

# EPEW 2020



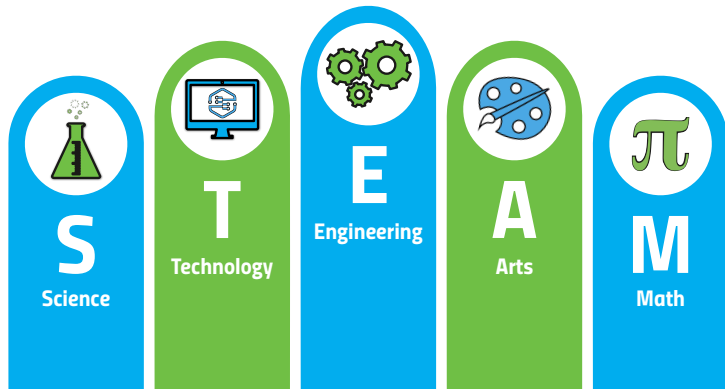
## STEAM Clean Your PE

# STEAM Clean Your PE

## Who Am I?

- Elementary PE Teacher Serendipity School
- OPEN National Trainer
- HPEC Team Member
- 2019 CAHPERD Elementary T.O.Y
- 2020 SHAPE America National T.O.Y.
- 2020 - 2021 CAHPERD President-Elect

# What is STEAM?



# STEAM & 21st Century Skills

[STEAM] gives students tools and methods to explore new and creative ways of problem-solving, displaying data, innovating, and linking multiple fields...

...implementing STEAM principles into education allows for more understanding, innovation and a cohesive education in the classroom.

Source: Concordia University Portland:  
<https://education.cu-portland.edu/college-of-education/masters/curriculum-and-instruction/stem/?source=seo-coe-blog>



# The 4 C's

The Four 21st Century Skills that STEAM Education Develops Are...

Critical Thinking



Finding Solutions to Problems

Creativity



Thinking Outside the Box

Collaboration



Working With Others

Communication



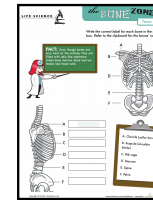
Sharing Thoughts and Ideas



# Teaching Anatomy

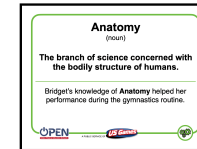
The Structure and Function of the Human Body is a PE & Science Standard.

Awesome Anatomy



Building Working Models

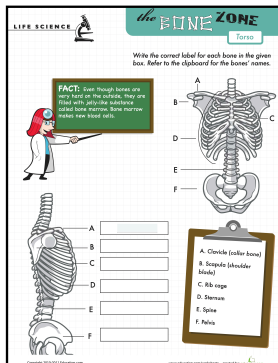
Vocabulary & Terminology



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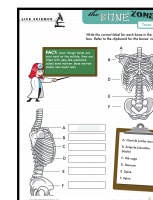
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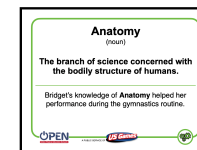
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Building Working Models

Vocabulary & Terminology



# Teaching Anatomy

The Structure and Function of the Human Body is a PE & Science Standard.

## Building Working Models

#HPEATHOME CRAFTS

HOW TO GET YOUR OWN OR BUY A GREAT GIFT FOR YOUR FRIEND

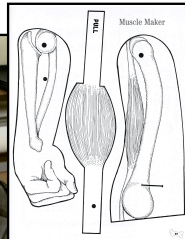
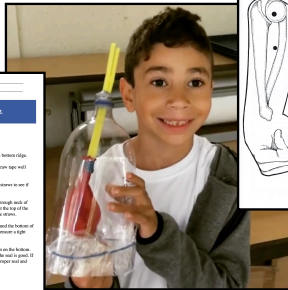
Meet a Working Lung Model

**INSTRUCTIONS:**

1. Place the straw into the top of the plastic bottle.
2. Take away your fingers so air will come in and go out!
3. Check to see if your Working Lung Model is working as intended.
4. You're done! Follow the steps to create the human body model.

**SUPPLIES:**

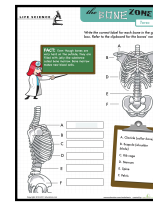
- 1 Plastic bottle (with cap)
- 1 Straw
- 1 Rubber band
- 1 Masking tape
- 1 Card (Index or Copy)
- 1 Paper ball
- 1 Rubber band
- 1 Small ball (marble size)
- 1 Paper



# Teaching Anatomy

The Structure and Function of the Human Body is a PE & Science Standard.

## Awesome Anatomy



## Building Working Models

## Vocabulary & Terminology

**Anatomy**  
(noun)

The branch of science concerned with the bodily structure of humans.

Bridget's knowledge of Anatomy helped her performance during the gymnastics routine.

OPEN US Games



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OPEN APPLICABLE OFFICIALS US Games

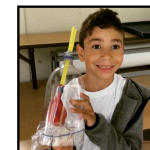
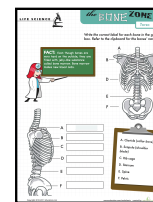
## Vocabulary & Terminology



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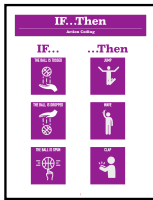
OPEN US Games



# Incorporating Coding

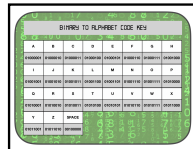
Code is the Language of Technology

If/Then Statements



Command Programming

Encryption Codes

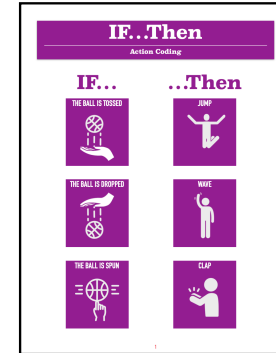


Technology

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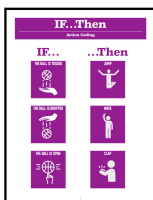


Technology

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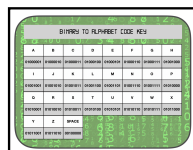
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Technology

# Incorporating Coding

Code is the Language of Technology

Command Programming



The Maze Challenge



Technology

# Incorporating Coding

Code is the Language of Technology

## If/Then Statements



Command Programming

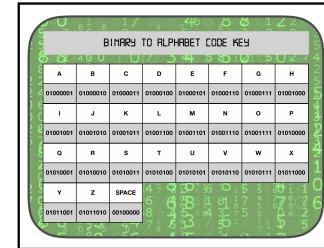
## Encryption Codes



# Incorporating Coding

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## Encryption Codes



Master of Life  
([www.openphysed.org](http://www.openphysed.org))



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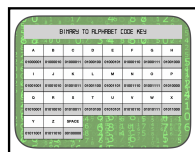
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Command Programming

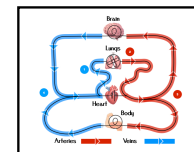
## Encryption Codes



# Engineering Actively

The design, manufacture, and operation of structures, machines, processes, and systems.

## Electrical Circuit Training



Paper Plane  
Corn Hole

## Architectural Design



# Engineering Actively

The design, manufacture, and operation of structures, machines, processes, and systems.

## Electrical Circuit Training

**Circulatory System Craft**  
Perform IO

**Plank Jacks**

**Brain**

**The Heart**

Your heart is the pump that circulates blood in the body. It provides the force for pressure for blood to circulate. The blood circulating through the body supplies nutrients to various organs of the body.

A battery produces voltage; the force that drives current through a circuit.

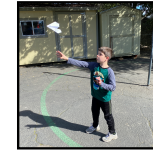
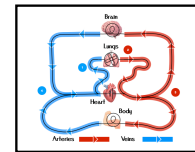
Arteries → Veins



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Paper Plane Corn Hole

## Architectural Design

**HULA HUT ARCHITECTS**

LEVEL 9

CREATE YOUR OWN HULA HUT ARCHITECT CHALLENGE.

BE SURE THAT ALL GROUP MEMBERS PARTICIPATE IN CREATING AND ATTEMPTING THE CHALLENGE.



# Engineering Actively

The design, manufacture, and operation of structures, machines, processes, and systems.

## Paper Plane Corn Hole

NAME \_\_\_\_\_

**HOW DO THINGS FLY?**

Have you ever thrown a paper airplane and watched it soar through the air? What makes it move through the air so easily? If you guessed "force," you are correct. There are four forces that help airplanes fly through the air. These forces are lift, thrust, drag, and weight.

**Drag and Lift:** Drag is the force that opposes the forward motion of an airplane. Lift is the force that holds an airplane in the air. Most of the lift used by an airplane is created by the wing.

**Thrust:** Thrust is the force that moves an airplane forward. An airplane engine produces thrust which creates motion.

**Weight:** Weight is the force that acts opposite of the direction of motion. It is caused by friction and air resistance.

These forces work together with other forces to keep an airplane in the air.

Label forces in the opposite of drag.

Did the forces work together with other forces to keep the airplane in the air? The answer is yes. If the forces didn't work together the airplane wouldn't fly. If you were to change one of the forces, the airplane would not fly. If you changed one of the forces, the airplane would not fly. If you changed one of the forces, the airplane would not fly.

**LABEL THE FOUR FORCES**

ROUND 1 SCORE SHEET

Team Members	1	2	3	TOTAL
Points Earned				

Based on your Flyer 3 scores tell me what changes you want to make in your design and why you think these changes will help.

ROUND 2 SCORE SHEET

Team Members	1	2	3	TOTAL
Points Earned				

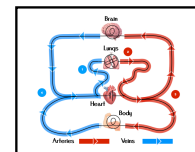
Did your changes increase/decrease your score? Based on your results tell me what you did well, or could have done better.



# Engineering Actively

The design, manufacture, and operation of structures, machines, processes, and systems.

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Paper Plane Corn Hole

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Architectural Design



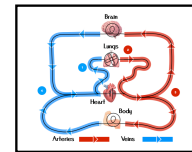
# E

Engineering

# Engineering Actively

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Electrical Circuit Training



Paper Plane Corn Hole

Architectural Design



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# E

Engineering

# EPEW 2020



## Time for a Brain Boost

# Problem Solving in STEAM

The 6 Step Process For Solving Problems & Creative Solutions



# Problem Solving in STEAM

The 6 Step Process For Solving Problems & Creative Solutions



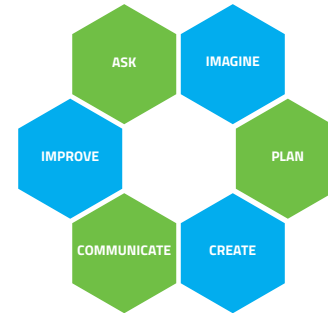
## STEP 1: ASK

- WHAT IS THE PROBLEM?
- WHAT ARE POSSIBLE SOLUTIONS?
- WHAT HAVE OTHERS DONE?



# Problem Solving in STEAM

The 6 Step Process For Solving Problems & Creative Solutions



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The 6 Step Process For Solving Problems & Creative Solutions



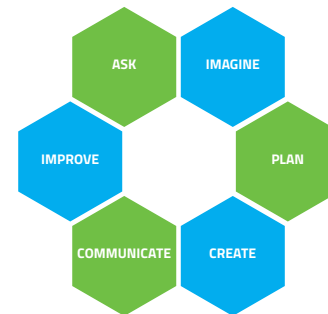
## STEP 2: IMAGINE

- WHAT ARE THE POSSIBILITIES?
- WHAT ELSE CAN BE DONE?
- WHAT IS THE BEST SOLUTION?



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## STEP 3: PLAN

- IS THE PLAN POSSIBLE?
- WHERE SHOULD WE START?
- WHAT MATERIALS ARE NEEDED?



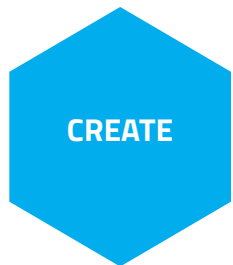
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## STEP 4: CREATE

- CAN A MODEL BE MADE?
- HAVE WE FOLLOWED THE PLANS?
- DOES IT MEET THE GOAL?



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COMMUNICATE

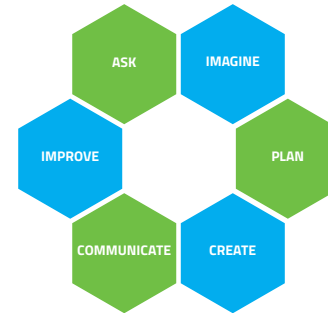
## STEP 5: COMMUNICATE

- ARE CHANGES NEEDED?
- WHAT DO OTHERS THINK?
- IS THE PROBLEM SOLVED?



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IMPROVE

## STEP 6: IMPROVE

- DOES IT WORK?
- WHAT WILL MAKE IT BETTER?
- WHAT CAN BE DONE DIFFERENTLY?



# Problem Solving in STEAM

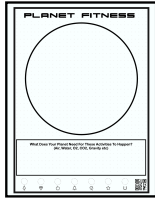
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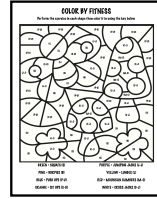
# Artistic Freedom

Creativity and Collaboration is the Key to adding Art to PE

Planet Fitness



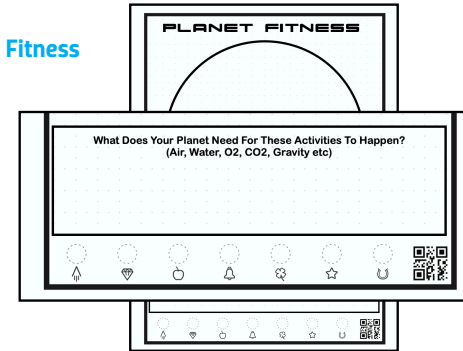
Color By Fitness



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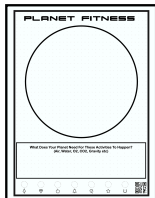
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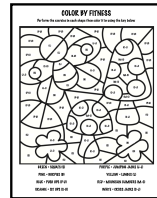
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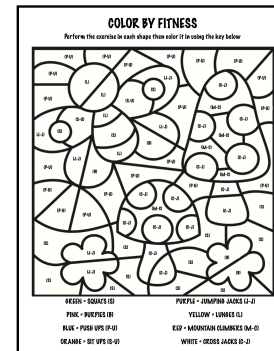
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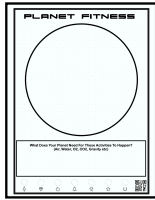
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# Math-letics

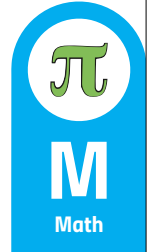
Math is more than Keeping Score

Fitness Sudoku



Penguin in the Pot

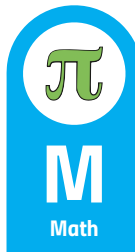
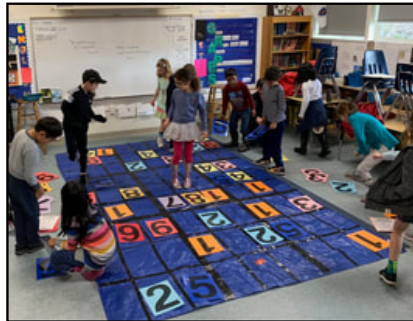
R/P/S Risk



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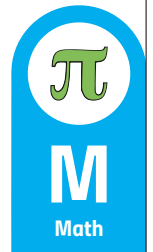
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R/P/S Risk



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Penguin  
in the Pot

$\pi$

M

Math

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Penguin  
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R/P/S Risk



$\pi$

M

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R/P/S Risk

$\pi$

M

Math

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Fitness Sudoku



Penguin  
in the Pot

R/P/S Risk



$\pi$

M

Math

# STEAM & Learning Outcomes

I want my students to...

Question...Like A Scientist

Design...Like A Technologist

Build...Like An Engineer

Create...Like An Artist

Deduce...Like A Mathematician

AND

## PLAY...LIKE A KID



# EPEW 2020

## Thank You For



## Catching My Session!

## Contact Information

