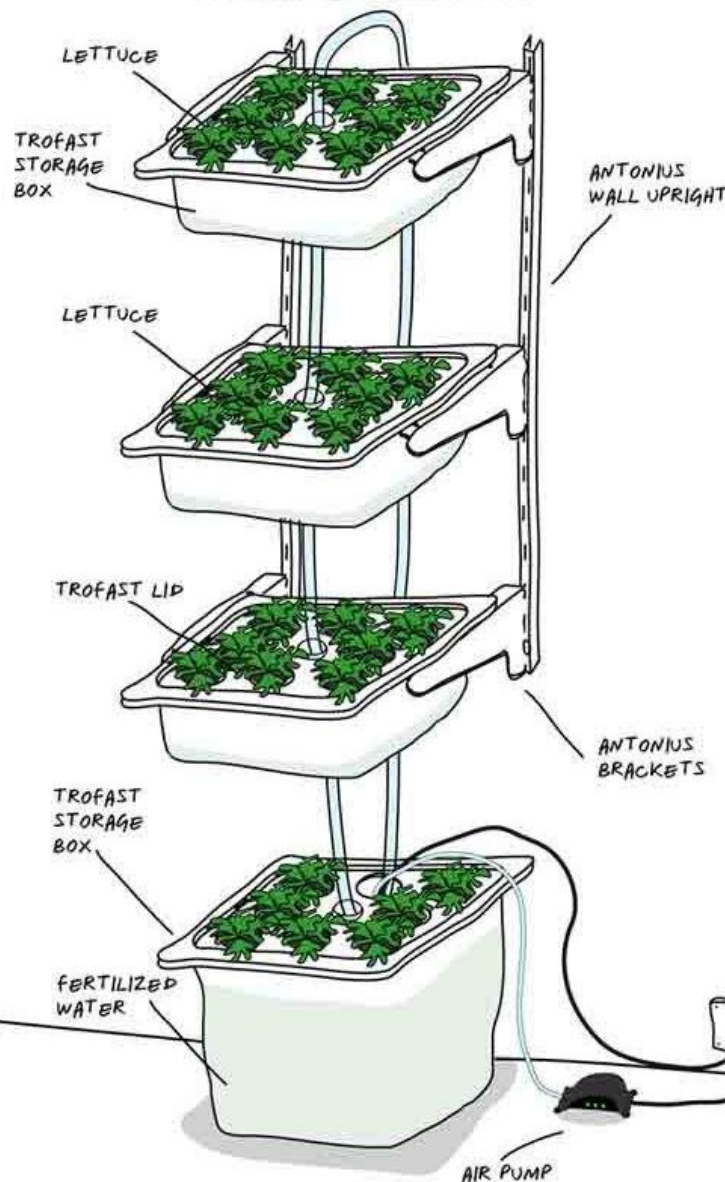
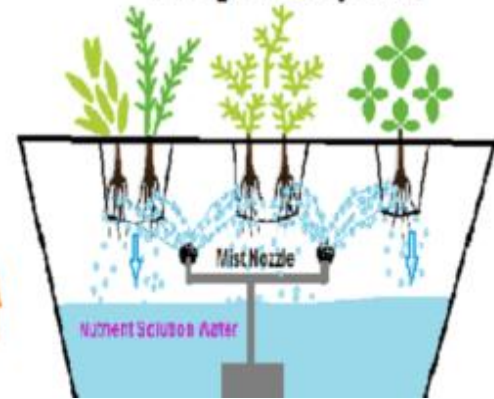
**Ebb & Flow System**



**Drip hydroponic system**



**Aeroponics system**



## Organic Matters Curriculum Outline

- Introduction to Aquaponics & Hydroponics
- Different Aquaponic & Hydroponic Systems
- The Difference between Aquaponics & Hydroponics
- Introduction to Fish Health using Aquaponics
- Types of Compost
- Types of Nutrients
- Grow Mediums
- Feedings
- Water Quality
- Food Safety in Organic Gardening



Most Americans, regardless of income or background, share the goal of owning a home. Public housing authorities (PHAs) have recognized the critical role that they can play in helping low-income families realize this aspiration.

In addition to tax advantages, PHA sponsored and HUD approved home-ownership programs provide three compelling benefits to extremely low-income and low-income purchasers, by allowing them an opportunity to purchase a home.

Many families are prevented from purchasing a home due to low income, low savings, poor credit history, over-priced housing and the lack of affordable housing opportunities.

By creating affordable homes and helping low-income and moderate-income households to overcome barriers to home-ownership, PHAs can create opportunities for families who might otherwise never have had the chance to own their own homes.

An asset that can grow in value and generate financial security. The largest asset of most Americans is the equity in their homes. Helping people to purchase homes can be a key component of a financial asset building strategy.

It helps ensure economic integration into the future. Increased physical and psychological security.

Home-ownership offers stability while pursuing advancement in education and employment. It provides increased control over one's environment and future, and it gives families a sense of pride and achievement in providing a home for themselves.

PHAs, through the sale of homes already in their inventory or by the development or acquisition of properties for sale, are well positioned to assist households to purchase their own homes.

Housing authorities and their partners are able to be creative with respect to developing and implementing a home-ownership strategy and program as long as the proposal adheres to and is consistent with specific regulatory requirements.



## **Home-ownership in U; with a Graduation Certificate**

This new education tutorial offers a comprehensive home-ownership course with enriched content and an improved user experience. Home-Ownership in U offers six modules, each focused on key learning principles to promote education, homebuyer preparedness and financial management.

- Module 1: Overview & Introduction of the Home-buying Process
- Module 2: Managing Your Money
- Module 3: Your Credit and Why It Is Important
- Module 4: Getting a Mortgage
- Module 5: Finding a Home and Closing on a Loan
- Module 6: Preserving Home-ownership

Participants will enjoy numerous benefits including:

- Ability to take the course at your own pace using multiple devices (mobile phone, tablet, desktop).
- New functionality allowing users to log in/out of the tutorial from any device while saving progress on-demand.
- Compatibility with multiple browsers.
- Convenient access to course completion certificate.
- Enhanced user support.

## **Highlights of the Course**

- Free, interactive tutorial offers six courses focused on home-ownership education. Offered in English only.
- Self-paced, online platform that supports multiple access methods providing flexibility to users.
- Successful completion of this tutorial satisfies the PHA or Home Possible® mortgage home-ownership education requirement. A printable certificate of completion with the user's name is generated after successfully completing the final quiz. A copy of the certificate is also provided to the lender..

## **We're Educating People About Credit, Finances and Home-ownership!**

Utilize our free Home-Ownership in U program, consumer financial education online curriculum if you are considering home-ownership for the first time or currently own a home and need information on how to avoid foreclosure.

This interactive educational curriculum – available in English and Spanish – will teach you how to achieve your financial and home-ownership goals.

With our **Home-Ownership in U** consumer financial education online curriculum, you will:

- Understand the importance of building credit to secure your financial future
- Gain insight into how lenders assess your eligibility for a mortgage loan.
- Recognize the warning signs of predatory lending and scams.
- Learn the steps to successful home-ownership.
- Safeguard your home and your finances against life's unexpected challenges.
- Learn what to do if you ever have difficulty making your mortgage payments.

### **About The Course**

The **Home-Ownership in U** consumer financial education online curriculum features 12 complete financial education modules that provide valuable information to help you improve your credit, manage your money, and be a responsible homeowner.

To get the most out of this curriculum, we recommend that you complete all 12 modules, in numerical order. Each module can generally be completed within 20-30 minutes. However, if you have a specific home-ownership need, we have organized the modules into four financial education tracks.

You can take the **Home-Ownership in U** online curriculum anywhere – anytime, at your pace. This course is available in English and Spanish.

#### **Module 1: Your Credit and Why It Is Important**

LFOA understands that the single most effective way to prepare consumers for home-ownership is to educate them on the importance of using credit wisely. This module introduces credit, basic terminology, and the importance of building a better credit record.

#### **Module 2: Managing Your Money**

Learn about the importance of developing a spending plan and developing wise spending habits, in addition to receiving tips on how to save money.

#### **Module 3: Goal Setting**

Find out about the importance of setting goals to achieve financial objectives.

#### **Module 4: Banking Services: An Important Step**

Get valuable information on the basics of banking and the importance of establishing a relationship with a financial institution to build credit, save money, and achieve goals.

#### **Module 5: Establishing and Maintaining Good Credit**

Learn how to re-establish your credit worthiness, establish a credit presence and maintain a good credit history. The module also reviews the contents of a credit report, as well as the primary credit and consumer protection laws.

### Module 6: Understanding Credit Scoring

This module describes credit scoring from a borrower's perspective and illustrates how consumer behavior affects credit scores.

### Module 7: Thinking Like a Lender

Get information on how lenders and other financial institutions determine creditworthiness and how it relates to credit scores.

### Module 8: Avoiding Credit Traps

Get valuable information on how to avoid credit traps, identity theft, and predatory lending practices that can consume personal resources and severely damage credit histories.

### Module 9: Restoring Your Credit

This module shows how to deal with credit difficulties and provides tips on how to restore impaired credit.

### Module 10: Planning for Your Future

This module outlines the process to achieve goals and attain financial security.

### Module 11: Becoming a Homeowner

This module provides practical information on how to prepare to obtain a mortgage and own a home.

### Module 12: Protecting Your Home Investment

This module contains a wealth of information on understanding home equity, maintaining and improving your home, preparing for emergencies, and recognizing scams. It also includes a comprehensive section on alternatives to foreclosure.



# FIRST-TIME BUYERS



## Website Development “STEAM” Course

Our Website Development Program teaches and show students how to build and maintain a website. Within each course, students will learn how to implement coding languages to develop and build websites for personal use and or to provide as a business service.

### Syllabus - What you will learn from this course

#### WEEK

1

4 hours to complete

#### Course Overview and Website Structure and Hosting

This first module provides an overview of how websites function, their structure, and the ins and outs of choosing a website name and selecting an online host to house your website. By the end of this module, you'll be able to: find and select a web hosting company; choose an effective domain name; use the host to manage your websites; and discuss how networks and the internet function at a high level.

9 videos (Total 33 min), 2 readings, 1 quiz

#### WEEK

2

4 hours to complete

#### Designing Your Own Website: HTML Basics

In this module, we'll begin to explore how to design and create websites by exploring the base language used to power all websites: HTML. By the end of this lesson, you'll be able to: identify and use common HTML tags; add an image to a web-page; create HTML-formatted tables; use hyperlinks to connect a series of web-pages; upload your finished HTML pages to a web host; and, learn some tips and tricks for styling pages and practicing your coding.

10 videos (Total 60 min), 1 reading, 2 quizzes

#### WEEK

3

3 hours to complete

## Introduction to Programming Using JavaScript

Now that you know some basic HTML, it's time to turn our attention to another common scripting language used to make websites dynamic - that is allowing users to interact with your web-pages - JavaScript. While learning about JavaScript, you'll also gain some foundational knowledge common to all programming languages. By the end of this module, you'll be able to: discuss what is meant by dynamic content; perform essential programming language tasks; create simple JavaScript programs; use JavaScript to set up alerts and respond to events, to read input, and to change HTML; and conduct basic JavaScript testing.

9 videos (Total 59 min), 1 reading, 2 quizzes

### WEEK

4

**3 hours to complete**

#### Websites with Style: CSS Properties, Colors and Fonts

While HTML and JavaScript are very useful for web development, they don't exactly make websites look attractive - that's where cascading style sheets, or CSS, comes into play. While HTML is used to build the structure of our pages and JavaScript is used to provide interactive functionality, CSS is used to graphically design and layout web-pages. By the end of this module, you'll be able to: discuss common mistakes in designing a website; identify and apply CSS basics like purpose and syntax; use CSS properties to control fonts, colors, layouts, and other common properties; differentiate between in-line, internal, and external CSS; and practice and test your cascading style sheets.

10 videos (Total 50 min), 1 reading, 2 quizzes

### WEEK

5

**3 hours to complete**

#### Creating HTML Forms

In this lesson, we're going to learn to apply all of the skills we've acquired so far to make a very common, and very useful type of web-page - an HTML form. HTML forms are seen everywhere on the internet and are used to capture particular information from users in a variety of ways. By the end of this module you'll be able to: create basic HTML forms; identify and appropriately use different types of HTML input; validate user input; submit HTML forms; and test how your forms are working and troubleshoot errors.

7 videos (Total 41 min), 1 reading, 2 quizzes

### WEEK

6

**5 hours to complete**

#### Creating Web Applications

In our final module, we're going to explore the basics of designing web applications - programming useful and dynamic web-pages that allow our users to interact with them. By the end of this lesson you'll be able to: distinguish between client and server-side development; apply advanced JavaScript programming skills to create logic with selection and iteration; create new features for applications; create more advanced HTML forms; and practice and learn additional troubleshooting and problem-solving techniques. The module wraps with a final peer review activity that will draw upon all of the skills you've learned in this course.

8 videos (Total 35 min), 1 reading, 2 quizzes

# Game Animation Fundamentals

Learn basic game animation

LEARN MORE



## School of 3D Animation & VFX

### 3D Animation Design “STEAM” Course

Our 3D Animation Design Program will teach students how to design, develop and render 3D animations. Each course, students will learn how to use a variety of animation software used to design, develop and render 3D Animation characters with lip sync movement. Students will also learn how to develop and design video games, animated movies, animated cartoon stories and more.

### 3D Animation & Visual Effects Curriculum

#### Specializations

To reflect the nature of the 3D industry, students have the opportunity, during their year at VFS, to focus on one of the following areas of specialization.

- Animation
- Modelling
- Visual Effects

### Term 1 Courses

#### History of Animation + VFX

It's often said that you can't know where you are going until you know where you've been and this is especially true for the ever changing animation industry. In this course, you will develop an understanding of animation in its historical context. Discover the pioneers, innovators, adapters, and the followers of animation as they explored the limits of this evolving art form. Examine the major events in animation to understand how trends, technological advancements as well as stylistic and cultural developments affect the industry. Lessons include lectures and the examination of milestone cartoons followed by discussions.

### **Design 1**

This class focuses on the process of shot design as a team experience. Building on a solid foundation of research, this class teaches students how to work within a brief to create designs for characters, props, and locations. Students gain first-hand experience of how to visualize, communicate an idea, and create design documents.

### **Lighting 1**

This course provides students with the principles and techniques of illumination using Maya and MentalRay. The course emphasises the use of light to create the illusion of shape and depth within a 2D medium. Students analyze techniques used by Renaissance artists, and see how those same techniques are used today in computer graphics. Students also explore different lighting scenarios for different times of day, as well as interior illumination with varying sources of illumination.

### **Modelling 1**

In this course, students learn fundamental tools and techniques for prop modelling in Autodesk Maya, and examine the process of how to create models for a variety of applications. Students learn the importance of matching reference, and how to leverage reference to convey story ideas and contexts. Students also learn hard surface modelling techniques and how to model accurately (and to scale). A full production style "pipeline" is applied to each model, taking the reference from design to proxy, and on to the final model. In later modelling courses, students will further explore areas of production using the models created in this course. Students' projects are evaluated through a series of modelling exercises and assignments culminating in one large final project, a still life.

### **Surfacing 1**

This course demonstrates the interaction of light on surfaces in the real world and how to recreate this phenomenon in a CG environment. The creation of realistic surface shaders, in combination with effective texturing techniques, allows for the creation of high-quality, inorganic-surfaced models.

### **Career Prep**

The Career Prep track is a workshop series delivered in 3-hour segments from Term 1 through 6. The key topics are intended to equip students with essential skill-sets for pursuing employment in their industry and position of choice. Students will explore their preferred career paths, understand the importance of networking and social media, begin creating their web "brand," produce Industry-specific cover letters, and resumes, as well as examine strategies for nailing the perfect job interview. The year will end with Industry Night in Term 6. Attendance is mandatory, and students will be evaluated based on attendance of workshops.

### **Animation 1**

This course covers the basic principles of animation, and provides students with the basic understanding of timing. Students learn the fundamentals of weight and its direct relation to timing. They also learn to animate basic bouncing, wave motion, and a simple jump. Students are introduced to the animation tool sets in Motionbuilder, Maya, and XSI.

### **Visual Effects 1**

This course introduces students to the fundamental skills used in the Visual Effects (VFX) industry. Students learn basic compositing and how the VFX field integrates computer graphics and 3D components with live action plates. Visual Effects 1 includes comprehensive practical exercises which simulate current industry pipelines. Students have access to experienced mentorship for discussion and feedback.

## Term 2 Courses

### Previsualization

The art of pre-visualization allows you to generate preliminary versions of shots or sequences using digital tools in a creative and collaborative way. In this class, you will be introduced to pre-visualization as it pertains to film and television. Visual story concepts of line-of-action, staging, framing and composition will be covered. Students will work in groups and be provided with a 2D animatic, which they will interpret into 3D shots. Tools used will include Maya and Premiere Pro.

### Life Drawing 1

In Life Drawing 1 students are introduced to the principles of Life Drawing by exploring the observation of the human form. Study focuses on the principles of movement, weight, balance, shape, and anatomy through gesture drawing, long form poses, and humans in motion. The practice of observation and application is the foundation from which students apply these principles. Study in shading, shadow, foreshortening, and action analysis further allow students to explore the importance of observing the human form and anatomy.

### Design 2

Design 2 focuses on colour theory, as well as introducing students to the different streams and the pitching/design process for demo reel production. The colour component consists of four classes with a classically trained colour artist. Students create a colour concept for designs to be used in their Term 2 modelling class. The demo reel component consists of three lectures that introduce students to the modelling, animation, and visual effects streams. Examples of past student work are discussed, along with an industry overview of the different disciplines. The pitching process is also covered in this class to prepare students for their Term 3 project pitch.

### Lighting 2

This course expands on the principles and techniques of illumination using Maya and MentalRay, with an emphasis on using light to create mood. Students gain an understanding of how to simulate indirect illumination, as well as how to separate a render into different layers, to be composed back together in Nuke. Students are exposed to different lighting scenarios and light a complex animated shot.

### Modelling 2

This course covers the fundamental tools and techniques of character and hard body modelling within XSI and Maya. Students examine the process of creating various characters and learn the importance of line flow for deformation and shape. Students study modelling tools, including lattice deformation, enveloping objects, character rigs, point pulling, and expressions. These tools are applied to a series of modelling exercises and assignments, culminating in a free-form walk, to prepare students for the advanced modelling course and industry production.

### Surfacing 2

This course outlines techniques to surface organic models effectively. From the application of shaders to techniques for applying textures efficiently, students develop industry-accepted practices for surfacing characters and organic surfaces.

### Rigging 1

Rigging a character is time consuming, and requires thoughtful planning. Students work through the process of rigging a proxy character. Emphasis is on creating a solid skeletal structure, including position, freezing and orienting joints, and building on top of this. Students are introduced to MEL scripting, Maya plugin, and script installation to show the power of these aspects. The end result is the creation of a proxy rig that students use for their Term 2 animation exercises and assignments, and a Term 3 project.



## **Animation 2**

Students learn how to cycle animation in Maya, and use various skills and functions to view their Silhouette (“7” key), arcs (Tracking markers), and line of action (Paint overs). Students begin to analyze the effect that outside weight can have on a character, and how they can use it to create the illusion of life.

## **Visual Effects 2**

The purpose of this course is to familiarize students with the core skills used in the Visual Effects (VFX) industry. Students continue to gain practical experience through editing, compositing, and VFX, integrating computer graphics and 3D components with live action plates. Visual Effects 2 includes comprehensive practical exercises that simulate current industry pipelines. Students have access to experienced mentorship for discussion and feedback.

## **Term 3 Courses**

### **Pre-Production**

This course prepares students for the production component of their studies. Students are guided through the different stages of pre-production for their specific project, and apply concepts learned in Terms 1 and 2 directly to their projects. Students are expected to research, explore, and iterate on their projects ending with a comprehensive pre-production package which consists of: Animatic, Designs, and Research.

### **Lighting 3**

This course builds upon the principles and techniques of illumination using Maya and MentalRay, with an emphasis on using light to create visual interest or focus. Students closely examine the MentalRay render engine to gain an understanding of the render equation and the importance of a linear workflow. Students continue to expand their understanding of colour and how to effectively use it as part of lighting solutions.

### **Surfacing 3**

This course introduces students to the workflows and tools required to properly surface a character. From the skin to the clothing, students explore the shaders, unwraps, and textures needed to create high detail and realistic-looking character surfaces.

### **Rigging 2**

Students examine some of the more intricate ideas and techniques involved with the character set-up process. Students begin by looking at constraints to see the ways they can create inter-object relationships, and how to start the process of setting up faces using blend shapes and facial controls. At the end of this term, students have a solid bipedal rig that they can use for their short film.

### **Compositing**

The purpose of this course is to digitally composite 3D-generated assets, which are typically used during compositing in the film industry. Students will continue to learn the methods by which computer generated elements can be integrated into live action plates, specifically, how these elements are digitally composited. This is a hands-on class where students will learn through practical experience. This course includes comprehensive practical exercises that simulate current industry pipelines.

## **Required Courses for Animation Stream**

### **Animation 3**

In Animation 3, students go through all of the steps involved in creating an animated sequence for a short film. Students work in groups to find a 10- to 15-second piece of dialogue to use for a short animated piece. Students go through thumb-nailing the shots, blocking, posing, splining, and then polishing the shots.

## **Life Drawing 2**

Students focus on the principles of movement, weight, balance, shape, and anatomy through gesture drawing, long form poses, and humans in motion. The practice of observation and application is the foundation from which students practice these principles. Study in costume, props, and action analysis further allows students to explore the importance of observing the human form and anatomy.

## **Required Courses for Modelling Stream**

### **Modelling 3: ZBrush**

In this course, students explore Z-Brush fundamentals with a focus on how to work with imported geometry and environments. Students start with sculpting, building specific environment assets, and exploring the tools used to damage and retopologize a model. The term ends with a look at the model output process as students take their final into Maya for mapping, including vector displacement, 32bit displacement, normal maps, and rendering.

### **Sculpture**

This course is designed to teach students how to move their ideas from a 2D state (i.e. drawing) to a 3D state (i.e. sculpture). This skill is useful for all facets of film and television. All ideas begin as sketches and blueprints that have to be realized by a sculptor. Students learn the secrets of transferring 2D images into 3D by using graphs and grids. They build armatures to size and scale, learn the techniques of blocking with Super Sculpy, and are taught the uses and functions of the traditional tools. Required Courses for Visual Effects Stream.

### **Visual Effects 3**

The Advanced Visual Effects course includes comprehensive practical exercises that simulate a current industry pipeline. This includes planning, production, and effects production of a complete Visual Effects shot. Students have access to experienced mentorship for discussion and feedback.

### **Visual Effects: Data Acquisition**

In this course, students acquire the skills to combine and composite the acquired digital assets from a green screen studio shoot and location shoot. Students will go out on location to shoot background plates, use a green screen studio to record foreground plates, and then throughout the term proceed to composite a visual FX shot from these acquired assets. Students will learn the camera and lighting techniques and compositing-specific criteria required to record these asset. In addition to Steadicam operating and the setup and execution of Dolly shots, there are also additional CG compositing exercises based on a pre-existing model that students work on throughout the term.

## **Term 4 Courses**

### **Creative Development**

Presentations are a critical part of the learning process and simulate 'dailies' in a studio environment. Students present their project development to their classmates and a full team of staff. Feedback is given to the overall story and technical development of the project. Goals are identified to the student so that they understand what part of their project needs work and where the immediate priorities lie.

### **Industry Mentor 1**

This course provides a window into the workings of an industry studio. Students respond to constructive critique, provide input on the work of their peers, and modify their activities to achieve final project goals. The focus is on commitment, professionalism, preparedness, and the ability to communicate effectively with Industry Mentors and peers.

## **Required Courses for Animation Stream**

### **Acting for Animators 1**

Students work on one individual assignment designed to build their knowledge and understanding of shot workflow, body mechanics, action analysis (the practice of observation and application), and performance. Students create a foundation of research before beginning the assignment including shooting video reference and creating thumbnail sketches. Emphasis is placed on blocking and posing, before splining and polishing their shots.

### **Advanced Animation**

In Advanced Animation, students expand their knowledge of the animation principles with advanced levels of application. Students work on multiple in-class exercises designed to build their understanding, proficiency, workflow speed, and critical artistic eye for mechanics of motion, timing, and staging. The mechanics of quadruped motion is also discussed and applied.

### **Final Project Development 1 - Animation**

Final Project Development 1 is the pre-production element for student short films. Final Project Development requires students to finalize their short film stories, create a 3D animatic from a storyboard, model proxy character(s) and/or model final characters, rig using the re-use rig, create face shapes and a facial control panel, and have a final posed animatic that has been approved (for cameras and story line).

## **Required Courses for Modelling Stream**

### **Advanced Modelling 1**

Advanced Modelling 1 gives students a look at modelling through the eyes of a production studio. The course introduces students to scheduling and planning, efficiencies in the modelling process, and working with more complex 3D environment assets. A strong emphasis is put on using more efficient modelling, shading, and render processes. Students develop a realistic view of scheduling build and render time, and how to manage even the most complex 3D scenes in an efficient manner.

### **Digital Sculpting 1**

This course gives students a solid foundation for building character models in ZBrush. With an emphasis on anatomy sculpting, students explore character model proportions and anatomical forms. Students explore essential tools for character generation in Z-Brush, and the process of refining the anatomy of a model. Students study the process of retopologization and apply it to their own models. This course also looks at the relation of UV's and Z-Brush.

### **Final Project Development 1 – Modelling**

This course gives students the experience of the modelling process from design to production. By the end of the term, students are expected to have completed an environment model. This course consists of a weekly review of modelling stream students' projects, as well as a monthly review based on the original concept development completed, and approved, in Term 3.

## **Required Courses for Visual Effects Stream**

### **Advanced Compositing 1**

This course introduces students to the fundamentals of node-based compositing using Nuke software. In addition to Node Based Compositing, topics include colour correction, keying, tracking, rotoscoping, temporal operations, and rig & marker removal. In this course, students apply key compositing skills to their final visual effects projects.

### **Advanced Visual Effects 1**

Students gain hands-on experience with the techniques and execution of Visual Effects, as pertaining to the film industry, and the workflow and structure of computer graphics to Live action plate integration. Exercises that simulate a current industry pipeline include planning, production, and effects production of a complete Visual Effects shot. Students have access to experienced mentorship for discussion and feedback. This course continues to Term 6.

### **Final Project Development 1 – Visual Effects**

Final Project Development 1 is the Pre-Production element for student short films. Final Project Development requires students to finalize their short film stories, create a 3D animatic from a storyboard, produce final, and rigged CG character(s) and/or models. As in the studio environment, students are expected to hit the deadlines set by the Final Project Development schedule. Asset management and approval are guided by the mentor.

## **Term 5 Courses**

### **Industry Mentor 2**

With the continued support of Industry Mentors, students gain new insights into the components of the production pipeline. Working in the studio, students further expand their awareness of individual creative and technical strengths. They rapidly assimilate input, provide feedback to their peers, and adapt approaches to produce the best possible final project that is aligned with their own specific career goal.

### **Required Courses for Animation Stream**

#### **Acting for Animators 2**

In this course, students expand on the principles and theory presented in Advanced Animation and Acting for Animators 1 to create an authentic character dialogue performance. Students work on a single assignment that is designed to build their understanding of action analysis (the practice of observation and application), facial animation techniques, and acting for animation theory. Students create a foundation of research before beginning each assignment including shooting video reference and developing thumbnail sketches. Emphasis is placed on blocking and posing, before splining and polishing their shots.

#### **Final Project Development 2 – Animation**

Students are required to start production of their final projects. Students complete a production schedule that outlines how many seconds per week they are required to animate to finish the majority of their production during the 8 weeks of Term 5. Students plan their strategies taking into account shot difficulty, re-uses, and any changes based on critique that may be required. Students participate in dailies at the start of every lab period, receiving critique and suggestions of their work while learning to make comments of their own in regards to other animators' work. This is a process of improving the animator's ability to gauge what is working or not working in the animated expression of weight, timing, motivation, shot continuity, creative acting choices, line flow, contrast, and staging.

### **Required Courses for Modelling Stream**

#### **Digital Sculpting 2**

This course continues with the models started in Digital Sculpting 1. Students take their character proxies and flesh out the details. Various tools and techniques for using Z-Brush to add details, and organize layers for sculpting, are applied. As they refine their character models, students look at posing and sculpting detail in pose, from cloth to subtle muscle deformation.

### **Advanced Modelling 2**

Advanced Modelling 2 covers the creation of production-ready character models. Topics covered include advanced subsurface scatter shading techniques, cloth construction/simulation, and character portrait lighting. The tools and techniques covered allow students to create efficient, photo-realistic characters, and give students the tools to showcase the model artistically and effectively.

### **Final Project Development 2 – Modelling**

By the end of the term, students are expected to have completed a character model. This course consists of a weekly review of modelling stream students' projects, as well as a monthly review based on the original concept development completed, and approved, in Term 3. The weekly reviews are supervised lab periods where student work is reviewed one-to-one with an instructor in order to improve the overall quality of the work, inspire the student, and keep them on track with their goals and overall objectives.

## **Required Courses for Visual Effects Stream**

### **Advanced Compositing 2**

This course is continuation of study from Term 4. This course introduces students to the fundamentals of node-based compositing using "Nuke" software. In addition to Node Based Compositing topics include Colour Correction, Keying, Tracking, Rotoscoping, Temporal Operations, and Rig & Marker Removal. In this course students apply key compositing skills to their final visual effects projects.

### **Advanced Visual Effects 2**

In this course, students are taught colour space, and how to manipulate and correct colour in photographic plates. By the end of the course, students understand advanced shading and rendering techniques, are able to create advanced, multi-layer composites in a node-based compositing package, can generate particle, explosive and liquid effects, and understand—and are able to write and edit—CG programming scripts.

### **Final Project Development 2 – Visual Effects**

In this course, students are required to start production on their final projects. Students finalize their short film stories, create a first pass integration from a 3D animatic, using final rigged CG character(s) and/or models. As in the studio environment, students are expected to meet the deadlines in the Final Project Development schedule. Asset management and approval are guided by the mentor.

## **Term 6 Courses**

### **Industry Mentor 3**

Students complete tasks, refine work, and produce a professional portfolio to show future employers. With the guidance of Industry Mentors, students expand project management skills and develop a greater understanding of what it takes to complete a major production cycle.

## **Required Courses for Animation Stream**

### **Final Project Development 3 – Animation**

Final Project Development 3 is the post-production element of student short films. As in any post-production work, students in Term 6 tweak and continue to finalize the animation in shots; working on the final lighting and look, as well as the final renders and compositing. Animators are expected to plan carefully and consult with their mentor on the best way to fully actualize their films in the time remaining.

This phase of the production is very self-directed. Students should be extremely proactive in acquiring the feedback they need to improve their quality of work. Dailies are a major component of the animation process, and shots should be animated with the highest production quality in mind. The mentor can offer final approval for shots.

### **Required Courses for Modelling Stream**

#### **Final Project Development 3 – Modelling**

By the end of the term, students are expected to have organized their work, rendered it, cleaned up the settings, and prepared a final cut. Students are also expected to have completed building another model.

This course consists of a weekly review of modelling stream students' projects, as well as a monthly review based on the original concept development completed, and approved, in Term 3. The weekly reviews are supervised lab periods where student work is reviewed one-to-one with an instructor in order to improve the overall quality of the work, inspire the student, and keep them on track with their goals and overall objectives.

### **Required Courses for Visual Effects Stream**

#### **Final Project Development 3 - Visual Effects**

This course covers the finishing stages of Production where all elements of student short films are completed. The elements should consist of Props, CG models, and Actors, if required. Final live action plates are acquired and students complete the final Colour Correction. Final Project Development requires students to finalize their short film stories, to turn a loose-timed 3D animatic (Soft Lock), and to finalize the hard-lock of their demo reels. Asset management and approval are guided by the mentor.



# SOLAR ENERGY

- ▣ CASH for generating own electricity guaranteed for 25 Years
- ▣ CASH when your electricity is fed into the National Grid
- ▣ REDUCE your Carbon Footprint
- ▣ REDUCE your Energy Bill



## Solar Matters I

Solar Energy “STEAM” Program - For Students In grades K-12

This curriculum was developed and design for the sole purpose of teaching students to harness their creativity and create a broader awareness of the power of solar energy. Its one of the important keys in our lives, and its impact on the future of energy development.

### Curriculum Topics:

- Sun and Energy (Introductory Activities)
  - [K-W-L](#)
  - [Sun and Me Posters 1](#)
  - [Web of Life](#)
    - Web of Life story
    - Web of Life cards
  - [Human Gnomon](#)
  - [Wind Watching](#)
  - [Rainbows, Rainbows, Everywhere!](#)
  - [UV Bead Magic](#)
  -
- Sun and Heat
  - [Sun and Shade](#)
  - [Solar Energy and Color](#)
  - [Rain Machine \(Solar Still\)](#)
  - [What's Cooking?](#)
    - Solar Cooker Plans: File Box Cooker
    - Solar Cooker Plans: Cook-it Style Panel Cooker
    - Recipes and Cooking Tips
  - [What's Cooking 2](#)
- Sun and Electricity
  - [Solar Cell Simulation](#)
  - [Solar Powered System](#)
- Solar Energy and Me
  - [Sun and Me Posters 2](#)
- Standards Index
  - [Next Generation Sunshine State Standards Index](#)

## Solar Panels

- [How To Build A Solar Panel](#)



# The SOLVE-IT-YOURSELF MYSTERY



## CHALLENGE



## Curriculum Topics:

### The Escape Classroom

Students compete against other teams in order to escape the classroom before the clock ticks down to zero. One of our Super Villains have locked them inside of the classroom, but has placed clues within the classroom so that they may escape. Our Escapes are designed around specific curriculum.

Remote Learning Friendly

### The Mystery Classroom

Your students have been chosen by Anonymous to help him figure out which Super Villain "did it". They must answer a series of questions based on specific curriculum in order to unlock clues and testimonies. After they have unlocked all of the clues and testimonies, then they must solve the mystery and figure out "who did it".

Remote Learning Friendly

### The Hero Classroom

Students have joined the ranks of Anonymous. They will engage in a theatrical story told via texts, videos, pictures, video-calls and phone-calls. They will have to figure out how to help the person in need escape from one of our Super Villains. Students will have to answer questions based on specific curriculum in order to successfully save the day and defeat the Super Villain.... or not.

#### Fingered Felons

Experiment with fingerprinting and analyze evidence to solve a classroom crime! (Grades 3-8)

#### Mysteries in the Bag

Build a mystery around the contents of a bag of evidence. (Grades K-Advanced)

#### "History's Mysteries"

Propose a theme for an upcoming program on the History Channel. (Grades 6-Advanced)

#### Secret Agent Stan

Help an old gumshoe find his way in a new era of investigative work! (Grades 3-8)

#### Whodunnit?

Combine language arts and forensic science activities for an effective elementary unit on mysteries. (Grades K-5)



# STEM BASKETBALL

SUPPLEMENTAL CURRICULUM  
GRADES 3 - 5 AND GRADES 6 - 8

## **STEM BASKETBALL GRADES 3-5 & 6-8**

STEM Basketball is an engaging educational enrichment program that includes an eight (8) module supplemental curriculum manual that is equal parts education, physical activity and fun. This curriculum has lessons for 3rd, 4th and 5th graders as well as another set of lessons for 6th, 7th and 8th grade students that is aligned to Next Generation Science Standards (NGSS), and/or Common Core State Standards (CCSS) and/or National Standards for K-12 Physical Education.

### **About the STEM Basketball Grades 3-5 & 6-8 Curriculum**

You will not want to pass on a great opportunity to double up STEM with Basketball in our STEM Basketball program. This hands-on method of learning the STEM fundamentals behind the game of basketball will drive students towards their goals of not only becoming better players, but also becoming better students as they will get the answers to the “why” questions that surround the game. The STEM Basketball supplemental curriculum will assist students’ growth and potential both on and off the court through eight lessons such as:

- Understanding the contents of a basketball on the molecular level and how temperature affects play
- Evaluating the changes that basketball shoes have made over time and why
- Engineering their own shooting apparatus to explain some of Sir Issac Newton’s Laws. By the way, he was only five feet, six inches!
- Teaching students how to calculate their own field goal percentage, just like the greatest players in the NBA

While we cannot promise students will be able to execute a slam dunk, they will certainly feel like they did after experiencing the STEM Basketball program. The mindfulness and movement that they’ll experience during the lessons will be well received and teachers and administrators will make it as easy as a layup!

### **Curriculum Breakdown – Grades 3rd, 4th & 5<sup>th</sup>**

Module 1.1

The Measurements of Basketball

Module 2.1

Forces in Basketball

Module 3.1

Understanding Basketball

Module 4.1

Motion and Basketballs

Module 5.1  
Engineering Design Process

Module 6.1  
Calculating Calories

Module 7.2  
Shot Tracking

Module 8.1  
Advancements in Shoe Technology

### Curriculum Breakdown - Grades 6th, 7th & 8<sup>th</sup>

Module 1.1  
Basketball Measurements

Module 2.1  
Science of Basketball

Module 3.1  
Understanding Basketball

Module 4.1  
Velocity and Acceleration

Module 5.1  
Engineering Design Process

Module 6.1  
Calculating Calories

Module 7.2  
Shot Tracking with Technology

Module 8.1  
Advancements in Shoe Technology





## TOOLS FOR LEARNING **NINJA WARRIOR SKILLS**

### STEAM EDUCATION

#### **Ninja Warrior Curriculum (Intermediate - Advanced 3 - 16+)**

Since 2009, the Ninja Warrior obstacle course movement has been broadcast into American living rooms. However, this movement began in Japan in 1997 with Ninja Warrior Sasuke Rising. On average, over 8 million American viewers tune in to each episode of American Ninja Warrior and the show has inspired many people to embrace a fitness lifestyle. Physical educators can use this excitement and inspiration to engage students in meaningful movement and fitness lessons. This module is designed to enhance your heart, challenge your mind and condition you physically with each implementation.

#### **Module Documents**

- Complete Module Packet:
- Module Overview:
- Required Materials:
- All Module Activities:
- Sample Lesson Plan:
- Academic Language Cards:
- Universal Design Adaptations:
- Tabata Warm-Up Task Cards (Hometown):
- Tabata Warm-Up Task Cards (Regional):

- Tabata Warm-Up Task Cards (National):
- Cone Stations 1:
- Cone Stations 2:
- Floor Tape Stations 1:
- Floor Tape Stations 2:
- Hoops Stations 1:
- Hoops Stations 2:
- Scooter Stations 1:
- Scooter Stations 2:
- Spot Stations 1:
- Spot Stations 2:

### **Activity Plans**

- Ninja Warrior Training Tag:
- Agility Ninja Tag:
- Ninja Warrior Tabata:
- Hometown Hero Challenge:
- Regional Heart Challenge:

- National Heart Challenge:
- Student Ninja Challenges:

### **Assessments**

- Self-Assessment Worksheet:
- Holistic Performance Rubric:
- Dual Holistic Performance Rubric:
- Academic Language Quiz:
- SEL Reflection Guide:

### **Teacher Evaluation**

- Teacher Self-Evaluation/Reflection Guide:

### **National Standards and Outcomes Focus for the OPEN 8 Challenge**

#### **Standard 1. Demonstrates competency in a variety of motor skills and movement patterns.**

- **Standard 1 [E1.3-5]** Leaps using a mature pattern (3); Uses various loco-motor skills in a variety of small-sided practice tasks, dance, and educational gymnastics experiences (4); Demonstrates mature patterns of loco-motor skills in dynamic small-sided practice tasks, gymnastics, and dance.
- **Standard 1 [E2.3 & 5]:** Travels showing differentiation between sprinting and running (3); Uses appropriate pacing for a variety of running distances (5).

#### **Standard 2. Applies knowledge of concepts, principles, strategies and tactics related to movement and performance.**



- **Standard 2 [E3.3-5]** Combines movement concepts (direction, levels, force, time) with skills as directed by the teacher (3); Applies the movement concepts of speed, endurance, and pacing for running (4a); Applies movement concepts to strategy in game situations (5a); Analyzes movement situations and applies movement concepts (e.g., force, direction, speed, pathways, extensions) in small-sided practice task/game environments, dance, and gymnastics (5c).
- **Standard 2 [E5.3-5]** Applies simple strategies/tactics in chasing activities (3a); Applies simple strategies in fleeing activities (3b); Applies simple offensive strategies/tactics in chasing and fleeing activities (4a); Applies simple defensive strategies/tactics in chasing and fleeing activities.

**Standard 3. Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.**

- **Standard 3 [E2.3-5]** Engages in the activities of physical education class without teacher prompting (3); Actively engages in the activities of physical education class, both teacher-directed and independent (4); Actively engages in all the activities of physical education (5).
- **Standard 3 [E3.3-5]** Describes the concept of fitness and provides examples of physical activity to enhance fitness (3); Identifies the components of health-related fitness (4); Differentiates between skill-related and health-related fitness (5).

**Standard 4. Exhibits responsible personal and social behavior that respects self and others.**

- **Standard 4 [E5.3-5]** Recognizes the role of rules and etiquette in physical activity with peers (3); Exhibits etiquette and adherence to rules in a variety of physical activities (4); Critiques the etiquette involved in rules of various game activities (5).
- **Standard 4 [E6.3-5]** Works independently and safely in physical activity settings (3); Works safely with peers and equipment in physical activity settings (4); Applies safety principles with age-appropriate physical activities (5).
- **Standard 5 [M6.6-8]:** Demonstrates respect for self and others in activities and games by following the rules, encouraging others, and playing within the spirit of the game or activity (6); Demonstrates the importance of social interaction by helping and encouraging others, avoiding trash talk, and providing support to classmates (7); Demonstrates respect for self by asking for help and helping others in various physical activities (8).

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# MEET OUR TEAM

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## STEM/STEAM Mentoring Team

With more than two decades of experience in the information technology industry, our team holds extensive experience in STEM/STEAM. We have worked with numerous companies for over 5 years. We're passionate about contributing to infrastructures for stability, humanitarian efforts, STEM/STEAM education, climate change and the agricultural issues we all face globally.



The Lupus Fighters of America Foundation is proud to announce our Education team. Which includes; Esports gaming, drone, remote control race car & robotics competitions. **Robotics Team**, and the Robotics Team, **Esports Team**, for the past three years.

We have seen these powerful teams of young people grow and achieve great success. With goals of making it to the World Championship.

A now thriving program, our Team model combines competition, cooperation, and learning in a technology-infused education program in which students apply their core curricular math and science concepts to engineer solutions to real world problems. The program's vision is to transform students from consumers of technology into creators of technology, and to help them envision career opportunities in STEM/STEAM.

Our Team is made up of students from Las Vegas Nevada and surrounding communities. In Clark County a wide range of schools participate, from Middle School to Young Adults.

# Sponsorships

## Sponsor Benefits

### Why Esports?

- 🏆 It is grassroots programming at its best: sport allows for grassroots marketing opportunities that can involve the consumer, trade and sales force in programs that move product.
- 🏆 Local support: Local communities rally around sporting events: A well-executed tournament becomes a source of civic pride and a commercial benefit for local businesses.
- 🏆 Player/spectators support athletic sponsors: Research indicates a positive intent to purchase exists for those companies aligned with events that are relevant to consumers. Sporting events are very relevant, because the fans are the event.
- 🏆 Positive environment: Sporting events are fun, active, spectator and family friendly. The atmosphere is similar to that of a county fair, although the competition is serious.
- 🏆 Captive audience: The layout of most tournaments within specified boundaries keeps the spectators within a defined area for an extended period as fans, friends and families follow their teams' progress. This leads to multiple sponsor exposures.

## Why Sponsor MEEG?

### Investment in our Youth

- 🏆 If substantial profit is made over a period of time, MEEG steering committee plans to offer a scholarship program for our participants. Through an application process, players would be awarded scholarships for college expenses.
- 🏆 A non-traditional tournament of this nature affords kids the opportunity to participate in organized activities that they might not otherwise experience through traditional sports. Teamwork through organized activities has shown to have a substantial positive impact on kids that will benefit them in their future professional careers.

### Economic Impact

- 🏆 Sports tourism from hosting amateur sports tournaments is responsible for significant economic impacts, including tax revenue, job creation, and subsequent re-spending within an economy.
- 🏆 Economic impact from MEEG will positively affect our tournament sponsors directly and/or indirectly through visitor spending, and will ultimately enhance the quality of life in MEEG.

### Tournament Support

- 🏆 Sponsorships for the tournament allows our gaming committee to invest in the value of the event. To attract the quality and quantity of players needed to maintain a top-tier tournament, the event needs to provide first-class services and amenities. Items such as first-rate computers and network equipment, adequate signage, quality awards, video capabilities, etc. add to the attractiveness of MEEG Tournament.

## The Virtual Tournament

### Dates: Summer 2024

The Mufasa Esports Gaming Virtual Tournament takes place over five (5) days. The event will hosts 48 teams participating in open and high school brackets. With robotics challenges and eSports, League of Legends. battles. Awards (Scholarships and a \$20,000 prize) are presented to the top team in each bracket.

## Sponsorship Packages & Details

### Official MEEG Major Sponsor

**\$50,000**

- The event will be named, "MEEG Tournament presented by [YOUR COMPANY NAME]"
  - Sponsor will be allowed to display company banners and/or other signage at tournament sites.
  - Sponsor banners will be larger in size (provided by sponsor)
  - Sponsor name and/or logo will appear in a prominent position on all printed material, including but not limited to application form, promotional giveaways, signs, banners, promotional fliers, posters, magazines, event awards, shirts, billboards, tv and radio.
  - Sponsor logo would appear on main page of the official tournament web site with a direct link to the Sponsor's website
  - Sponsor will be featured in all email marketing and social media publicity for event
  - Sponsor will have the opportunity to distribute promotional materials at the tournament venue and/or in registration packets
  - Sponsor will be provided with full participant list and will have exclusive rights to contact players and their parents/guardians
  - Sponsor will be included in all press releases and invited to participate in all media coverage concerning the tournament
  - Sponsor logo will be displayed on the tournament's online live stream
  - Sponsor logo will appear on a rotating basis on the venue's video boards
  - Opportunity to offer employees as volunteers for the tournament as staff
  - Opportunity to promote the tournament via Sponsor employees, and through Sponsor publications
  - Sponsor will receive 10 free passes to the tournament as promo giveaways
- 

### MEEG Co- Sponsor

**\$35,000**

- One Sponsor sign displayed at the tournament venue (sign provided by sponsor)
  - Opportunity to offer employees as volunteers for the tournament
  - Sponsor logo displayed on the tournament website with a link to the Sponsor's website
  - Sponsor logo will appear on a rotating basis on the venue's video boards
  - Sponsor will be featured in various social media and email marketing for the event
  - Sponsor logo will be displayed on the tournament's online live stream
  - Opportunity to distribute promotional materials at the tournament venue and/or in registration packets
- 

### HERO Sponsor

**\$10,000**

- Sponsor logo will be displayed on the tournament's online live stream
  - Sponsor logo displayed on the tournament website with a link to the Sponsor's website
  - Sponsor logo will appear on a rotating basis on the venue's video boards
  - Sponsor logo will be displayed on the tournament's online live stream
  - Opportunity to distribute promotional materials at the tournament venue and/or in registration packets
- 

### SAINT Sponsor

**\$2500**

- Sponsor logo displayed on the tournament website with a link to the Sponsor's website
- Sponsor logo will appear on a rotating basis on the venue's video boards
- Sponsor logo will be displayed on the tournament's online live stream

## Sponsorship Packages & Details

### ENTRY Sponsorship

\$1500

- 📄 Sponsor logo displayed on the tournament website
- 📄 Sponsor logo will appear on a rotating basis on the venue's video boards
- 📄 Sponsor logo will be displayed on the tournament's online live stream

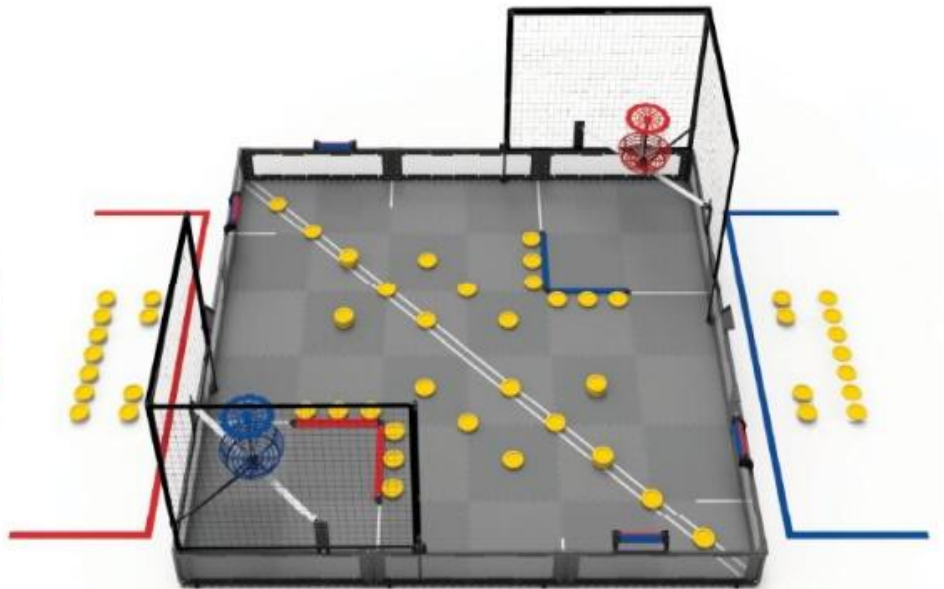
### In-Kind Sponsorship

\$ Free

- 📄 If your company would like to make an in-kind contribution, please contact us



ROBOTICS  
**COMPETITION**  
**SPIN UP**



# Sponsorship Agreement

The undersigned entity hereby agrees to be a sponsor of the Mufasa (STEM) Esports Tournament to be conducted by MEEG, on \_\_\_\_\_, at the following level: (check one)

## SPONSORSHIP LEVELS

- Major Sponsor \$50,000
- Co Sponsor \$35,000
- Hero Sponsor \$10,000
- Saint Sponsor \$2,500
- Entry sponsor \$1,500



## PAYMENT OPTIONS

- Please Invoice Me
- Pay Online - [Click Here](#)

## CONTACT INFORMATION

Sponsor agrees to make payment to Lupus Fighters of America and provide artwork by \_\_\_\_\_, 202\_\_.

Business/Organization Name

Address

City

State

Zip

Email

Phone

Contact Person (Please print)

Sponsor Signature

Date



# The International

DOTA 2 CHAMPIONSHIPS



FINAL PRIZE POOL

# \$24,787,916

1ST \$10,862,683	2ND \$3,950,067	3RD \$2,592,231	4TH \$1,728,154	5TH/6TH \$1,110,956
7TH/8TH \$617,198	9/10/11/12TH \$370,319	13/14/15/16TH \$123,440	17TH/18TH \$61,720	ALL STAR \$100,000

# ESPORTS





# ESPORTS

A Gaming Channel

## WHY SPORTS & BRANDS WANT TO BE IN ESPORTS

THREE KEY REASONS WHY MEDIA, BRANDS, AND SPORTS ARE EMBRACING ESPORTS AND DRIVING GROWTH

### 1. REACHING THE UNREACHABLES: THE MILLENNIALS

Among US men aged 21 to 35, esports is as popular as baseball & ice hockey:

**22%**

watch esports frequently

### 2. GAMES HAVE BECOME A GLOBAL SPECTATOR SPORT

Of all the 200+ million Occasional Viewers and Esports Enthusiasts worldwide,

**40%**

do not play the games they watch

### 3. A MULTIBILLION DOLLAR BUSINESS IN THE MAKING

If esports would generate as much revenues per fan as the NBA, it would be a

**\$2.5Bn**

business today, or 5 times what it is now

#### SPORTS TEAMS INVESTING IN ESports



#### BROADCAST MEDIA REPORTING ON ESPORTS



#### MAINSTREAM BRANDS SPONSORING ESPORTS

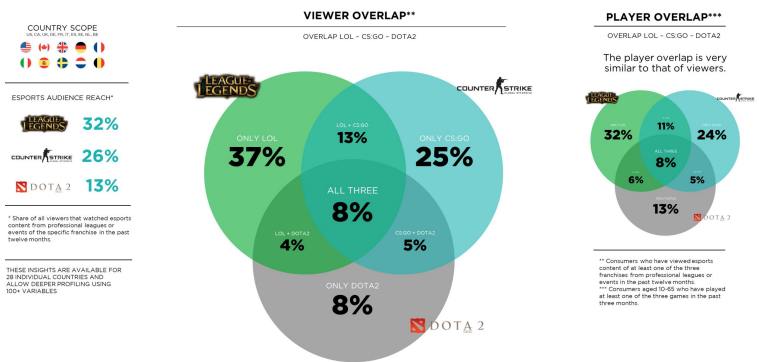


#### ESPORTS TEAMS LEADING ESPORTS GROWTH



## VIEWERS: 70% WATCH ONLY ONE FRANCHISE

SIMILARLY, 69% OF GAMERS PLAY ONLY ONE OF THESE THREE KEY ESPORTS FRANCHISES



## THE CURRENT STATE OF ESPORTS: MATURING

THREE KEY DEVELOPMENTS DRIVING ESPORTS GROWTH AND PROFESSIONALIZATION

### 1. EVENTS GROW BIGGER AND BIGGER



### 2. LOCAL LEAGUES EXPLODE



### 3. INDUSTRY PROFESSIONALIZES



#### ESPORTS AUDIENCE NOW AND IN 2019

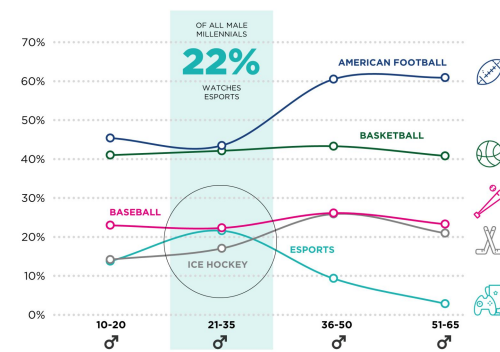


#### ESPORTS REVENUES NOW AND IN 2019



## POPULARITY OF (E)SPORTS BY AGE

AMONG MALE MILLENNIALS | AMERICAN SPORTS\* AND ESPORTS\*\*



**76%**

of Esports Enthusiasts state that their esports viewing is taking away from hours they used to spend on viewing sports



**65%**

of Esports Enthusiasts in the US actively uses Instagram vs. 44% of online population



# Contact Us



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