

Makerspace

Deep Play Group



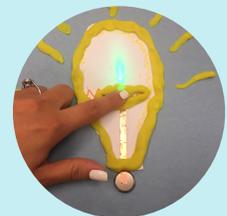
Stop Motion Video

Digital storytelling that brings dry content to life!



K'NEX

Hands-on, inquiry based projects to aim student engagement.



Simple Copper Challenge

Integration of circuits and creativity to create on of a kind projects.

What is Makerspace?

A Makerspace is a place where students can gather to create, invent, tinker, explore and discover using a variety of tools and materials.

A Makerspace can be anything, from repurposed cardboard and craft supplies bucket, to 3D printers, laser cutters and hand tools. It sparks innovation and start small. It DOES NOT require technology. Teacher becomes a facilitator and students learn through the process of the designing, problem solving and creating.

1

HANDS ON

Students are expose to higher levels of thinking in open-ended questions and greater content knowledge.

2

COLLABORATIVE

We learn the best when we work in groups, sharing, creating and influencing-together.

3

MULTIMODAL

Students can present what they learn in so many ways that are related to how they learn the best.

PD Agenda

Teachers will be given the opportunity to play with several maker resources: stop-motion videos, K'nex as well as copper wires and LED lights to illuminate their disciplines.



Learning objectives:

- ▶ To understand the key elements of the maker movement as it pertains to various disciplines.
- ▶ To inspire student creativity while maintaining equality.
- ▶ To develop a plan for its use in the classroom.
- ▶ To develop student's problem solving skills through the use of the makerspace.

PD Activities and Breakdown:

1. Using the Stop-Motion Videos (30 min.)
2. Using K'Nex (30 min.)
3. Copper Wires, Batteries, and LED Lights (30 min.)
4. Provide additional resources regarding makerspace (10 min.)
5. Opportunity to collaborate by discipline (20 min.)
6. Highlight favorite activities (10 min.)

Stop-Motion Videos

Teachers will be able to use common arts and crafts supplies to simulate what is happening on the molecular level in a chemical reaction. Then, using Stop-Motion Studio, teachers will take a series of pictures that will be used to create an animated video.

Suggested supplies for your classroom: play-doh, pipe cleaners, construction paper, markers, colored beads, pom-poms, cardboard, dry erase boards and markers, tape, legos, origami paper, popsicle sticks, old magazines, rubber bands, yarn, glue, and scissors. Anything you have lying around can be creatively incorporated by your students so the more resources the better.

This approach can be adapted to teach a variety of STEM related topics that are too small to observe directly with the naked eye.

- Cellular division
- Cellular respiration
- Osmosis
- Diffusion
- Photosynthesis
- Equilibrium
- Thermodynamics
- Balancing equations

“If you build it they will come, and if you let them build it they will learn.”
-Laura Fleming

K'Nex

Teachers will be tasked with creating the fastest car to go down a ramp using K'nex pieces. K'Nex is a great way to channel a student's inner innovation: from creating the fastest vehicle, to creating a simple machine, to constructing the strongest structure. Students can dive deeper into topics of velocity, speed, independent and dependent variables, and much more. Based on an objective, students design a product, build a prototype, test the prototype, and improve the prototype until they have met the objective. K'Nex can be aligned with science and math standards and is a great hands-on approach that requires higher-level critical thinking and application skills.

Copper wires, batteries and LED lights

Teachers will use copper tape, LED lights and small lithium ion batteries to create a circuit. Students enjoy the challenge of making the circuit and creatively incorporating it into their designs. It's a cheap and easy way to bring an everyday drawing or model to life.

Makerspace Articles Worth Reading:

"The Maker Movement in K-12 Education: A Guide to Emerging Research.

<https://goo.gl/XwZONZ>

"The Maker Movement in K-12 Education: A Guide to Emerging Research.

<https://goo.gl/xTIS8Q>

"Learning outcomes for Students"

<https://goo.gl/pcCmOf>

MAKER SPACE RESOURCES

Book Recommendations:

Worlds of Making by Laura Fleming
The Maker Manifesto by Mark Hatch

Valuable Websites:

<http://worlds-of-learning.com>
<http://renovatedlearning.com>

Twitter

@TheMakerMom @makerfaire @MakerShed @Make @Makemagazine

