

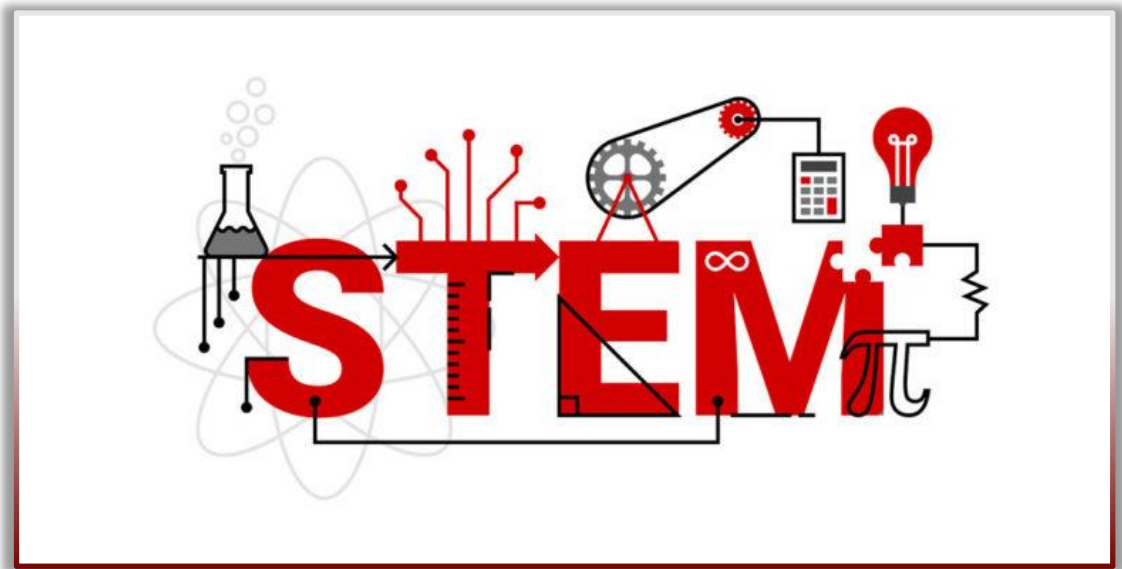


K-12 STEM Education in Syosset Schools

June 13, 2022

Presentation Goals

- We will show you the evolution of STEM in Syosset over the past several years
- We will spotlight student works that are direct products of this evolution.
- We will preview future opportunities for iteration and innovation in STEM areas (STEM 3.0) for all students.



“Future we imagine.”



Syosset's Mission

Empowering all students by:

- Creating student who are agile, creative and adaptable learners.
- Providing instruction that not only increases students' knowledge, but their capacity to think.
- Build programs that are innovative, engaging, and comparable in every building.



Elementary STEM

Name _____

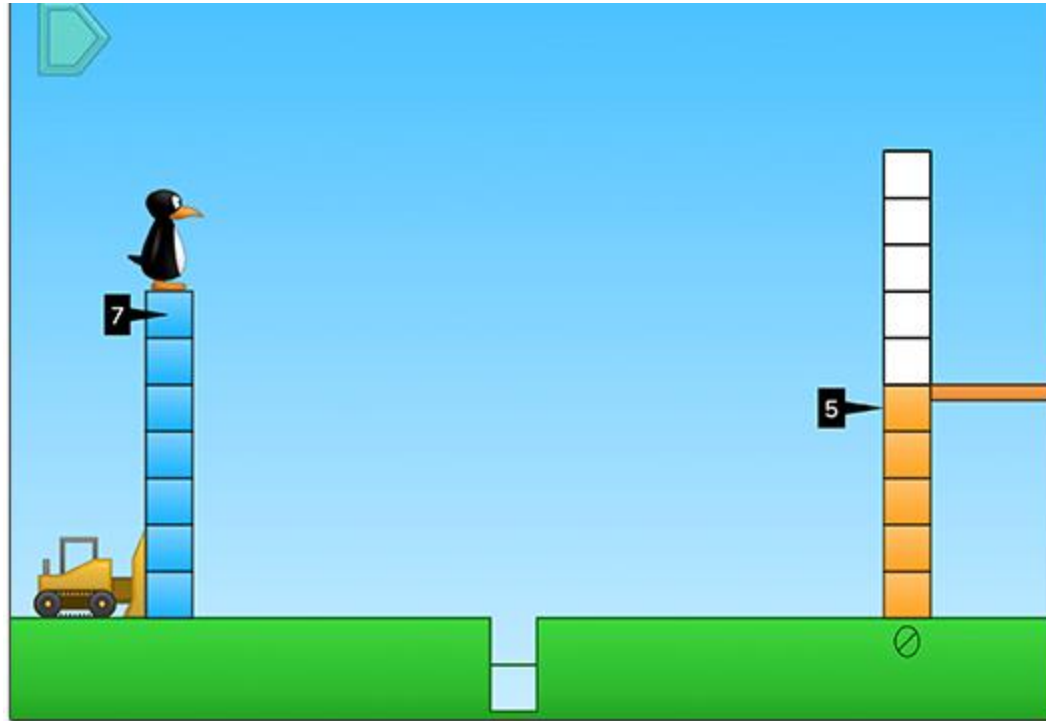
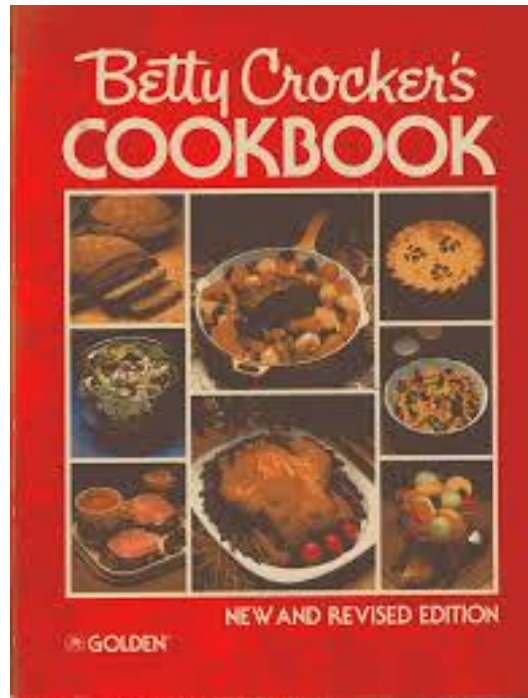
Add and Subtract Within 20

Add or subtract.

1.
$$\begin{array}{r} 6 \\ + 0 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 11 \\ - 2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4 \\ + 5 \\ \hline \end{array}$$



Learning Skills



critical thinking



creativity



collaboration



communication



Elementary STEM



Learning Skills



critical thinking



creativity



collaboration



communication

Elementary STEM Previewing "Syosset 3.0"



Increased project based
authentic learning experiences

Cell = City

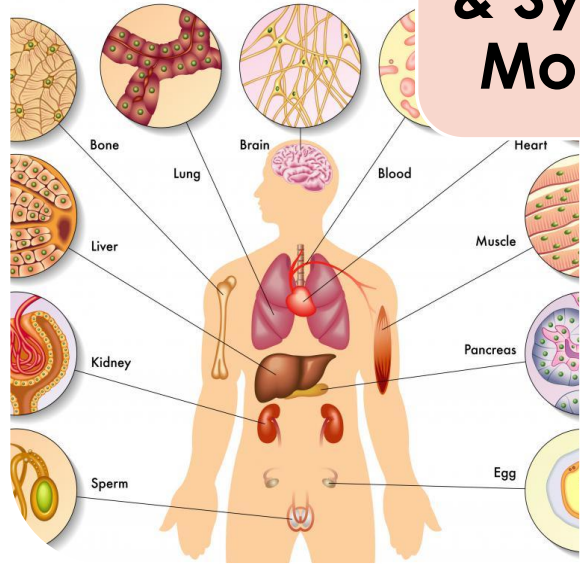


6th Grade Science



Newton's Third Law of Motion

Systems & System Models



For every action force, there is a reaction force equal in strength and opposite in direction.

MS Science Using Crosscutting Concepts



Patterns



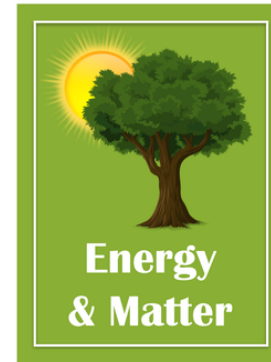
Cause & Effect



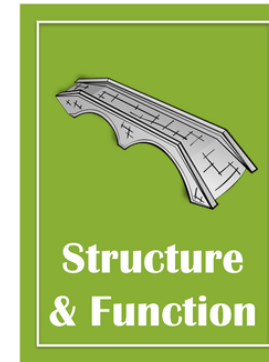
Scale, Proportion, & Quantity



Systems and System Models



Energy & Matter



Structure & Function

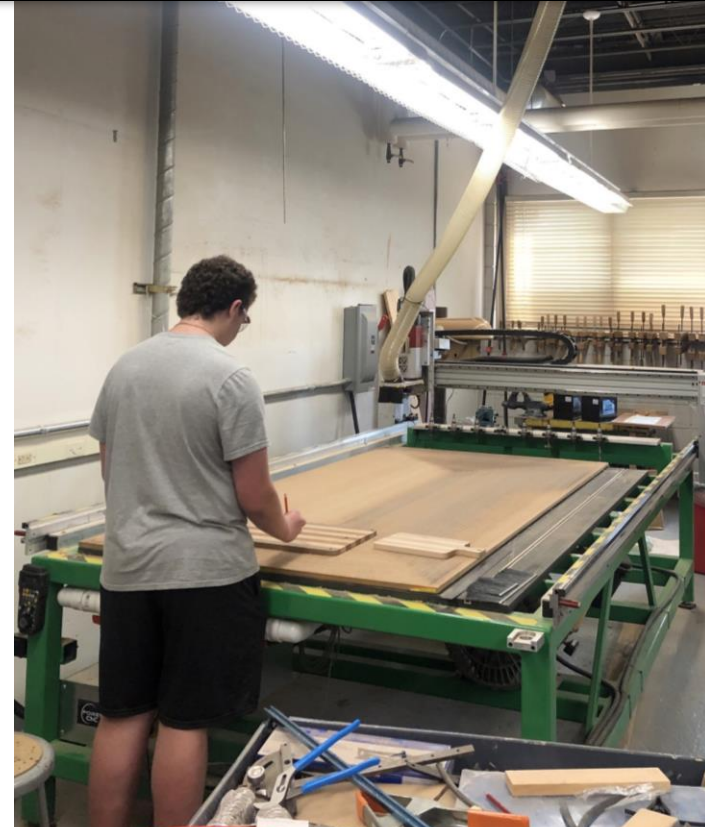


Stability & Change



High School STEM

Modern laboratories facilitate advanced student research





STEM Research Project – Grade 10

DNA Cryptography

- ❖ A method of concealing information within a physical DNA strand
- ❖ Message → binary → DNA bases

Common Uses

- ❖ Storing a large amount of information in less than a gram of DNA
- ❖ Used by security agents as an almost undetectable transfer of information
 - Physically vulnerable and easy to destroy if not handled properly
 - Placement is difficult to notice and confirm
- ❖ Hacking or deceiving third parties who attempt to intercept a message

= 110000
A = 100111
B = 100000
C = 010010
D = 101001
E = 001101
F = 000001
G = 110011
I = 000100
! = 101101
H = 110100
I = 011111
J = 000111
K = 011100
L = 111100
M = 011010
N = 111111
O = 100010
P = 100100
Q = 101100
R = 111011
S = 101011
T = 011101
U = 010000
V = 001010
W = 101111
X = 100110
Y = 000101
Z = 100011
. = 010101

C = 01
T = 00
A = 10
G = 11

I (000010)

TTA



K-12 Robotics

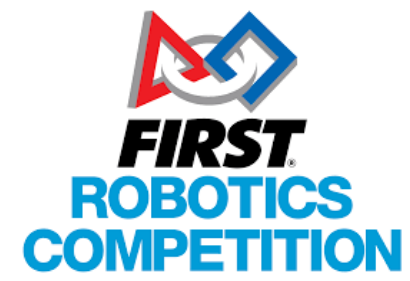


Ozobots at the elementary level.



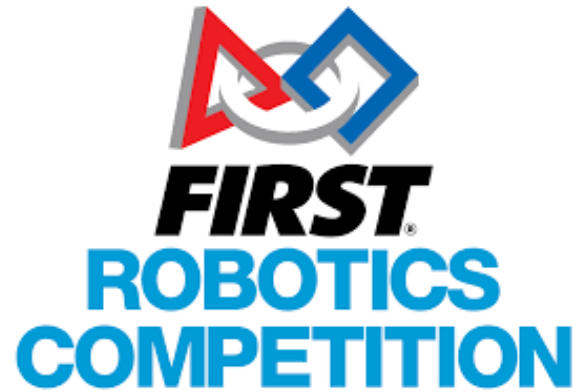
FIRST Lego League competitions in Middle School.

SHS competes annually in First Technology Challenge

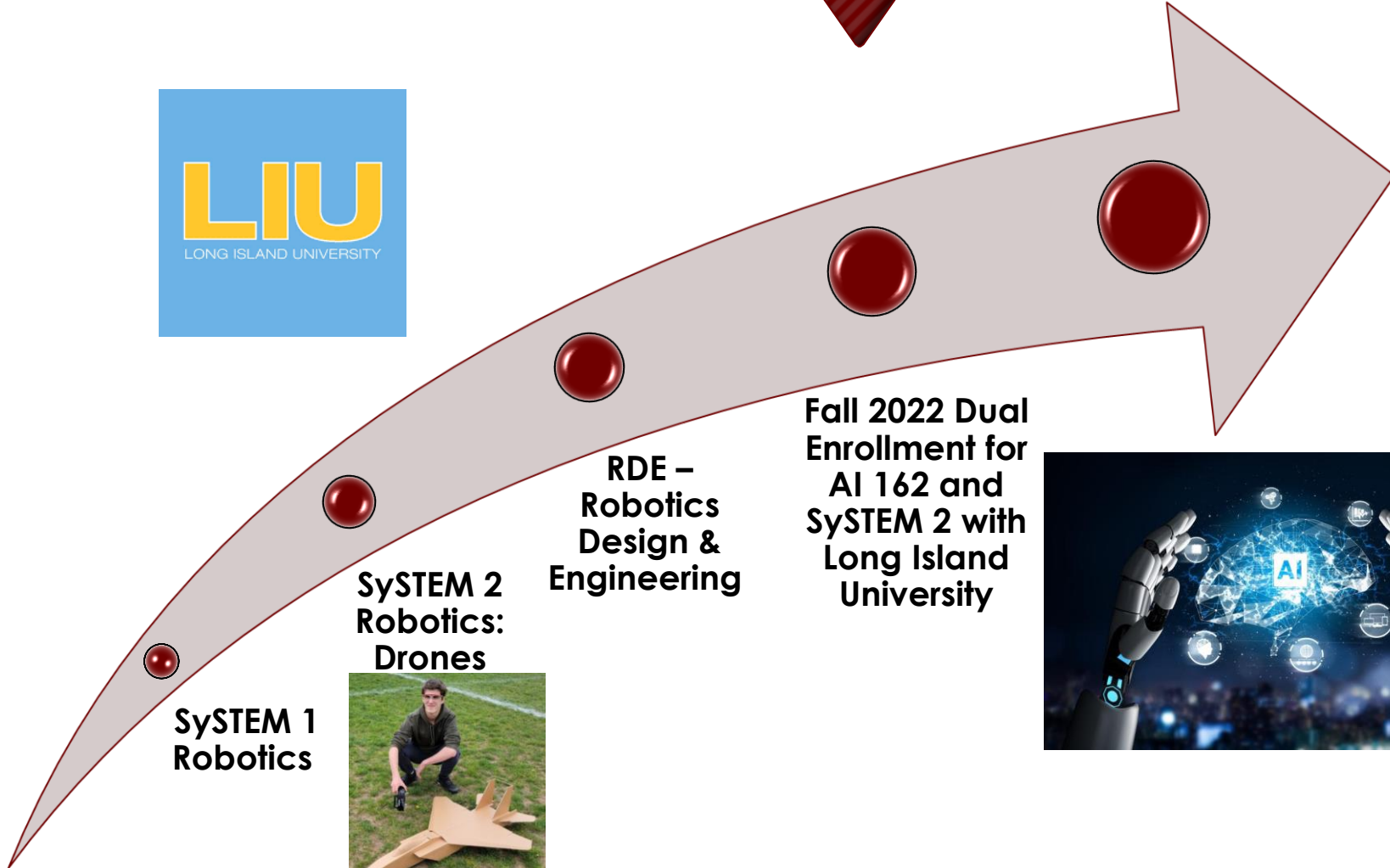


For the first time, during the 2022-23 School Year, SHS will enter FRC – FIRST Robotics Competition

High School STEM 3.0 Robotics



Coming in 2023 – SySTEM
3 Robotics to align with
FIRST Robotics Challenge
FRC



SySTEM 1
Robotics



SySTEM 2
Robotics:
Drones

RDE –
Robotics
Design &
Engineering

Fall 2022 Dual
Enrollment for
AI 162 and
SySTEM 2 with
Long Island
University



Thank you!

