

# Agenda



- 01 Vision and Mission
- 02 Introductions and Background
- 03 Uncertain Times and Back to School, Major Challenges Faced
- 04 Quick Overview of SAM Labs Response to Remote Learning
- 05 Deep Dive Into New Remote Learning Kits: SAM Labs + Strawbees!
- 06 Q&A and Giveaway

*Vision:*

To inspire and empower generations of problem-solvers

*Mission:*

To equip educators with the tools, know-how, and mindset to reach learners' potential for computational thinking



# Introductions



**Abigail Yancey**  
ESL Teacher,  
Buncombe County Schools  
Twitter: @SteamYancey  
abby.yancey@strawbees.com



**Ziad Zebib**  
Territory  
Representative at  
SAM Labs  
Twitter: @ZebibZiad  
ziad@samlabs.com



**Sam Yancey**  
K-12 Gifted Education  
Teacher,  
Haywood County Schools  
Twitter: @STEAMTechSam  
sam.yancey@strawbees.com



**Mackenzie Meixner**  
Education Consultant at  
SAM Labs  
Twitter: @Mack\_Meix  
mackenzie@samlabs.com

# Back To School and Major Challenges: Digging for Solutions



- ★ Planning for hybrid, virtual learning scenarios
- ★ Unanswered questions and constant change
- ★ How to help students struggling with or lack of access of virtual learning
- ★ Challenges of new school safety measures and concerns about health and safety
- ★ Higher expectations for accountability
- ★ Budget shortfalls and funding

# How have we adapted?

## Adapted Content for Distance Learning

- Distance learning with SAM Labs **with or without** the bluetooth blocks
- Adapted content for engagement + more tinkering and designing = hands-on learning on and off screen
- School Year Options:
  - ***In person***- Block set-up, SAM Space download and overview
  - ***At home***- Synchronous Lessons or Asynchronous Self-paced lessons, extension activities

## Adapted Products for Distance Learning

- Hybrid Kit- extra trays and lids for kids to take blocks home
- STEAM@Home kit- no-tech materials with activities for students with limited access to technology
- Alpha Kit- individual sized kits for students to use at home
- Creators Series Kits- **2 blocks per kit + accessories + standards aligned lessons**

# How have we been distance teaching with SAM Labs?



<p>Add Slide</p>	<p>Water Cycle</p> <p>1</p>	<p>The Water Cycle</p> <p>2</p>	<p>Matching Pairs</p> <p>3 Match the stage of the wat...</p>
<p>Mini-lesson</p> <p>How could these items be used to represent each stage of the water cycle?</p> <p>4</p>	<p>Quiz</p> <p>5</p>	<p>Mini-lesson</p> <p>6</p>	<p>Can you help me build a system in SAM Space to simulate the water cycle??</p> <p>7</p>
<p>Let's Build!</p> <p>Create a system to represent rainfall</p> <p>8</p>	<p>Challenge 1</p> <p>Can you simulate the sound of rain falling?</p> <p>9</p>	<p>Challenge 1</p> <p>Simulate the movement and sound of rain</p> <p>10</p>	<p>Time to Climb</p>

- Engagement-- vocabulary matching, formative CFU, games, videos, self-paced option
- Integrations- Google slides, Zoom, Microsoft Teams
- Teachers can export student data to drive instruction and take grades
- Student & parent friendly

# SAM Labs Digital Classroom: Sneak Peak!



[Sneak Peek Link](#)

## Showcases

- Kindergarten, 2nd, and 5th Grade Student Lesson
- Read-Alouds to add to your digital library
- Materials required for each lesson

Join us next Friday, August 21st for an in-depth exploration into our adapted content!

# Adapted Content In-Progress

- Currently adapting all STEAM and Learn to Code Lessons for asynchronous, self-paced student lessons
- Includes audio, video, and engagement activities embedded within slide deck
- Includes opportunities for off-screen exploration and prototyping
- Copy link and include straight into your Google Classroom! (No editing required, but still possible if preferred)



Mid-August

STEAM K-1 & 2-5  
Starter Lessons  
Distance Learning  
Release



Mid-September

STEAM 2-5 Distance  
Learning Release



End of September

STEAM K-1 Distance  
Learning Release



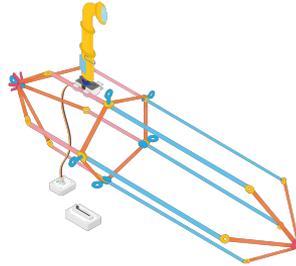
End of October

Learn to Code 4-8  
Distance Learning  
Release

# Creators' Mini-Kit Breakdown: Relevant, Standards-Driven, High-Interest Topics

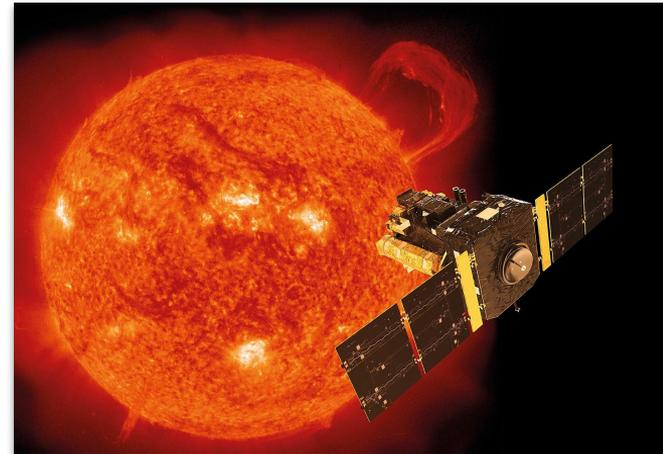
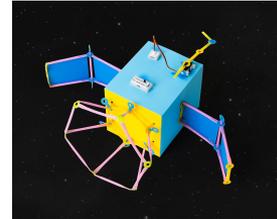
## 2nd/3rd Grade Lesson Clusters

- Madagascar Adventure
- Ring of Fire
- Arctic Voyage
- Operation Hurricane
- Dinosaur Dig



## 4th/5th Grade Lesson Clusters

- Carnivorous Plants
- Arcade Ball Drop and Gravity
- Huntings with Raptors
- Speeding Towards the Sun
- Guardians of the Earth



# SAM Labs Creators STEAM Kit Includes:



**STEAM**

Our STEAM course is a suite of standards-aligned Lesson Packs, Starter Lessons, Standards Alignment maps and Grade overviews to support your planning. Ranging from Kindergarten to Grade 5, our STEAM course provides everything you need to implement STEAM in your classroom.

[View Content](#)



**Learn to Code**

Follow Sam on a mission through Cyberspace, providing students with the opportunity to learn Computer Science concepts, code a program, reflect on and debug it. Covering Grades 4-8.

[View Content](#)



**Maker**

Maker Space Challenges Project Based Learning 75+ Task Cards for STEAM and Learn to Code

[View Content](#)


<https://samlabs.com/us/content>



**LESSON PLAN**

**City Building**

Discuss and explore different community needs, including ways to connect individual neighborhoods into a unified city.



<https://classroom.strawbees.com/>

- ★ Two SAM Labs Physical Blocks
  - Slider and Servo Motor
- ★ All SAM Space app Virtual Blocks
- ★ Strawbees Building Straws and Connectors!
- ★ Pipe Cleaners
- ★ Free access to:
  - Strawbees learning lessons and activities
  - Free access to SAM Labs Content Hub
- ★ Post assignments virtually or make printouts to send home

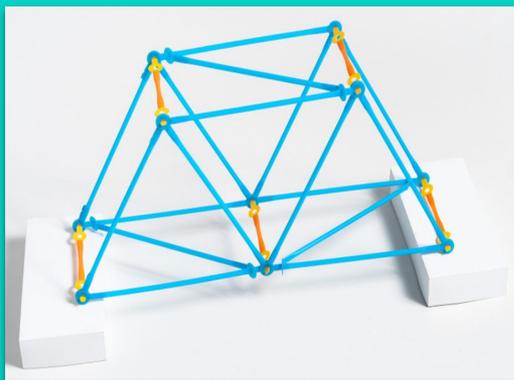
# Strawbees! Open-ended construction!

Versatile



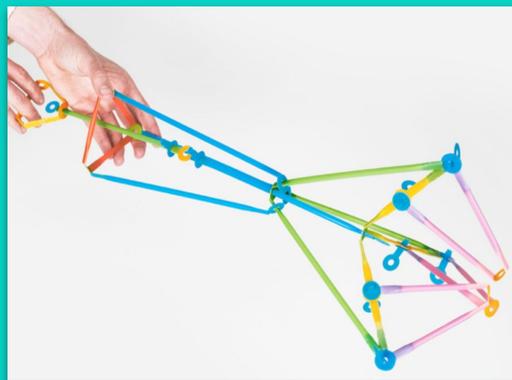
Bendable

Hands-on



Reusable

Playful



Adaptable

Screen-free



Purposeful

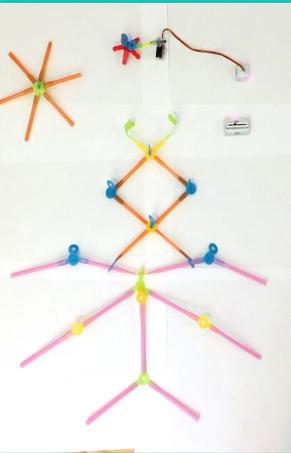


# Why is Strawbees a unique construction solution? What do kids think?

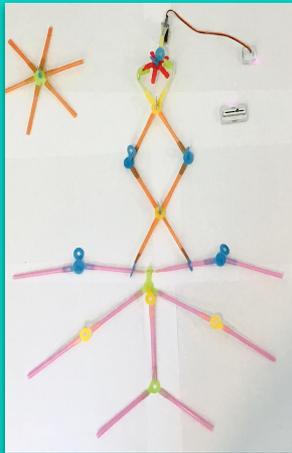
Strawbees.®



Winning #KidsJudgeBETT  
2020 award in London

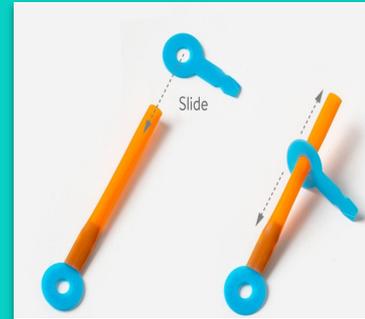
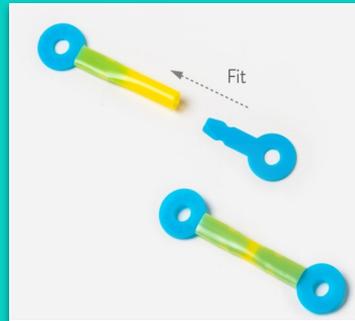


Static



Dynamic

“Strawbees is a construction set, which means it’s made to build things. To say it’s made to build a specific type of things is the same as saying that a certain crayon is only made to draw flowers.



[Strawbees Education on YouTube](#)

<https://strawbees.com/>

# Standards-Driven Lessons



Grades 2 & 3: Lesson 4

## Operation Hurricane

**Overview**  
During this lesson, students will gain an understanding of the color-coded warning system used for natural disaster awareness and learn about the possible causes of flooding. They will discover action steps to prepare for natural disasters and prevent some of the possible negative effects afterward. Students will integrate and exhibit learning by creating a flood barrier and warning system as a model to protect a community from flooding.

**Key Information**  
Grades 2-3 | Ages 7-8 | 45 or 90 minute lesson

Lesson Structure	Learning Objectives
<b>Warm-Up</b>	→ <b>Recognize</b> ways that colors can convey important information.
<b>Mini-lesson</b>	→ <b>Explain</b> some causes of flooding and ways humans can use engineering principles to combat the effects of extreme weather.
<b>Worked Example – Let's Build!</b>	
<b>Challenge</b>	→ <b>Create</b> a flood barrier and warning system as a model to protect a community from flooding.
<b>Exit Challenges &amp; Exit Ticket</b>	→ Opportunity to extend understanding and reflect on learning.

**Lesson Topics** (refer to the Standards Alignment Map)

NGSS Earth and Space Science 3-ESS3-1 ESS3.B  
CCSS Math | CSTA Computer Science | CCSS English Language Arts

**Materials Required**

SAM Labs Creators STEAM Kit	Strawbees	Scissors
Tape	Coloring utensils	Assorted plastic lids or cardboard circles
Pipe cleaners	Paper or cardboard	

The Student Handouts can be used alongside each lesson.

© 2020 SAM Labs 1

### Mini-lesson

## Moveable high and low-tech solutions to flooding

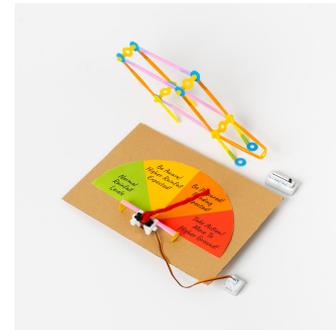
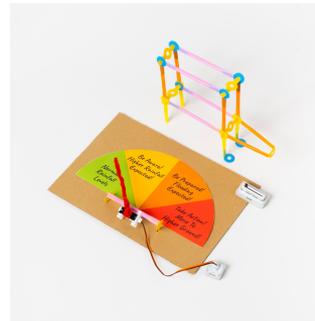
What are some benefits to moveable flood barriers or water gates?

A watergate and lock in Holland

High-tech moveable flood barrier in River Thames, England, in open position

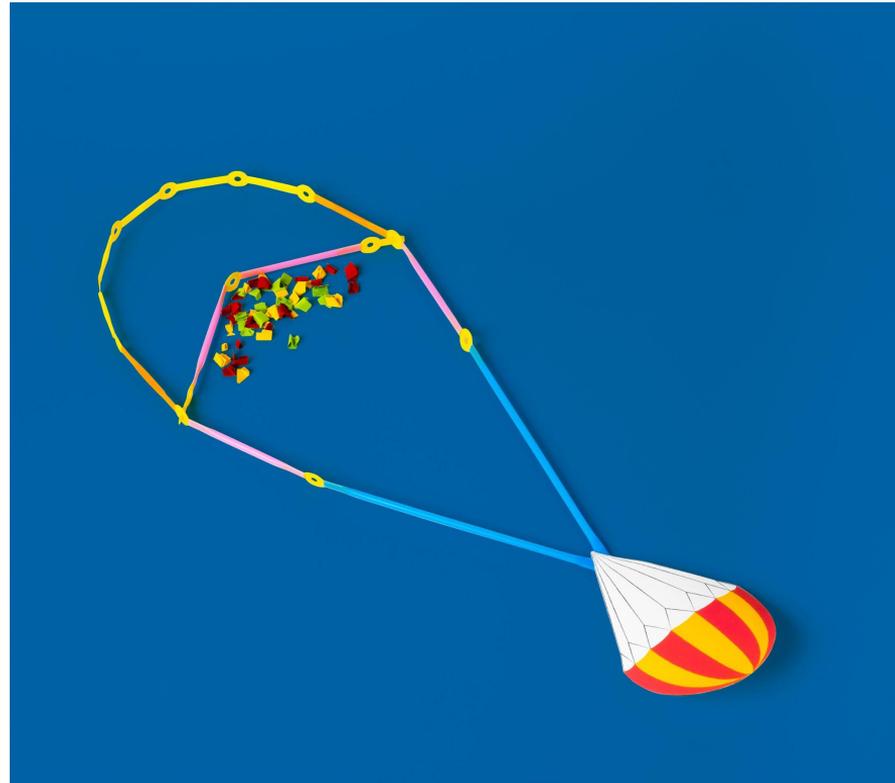
## STEAM – Standards Alignment Map

- ★ NGSS
- ★ CCSS – ELA
- ★ CCSS – Math
- ★ CSTA



# Putting the Art in STEAM

- ★ Drawing and Sketching
- ★ Paper Art
- ★ Shaping Cardboard



# Enrichment Opportunities: Promote Higher Order Thinking



## Chili Challenges



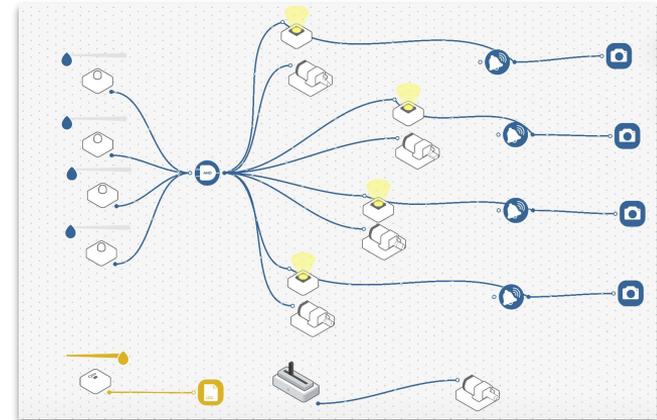




Experiment with the Button sensor. Imagine scientists are wanting a way to manually test the camera before the Parker Solar Probe enters space. Can you insert a Button to control each camera? What about one Button to snap photographs with all the cameras at once?

Experiment with the Time Interval and other time behavior blocks. You have been hired by NASA to program a smart magnetometer that turns automatically back and forth, remains on for a specified time, and turns to an exact angle amount. Are you up for the challenge?

Experiment with the Counter and Compare blocks. Design a system that counts the number of photographs you take. Can you set range limits, not taking less or more than a certain predetermined number of photographs?



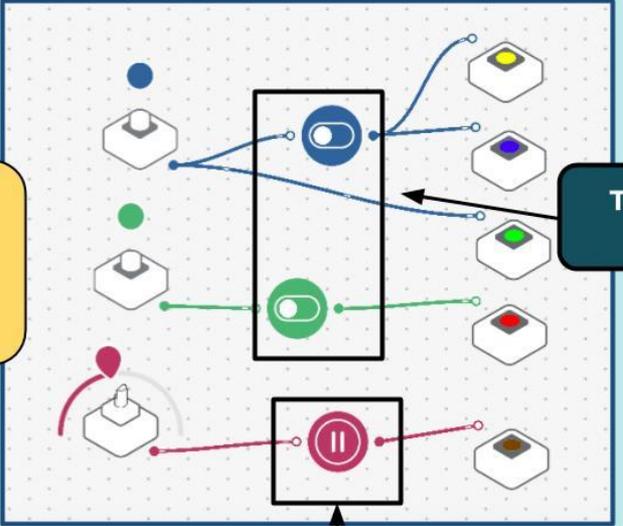
# Visual Coding in SAM Space and Careers in STEAM



## Challenge

2

Explore the toggle switches. Do chameleons display every color at once?



Toggles on/off

Hold  
A single pulse of time



# Multimodal Learning to Support All Learners!



## Warm-Up

### Role Play in the Rainforest



What can you hear,  
see, feel, smell, taste,  
and touch?

- ★ **Visual Learning** - Visual Aids
- ★ **Auditory** - Opportunities for Discussion, Designing programs with sounds and music
- ★ **Kinesthetic** - Role-play, building, and activities that involve movement
- ★ **Reading and Writing** - Student Handouts and Slides with enhanced vocabulary

# Ready-Made By Teachers, For Teachers and Students! Designed for In-School or At-Home Learning!



- ★ Researched & Content-rich
- ★ Ready made materials:
  - Teacher Lesson Plan,
  - Student Slides
  - Student Handout
  - Step-by-step Coding
- ★ Each lesson includes:
  - Tier 2 and 3 Vocabulary
  - High-Order Thinking
  - Strategies to Integrate Prior Knowledge
  - Check for Understanding
  - Fun, Hands-on STEAM, Coding, and Maker Activities

Grade 2 & 3: Lesson 2  
**Ring of Fire**

Step by Step

**Challenge**  
Create a system and model of a Composite volcano that simulates heat sensing and the vibration of a volcanic eruption.

Instructions	Workspace	Instructions	Workspace
<b>1</b> Drag onto the workspace: <ul style="list-style-type: none"><li>• 1 virtual Heat Sensor block</li><li>• 1 Log Findings block.</li></ul> Connect the blocks as shown.		<b>2</b> Drag onto the workspace: <ul style="list-style-type: none"><li>• 1 virtual Vibration Motor block.</li></ul> Connect the blocks as shown.	
<b>3</b> Use Strawbees to build a cinder cone volcano model. Use the following: <ul style="list-style-type: none"><li>• 12 orange straws</li><li>• 6 yellow connectors</li><li>• 4 green connectors</li></ul> Build 6 beams using 2 orange straws and 1 yellow connector to make each beam. Connect into a pyramid using the 4 green connectors.		<b>3</b> Attach the position servo to the top of the volcano mountain using a pipe cleaner to wrap around the servo. Tape the position servo block to one of the adjacent Strawbees beams and the volcano eruption drawing behind the servo motor. Test your system.	

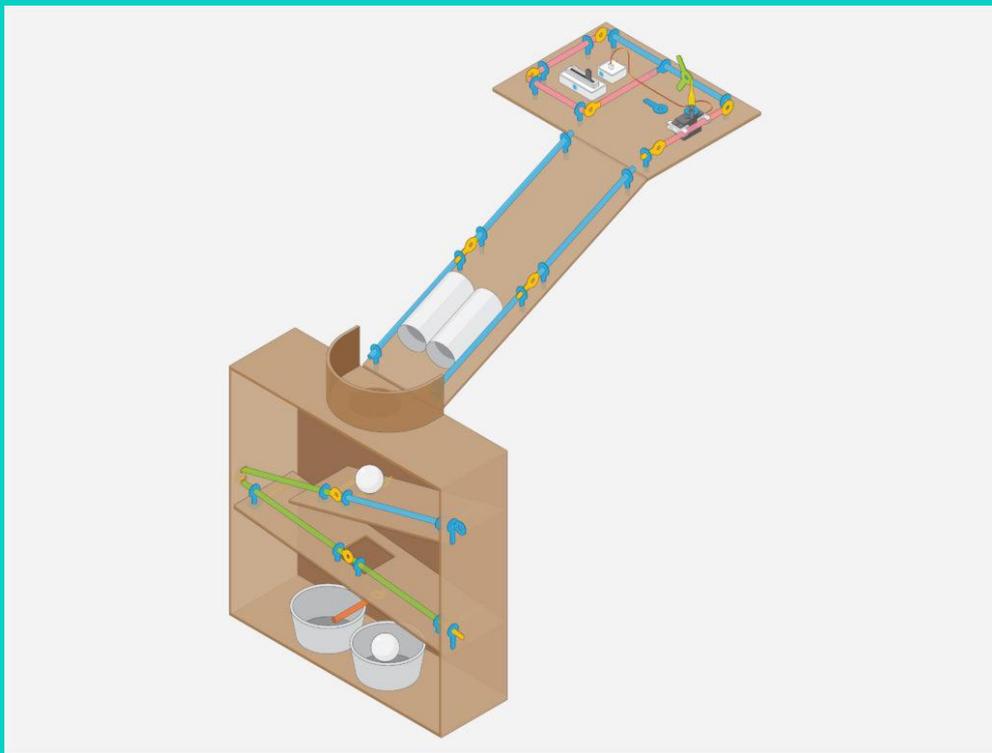
© 2020 SAM Labs

botanist  
Having a significant amount of moisture in the air.



Lessons will be freely accessible  
online from SAM Labs website!

# Open-Ended Design Example: Arcade-Style Ball Drop



*What benefits are there to open-ended design challenges?*

- ★ Use of found materials
- ★ Set basic design constraints
- ★ Cultivating creativity and invention literacy
- ★ Opportunities to test and improve designs
- ★ Purposeful integration of SAM Labs and Strawbees

# Empowering Students with STEAM!



- ★ How does STEAM learning transform and empower our students?
- ★ What have been your most powerful STEAM moments in or out of the classroom?
- ★ Why is it so important now to keep teaching STEAM, even in hybrid and remote learning?

# Where can I purchase these kits?

20% off + free shipping until August 31st - code: backtoschool

<https://strawbees.com/shop/>

Enjoy a 35% discount on a STEAM Course Alpha Kit! Use code HOMECODING

<https://store.samlabs.com/>

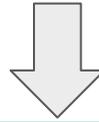
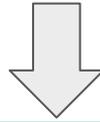
[Book a Demo](#)

[Get a Quote](#)

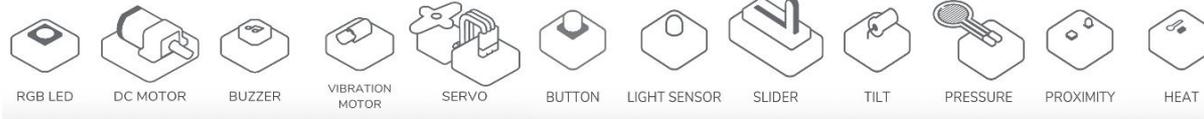
# Appendix

# Free SAM Space App: Oh the Coding Possibilities!

## SAM Labs Blocks



### Physical Blocks



### Virtual Blocks

#### Computer Functions



#### Numbers



#### Switches



#### Time



#### Logic



#### Colors



#### Sounds



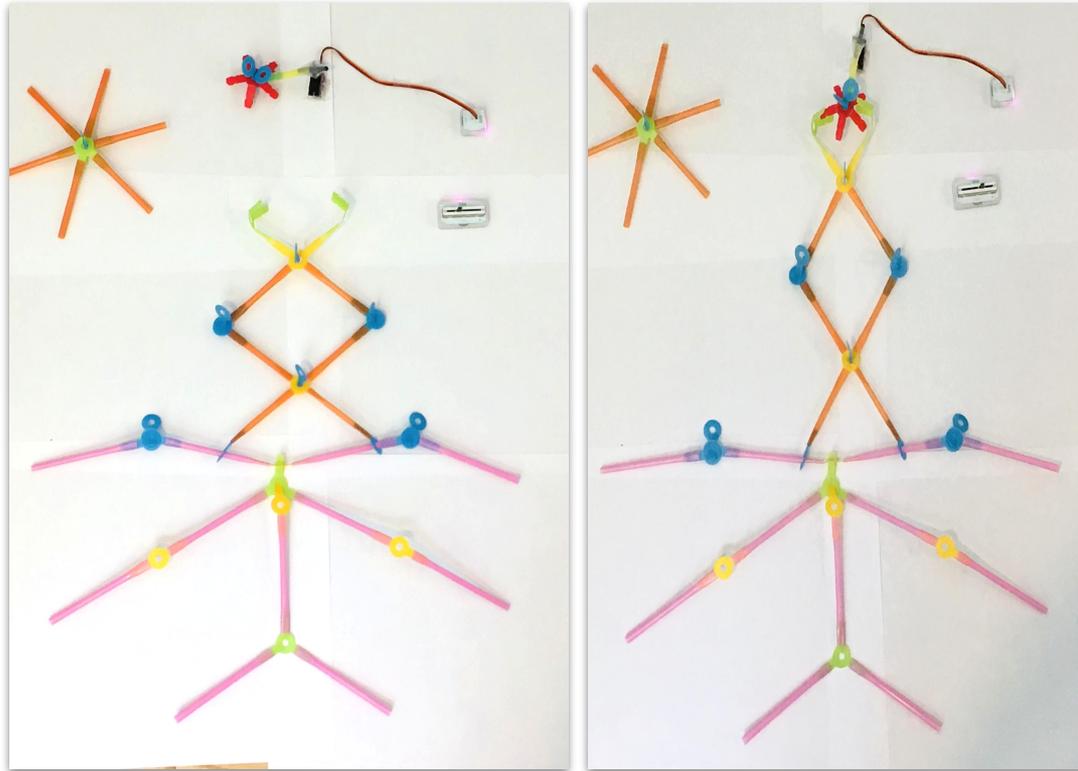
#### Motion



#### Data



# The Need For Design Constraints



- ★ The entire kit is a creative challenge
- ★ What can you create with 2 physical SAM Labs blocks, virtual SAM blocks, Strawbees components, pipe cleaners, and commonly found materials?
- ★ Constraints mimic real-world scenarios with actual limitations

# Cultivating Your Own Creativity...Share It With Students!

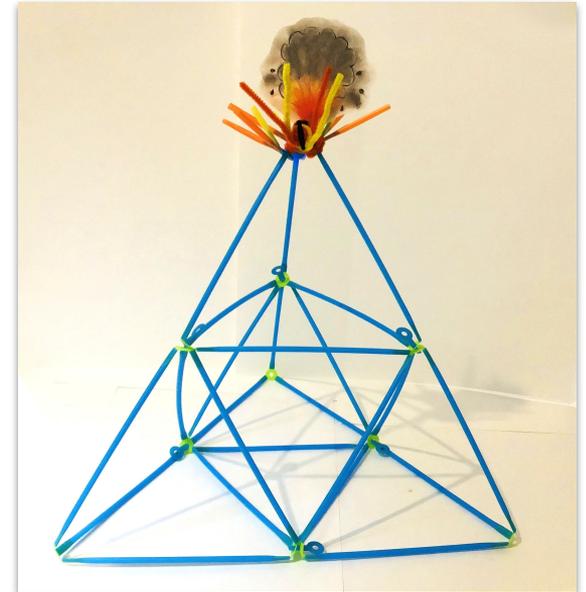


- ★ Give yourself time! Creativity is inefficient but good!
- ★ Combine common materials in uncommon and original ways
- ★ Follow and learn from other creative people
- ★ Moving beyond first thoughts to the new, the innovative
- ★ Taking breaks, nature, and exercising
- ★ Push through difficult parts of the creative process
- ★ Doodling and visual mapping
- ★ Design a personalized space
- ★ Traveling, even if it is in a book
- ★ Continual practice of creativity

[https://www.huffpost.com/entry/yes-you-can-train-yourself\\_b\\_10686810](https://www.huffpost.com/entry/yes-you-can-train-yourself_b_10686810)

<https://web.media.mit.edu/~mres/papers/kindergarten-learning-approach.pdf>

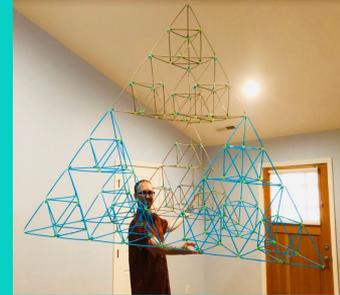
<https://www.classroom.strawbees.com/>



# Strawbees: Investing in Sustainability

## REUSE

“Our multi-use straws are designed to be used over and over again. The benefit of using high-quality plastic in the shape of a straw means we can use much less plastic and our structures become very lightweight. This way we optimize material usage by students per year and we can even make things that fly!”



## REDUCE!

“Strawbees connectors and straws are easy to modify and durable. They can get bent, get wet and even put in the dishwasher. Strawbees can also be used with a wide range of upcycled materials like cardboard, plastic containers, and regular straws, adding value to material that otherwise would end up in the bin. In the end, you take your project apart and can start over again.”



## RECYCLE!

“Our own Strawbees building straws are sturdier, more durable and, like our connectors, made with 100% recyclable plastic.”