

Innovators Camp

Summer 2019

Curriculum Developed by
Hope Mulholland and Gregory Wilson



Practical Information -

- ❑ Dates: July 1 - Aug 30 (weekdays)
- ❑ Schedule: 8:30am - 3:00pm
- ❑ Ages: 5 to 13 yo
- ❑ Location: Nova's Ark Project - 60 Millstone Rd, Water Mill, NY
11976
- ❑ Email: info@innovatorscamp.com
- ❑ Phone: (631) 466-5298

Sign up link: <https://goo.gl/6VuxGx>

Tuition -

Inquire about our scholarships available for Suffolk County students!

5% sibling discount!

Number of Weeks Booked*	Total Price
1	\$1,150.00
2	\$2,242.50
3	\$3,277.50
4	\$4,255.00
5	\$5,175.00
6	\$6,037.50
7	\$6,842.50
8	\$7,360.00
9	\$8,280.00
10	\$9,200.00

*price is determined by number of weeks purchased at time of transaction

Reserve spots with 30% deposit

Balances are due May 1, 2019

Daily Schedule

8:30 - 9:00 - Drop Off

9:00 - 9:20 - Beginning of Camp Announcements

9:20 - 10:05 - Workshop 1

10:05 - 10:50 - Workshop 2 (healthy snack served)

10:50 - 11:35 - Workshop 3

11:35 - 12:15 - Outdoor or Special Activity for Older Campers/Lunch for Younger Campers

12:15 - 12:55 - Lunch for Older Campers/Outdoor or Special Activity Younger Campers

12:55 - 1:40 - Workshop 4

1:40 - 2:20 - Flexible Time: Game Workshop or Guest Speakers

2:20 - 3:00 - Flexible Time: Guided Project Time

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Computer Programming, Web, and Mobile Design

Focus Areas:

Understanding Computers

Intro to Computer Programming

Functions and Conditional Statements

Variables

Algorithms - **advanced**

Intro to Web Design

Using HTML, CSS, and Javascript

Mobile App Design

Mobile App Development - **advanced**

Sample Instructor Focus Guidelines -

Topic: Computer Programming, Web, and Mobile Design

Focus: Understanding Computers

STEAM Connection: Technology and Engineering

Summary: This unit should introduce students to understanding how computers work and how people communicate with computers.

Essential Questions: Why are computers important? How do computers communicate? How do computers work?

Student Objectives:

Students will

- Know the different parts of a computer
- Understand binary code
- Explore using the command line
- Develop an understanding of the terms hardware, software, files, command line, coding
- Be able to code programs using blockly

Robotics and Artificial Intelligence

Focus Areas:

Intro to Robotics

Problem Solving

Computational Thinking

Building a Robot

Artificial Intelligence

Sample Instructor Focus Guidelines -

Topic: Robotics

Focus: Intro to Robotics

STEAM Connection: Technology/Engineering

Summary: This unit should introduce students to robotics.

Essential Questions: What is a robot? How do we communicate with robots?

Student Objectives:

Students will

- Learn about different types of robots
- Learn how to control robots
- Learn that different robots have different functions

Virtual and Augmented Reality

Focus Areas:

Introduction to VR and AR

VR Immersion

VR Creation

360° Tours/Videos

AR Immersion

Sample Instructor Focus Guidelines -

Topic: Virtual and Augmented Reality

Focus: Introduction to VR & AR

STEAM Connection: Technology

Summary: This unit should introduce students to virtual and augmented reality. Students will learn about VR and AR history and the current types of VR and AR media and devices available.

Essential Questions: What is virtual and augmented reality? Why are AR and VR advancing quickly? What are the differences between mobile and standalone VR?

Student Objectives:

Students will

- Define virtual reality, augmented reality, and the reality-virtuality continuum
- Discuss how the convergence of emerging technologies have led to the latest boom in virtual reality
- Predict the state of virtual and augmented reality in 10-15 years.

3D Printing

Focus Areas:

Introduction to 3D Printing

3D Modeling

3D Scanning

3D Printing challenges

Sample Instructor Focus Guidelines -

Topic: 3D Printing

Focus: Introduction to 3D Printing

STEAM Connection: Technology + Engineering + Art

Summary: This unit should introduce students to 3D printing. Students will learn about its history and the current types of 3D printers and filament available.

Essential Questions: What is 3D printing? What types of things can be 3D printed? How does the process work? How does FDM printing differ from SLA printing? How do you create an object to be 3D printed?

Student Objectives:

Students will:

- Define 3D printing, PLA and ABS filament, FDM and SLA printing, and 3D modeling
- Discuss the history of 3D printing, the current 3D printers available, and how the printing process works
- Predict the state of 3D printing in 10-15 years.

Drones

Focus Areas:

Drone Exploration/Flying

Programming Drones

Sample Instructor Focus Guidelines -

Topic: Drones

Focus: Drone Exploration

STEAM Connection: Engineering

Summary: This unit should introduce students to drones (also called unmanned aerial vehicles). Students should learn how drones work and reflect on possible uses in real-world contexts such as package delivery, disaster relief and rescue, and videography. Students will also learn the basics of drone control and safety.

Essential Questions: What are unmanned aerial vehicles (or drones)? How are they currently used in society? What are the implications of drones being used in public?

Student Objectives:

Students will:

- Define unmanned aerial vehicles, list its parts, and discuss their use in society
- Learn how to control and fly a drone safely

Video games (playing)

Focus Areas:

Video Game Analysis
Collaborative gaming
Creative gaming
Live-streaming

Sample Instructor Focus Guidelines -

Topic: Video games (playing)

Focus: Video game analysis

STEAM Connection: Art + Technology

Summary: This unit should introduce students to the history and art of video games. Students will pick their favorite game (or a game they play at the camp) and analyze it based on storytelling and design elements.

Essential Questions: When were video games invented? What are the various types of video game genres? What makes them different? How have graphics improved over the past 30 years? What design elements are important in video game development?

Student Objectives:

Students will

- Discuss how video games have evolved over the year.
- Examine and critique video games based on design and storytelling.

Video games (design)

Focus Areas:

Introduction to video game design

Storytelling

Worldbuilding

Character design

Game Development

Sample Instructor Focus Guidelines -

Topic: Video games (design)

Focus: Introduction to video game design

STEAM Connection: Art and technology

Summary: This unit should introduce video game design to the students. They should have the opportunity to reflect on their video game playing experience from the previous topic, and think about the ways it can inspire them to create their own games. Students should also identify the various roles needed in video game design. The instructor should decide if designing video games will be a collaborative or individual project.

Essential Questions: What are the steps needed to make a game? What are the various roles in video game development?

Student Objectives:

Students will:

- Reflect on their video game playing experience
- Identify the various roles and steps needed to create a new video game
- Ideate video game themes

Art

Focus Areas:

Basics of Art

Art and Engineering

Recycled Art

Art and Technology

Sample Instructor Focus Guidelines -

Topic: Art

Focus: Basics of Art

STEAM Connection: Art

Summary: This unit should introduce students to understanding how they can express themselves through art and how to explore different art mediums.

Essential Questions: How do we express ourselves through art?

Student Objectives:

Students will

- Explore different artistic mediums
- Create multiple projects using different tools and techniques

Filmmaking

Sample Instructor Focus Guidelines -

Topic: Filmmaking

STEAM Connection: Art,Technology

Summary: This unit should introduce students to the basics of filmmaking and encourage students to create their own filmmaking project.

Essential Questions: How can we use technology to create stories?

Student Objectives:

- Students will be able to create a story with a beginning, middle, and end
- Students will use a variety of technologies to film and edit their movies

Design

Sample Instructor Focus Guidelines -

Topic: Design

Focus: 2-Dimensional Principles

STEAM Connection: Technology, Art

Summary: This introduces students to the basics of 2D dimensional design, and visual communication. Students will use this knowledge to participate in a larger practice of using their eye and visual organization to articulate a message.

Essential Questions:

What's the importance of 2D design?

How can we communicate, visually?

Student Objectives:

- Students will sketch and use technology to effectively communicate in 2D
- Students will use professional techniques and applications to create individualized design objectives.
- Students will gain an understanding of graphic design principles in drafting and print media

Animation

Sample Instructor Focus Guidelines -

Topic: Animation

Focus: Motion & Storytelling

STEAM Connection: Technology, Art

Summary: Students will explore storytelling through animation.

Essential Questions:

- How can we tell stories and communicate with animation?
- What can animation do that other mediums can't?

Student Objectives:

Students will:

- Create animations using a variety of tools

Woodworking

Focus Areas:

Material Properties
Carpentry Principles
Sustainability

Sample Instructor Focus Guidelines -

Topic: Woodworking

Focus: Carpentry Principles

STEAM Connection: Science, Engineering, Art, Math

Metalworking

Focus Areas:

Metal Fabrication Basics

Mechanical Engineering

Manufacturing Processes:

Welding?

Industrial Safety (*Throughout*)

Sample Instructor Focus Guidelines -

Topic: Metalworking

Focus: Metal Fabrication Basics

STEAM Connection: Science, Engineering

Music / Audio Production

Focus Areas:

Intro to Sound

Rhythm & Notation

Digital Music Production

Podcasting: Interview Audio

Sample Instructor Focus Guidelines -

Topic: Music

Focus: Intro to Sound

STEAM Connection: Technology, Engineering, Math

Essential Questions:

- What is sound, and how do we create it?
- How do we differentiate 'good' sound from 'bad' sound?
- What instruments can we use to make sound?
- What's the difference between sound and music?

Modern Farming

Focus Areas:

Agricultural Basics

Aquaponics

Sample Instructor Focus Guidelines -

Topic: Modern Farming

STEAM Connection: Science, Technology, Engineering

Essential Questions:

- What is farming, and why is it so important?
- What are the benefits to farming?
- How can we produce sustainably?

Science

Sample Instructor Focus Guidelines -

Topic: Science

STEAM Connection: Science

Summary: This unit should introduce students to scientific concepts and reasoning.

Essential Questions: How do we research the world around us?

Student Objectives:

Students will

- Explore modeling scientific concepts
- Understand the difference between science activities and experiments.

Nature

Sample Instructor Focus Guidelines -

Topic: Nature

STEAM Connection: Science

Summary: This unit should introduce students to the concept of nature and sustainability.

Essential Questions: What is important in our environment and how to we sustain the balance between nature and human needs?

Student Objectives:

Students will

- Explore wind, earth, and water important topics
- Understand recycling and conservation
- Develop ideas for alternative energy sources

Entrepreneurship

Focus Areas:

Startup/Business Ideation
Rapid Prototyping and Testing
Business Model Canvas
Branding
Pitching

Sample Instructor Focus Guidelines -

Topic: Entrepreneurship

Focus: Startup/Business Ideation

Summary: This unit should engage students in generating ideas for a potential business. Students should consider the multiple methods for creating new businesses. The instructor should decide if creating a new startup will be a collaborative or individual activity.

Essential Questions: Where can startup ideas come from? How can you brainstorm ideas for businesses?

Student Objectives:

Students will:

- Discuss how the idea for specific popular startups were generated.
- Brainstorm ideas for a new startup

Logic Games

Sample Instructor Focus Guidelines -

Topic: Logic Games

STEAM Connection: Mathematics

Summary: This unit should engage students in playing logic games.

Essential Questions: What skills can we develop from playing logic and strategy games?

Student Objectives:

Students will:

- Be able to understand and play using game rules
- understand a new concept or idea, take on a different perspective, or experiment with different options or variables