

Full lesson plans on  
[learning.strawbees.com](http://learning.strawbees.com)



**STEAM  
SCHOOL KIT**



# EDUCATION TEAM

We are committed to empowering teachers to help **students believe in their own ideas and DREAM BIG** in order to create our future.

## COMMUNITY, CONTENT, COURSE & LESSON PLANS



**Lindsay Balfour**  
Content and Community Manager



**Carl Bärstad**  
Community Outreach

## EDUCATIONAL SALES & EVENTS



**Angelica Rådman**  
Sales Manager



**Joakim Larsson**  
Sales Support

## INVENTORS & TECHNICAL DEVELOPMENT



**Erik Thorstensson**  
Research & Development

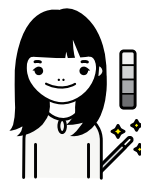


**Kristofer Hagbard**  
Chief Product Officer



**Paulo Barcelos**  
Chief Technology Officer

## ARTWORK, DESIGN & CONCEPTUAL IDEAS



**Qianxin Zhang**  
Designer



**Dan Henriksson**  
Art Director

## CONTACT

[strawbees.com/support](https://strawbees.com/support)

## ONLINE LEARNING PLATFORM AVAILABLE AT

[learning.strawbees.com](https://learning.strawbees.com)

# DEAR TEACHER

## Education is changing

Groundbreaking technology creates new opportunities for and expectations on us humans. When today's children grow up they will work in professions that no one has yet heard or thought of. In order to make a living in the future, humans will need to be more creative than robots. Everyone will need to understand more about technology and this will have a big impact on teaching.

## When Learning is Fun We Grasp More

Effective learning also requires us to create safe spaces where questions and experiments are encouraged and all students feel supported. When students are encouraged to dream and set their own goals their potential for learning is virtually unlimited.

## Explore Together With Your Students

Your students will likely come up with ideas for projects that we didn't imagine. Different age groups are intrigued by different features and opportunities. In addition to programming, there are ample opportunities to learn more about mechanisms, construction, design and interaction. Enjoy your students becoming construction and programming experts - teaching you. You will not need to know all of our materials before you start exploring.

## Supporting Students

You help students set up their hypothesis and designs, find the tools to put them to the test, and reflect upon the result. With our open ended learning system you can also encourage learning through play - by testing and making, observing what became and modify the result in an iterative process.

## Full Lesson Plans & Activities For All Student Ages Online

You can introduce basic tricks to your students, or you can simply ask them to investigate the different ways to use Strawbees are before starting your first challenge. Most of our lesson plans can be broken down into two 45-minute sessions, totaling about 2 hours. Should you want more inspiration we provide full course and lesson plans categorized by age ranges - 5-7, 8-9, 10-13, 14-16, as well as 17+ at [learning.strawbees.com](https://learning.strawbees.com).

Welcome to our global teacher community supporting the creators of our future - happy making!

The Strawbees Education team

## LEARNING BY DREAMING AND CREATING

The Strawbees Educational team puts a lot of effort into investigating and exploring the full potential of learning together with teachers and students all over the world.

The most amazing thing is that we, teachers and students alike, can learn almost anything. **The key to being able to overcome almost any learning challenge is to really want to conquer something new.** This incentive is best created by someone's own clear vision of what we wish to achieve (change, make, explore). This is why one of our most important tasks is to help all students believe in their own ideas and DREAM BIG. We encourage questions and suggestions, and support everyone to try out their ideas.

Strawbees connectors provide an easy, quick and inexpensive way for instant prototyping which enables students to try out new ideas again and again. We facilitate building while dreaming. A pyramid can become a completely different shape by simply cutting one of its construction pipes. We get ideas, discover how one thing leads to another and learn - all while creating, individually or together.

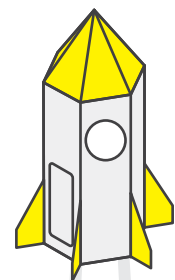
Using our hands is key to developing our nervous system and problem solving skills. **What we learn from tinkering, putting things together, taking them apart - investigating real life 3D structures - is helpful to us in almost all aspects of life.**

## CULTIVATING INVENTION LITERACY

"Invention literacy is the ability to read and write human made stuff, from toasters to apps."

How could we "read and write human made stuff"? Jay Silver who first introduced this concept shares our view of us being able to cultivate our ability to look at objects or computer programs, grasp what they are about - and train ourselves to gradually be able to come up with new ideas with more ease as we gain experience.

Inventors don't perform magic. Once we are familiar with the basic building blocks of invention, such as understanding mechanisms, movement, design, programming and whatever else is relevant to the object we need to write - then we can put these blocks together in new, innovative ways. Much like understanding grammar enables us to make sense of what we read and help organize our texts to make sense when we write.



## BUILDING CREATIVE CONFIDENCE

### ANYONE CAN BECOME AN INVENTOR

How many times have you heard someone say that they are not creative, good at mathematics or technology?

The interesting thing about our brain and nervous system is that it gets really good at whatever we repeat time after time. We can think of the things that we do seldom as hard to find paths in the woods or jungle. They are barely visible and may be hard to find and follow. The things that we do every day, or even several times a day - like brushing our teeth or chew - turn into super broad and fast highways that we find and follow easily and without hesitation.

**There is actually no such thing as a 'uncreative' person or someone who can not learn mathematics.** Start observing and examining stuff in your surroundings. Modern science has proven again and again that we become proficient at what we do. Ask yourself how they work and get building and exploring - and this will be the abilities that you cultivate. With time it will feel easier and more natural to come up with new ideas.

### CHALLENGE YOUR FEARS

What we do not recognize, are not used to, or do not feel confident doing sometimes feels scary, but this is normal. What can we do to dare to step into new directions anyway? Even the smallest thing that we recognize may help. Almost all teachers and students are familiar with construction pipes and cardboard. Perhaps you have not yet used them to realize your dreams. Using familiar tools and materials often lowers the threshold and get people into the new game. **We learn more when we are not certain about what is going to happen.** What is more exciting to your students than experiments when not even you, the teacher know what to expect?

### CELEBRATE ANY RESULT

One of the most effective ways of inspiring students is for the teacher to reveal his or her own mishaps, or silly outcomes. There are not really any failures, only learning opportunities. Ask what happened, or what didn't happen? Have a laugh. Some of the most treasured inventions in human history are the results of "mistakes."

## WELCOME TO OUR ONLINE PLATFORM

We hope that you will find this inspirational guide useful. Welcome to our online Teaching Center and community which also provides detailed course and lesson plans for students of all ages.

### USING OUR APPROACH TO ANY SUBJECT

As you learn about and try out, or come up with your own new ways of using Strawbees

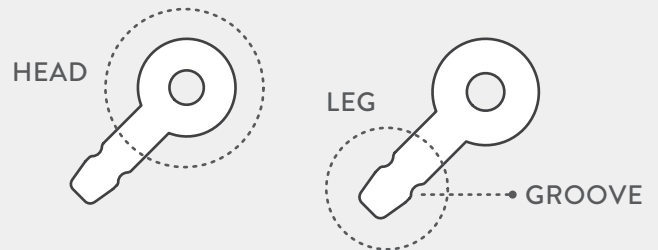
connectors new opportunities unfolds. How many different ways are there? What materials can you incorporate into your creations? On our learning platform you can also find ideas for how to incorporate our materials into mathematics, physics, chemistry and lots of other subjects.

# STRAWBEES TIPS AND TRICKS

This is a collection of tips and tricks you can use for understanding the basics of using the connectors. Try making each part as you read through in this guide.

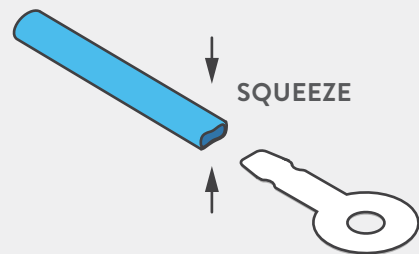
## STRAWBEES CONNECTORS

Strawbees are connectors that can be used for combining construction pipes, connectors, cardboard, and many types of materials.

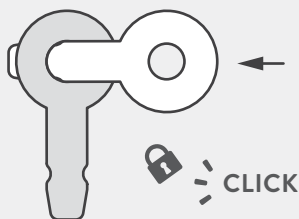


## CONNECTING TO CONSTRUCTION PIPES

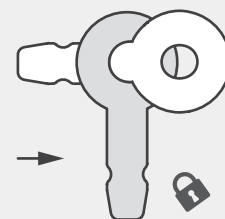
Squeeze the opening of the construction pipe for easy insertion.



## CONNECT & LOCK



OR

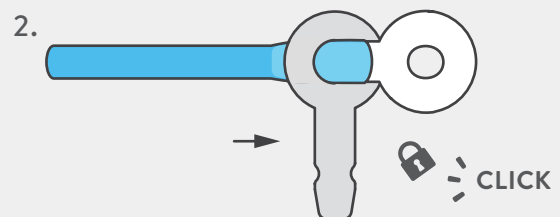
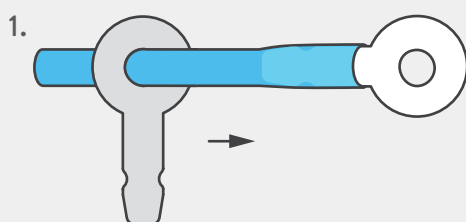


Slip the head into the groove of the leg and **listen for the click**. This will secure connectors and allow rotation.

Push the leg all the way through the head to lock in place. The connectors are limited in rotation.

## LOCKING CONSTRUCTION PIPES

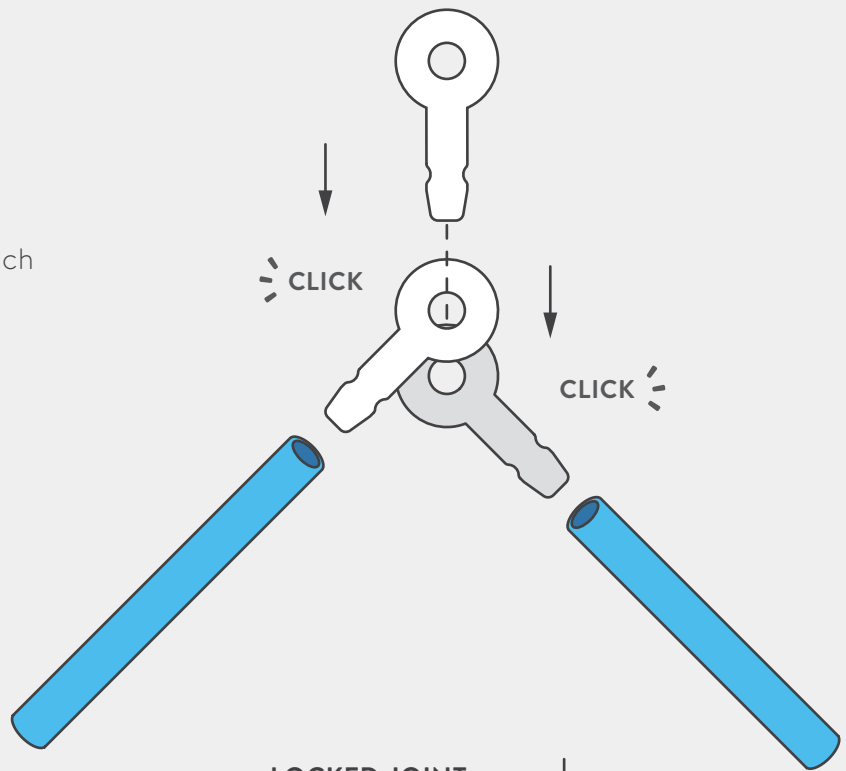
You can lock the construction pipes in place to prevent slipping.



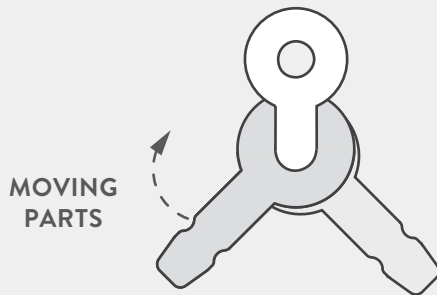
Snap onto the **groove**.

## JOINTS

Push the Strawbee leg through each head **one at a time**.

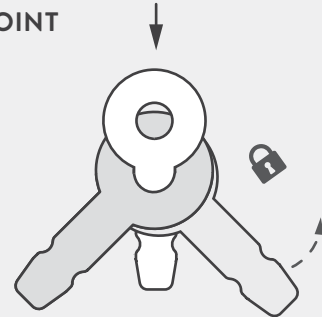


### MOVING JOINT



Snap the heads of connectors into the groove of another connector to create a fully rotating joint.

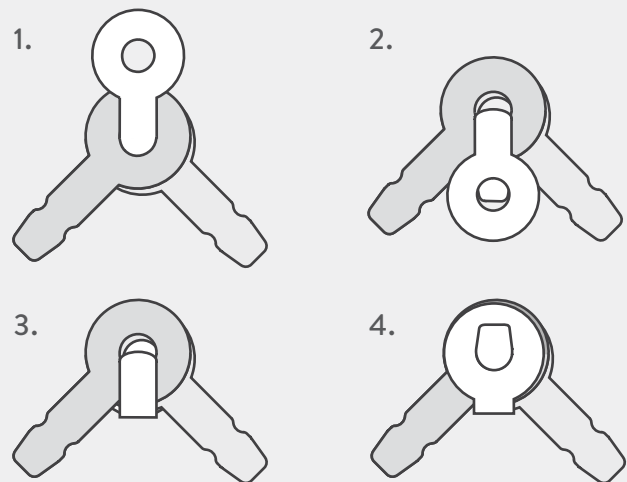
### LOCKED JOINT



Push the leg all the way through to create a joint with limited movement.

## FRICITION LOCK

**With the moving joint** fold the head over to the other side and snap it into the groove to create a friction lock. The legs will shift and hold in different positions.



1. FOLD THE HEAD ALL THE WAY TO THE BACK

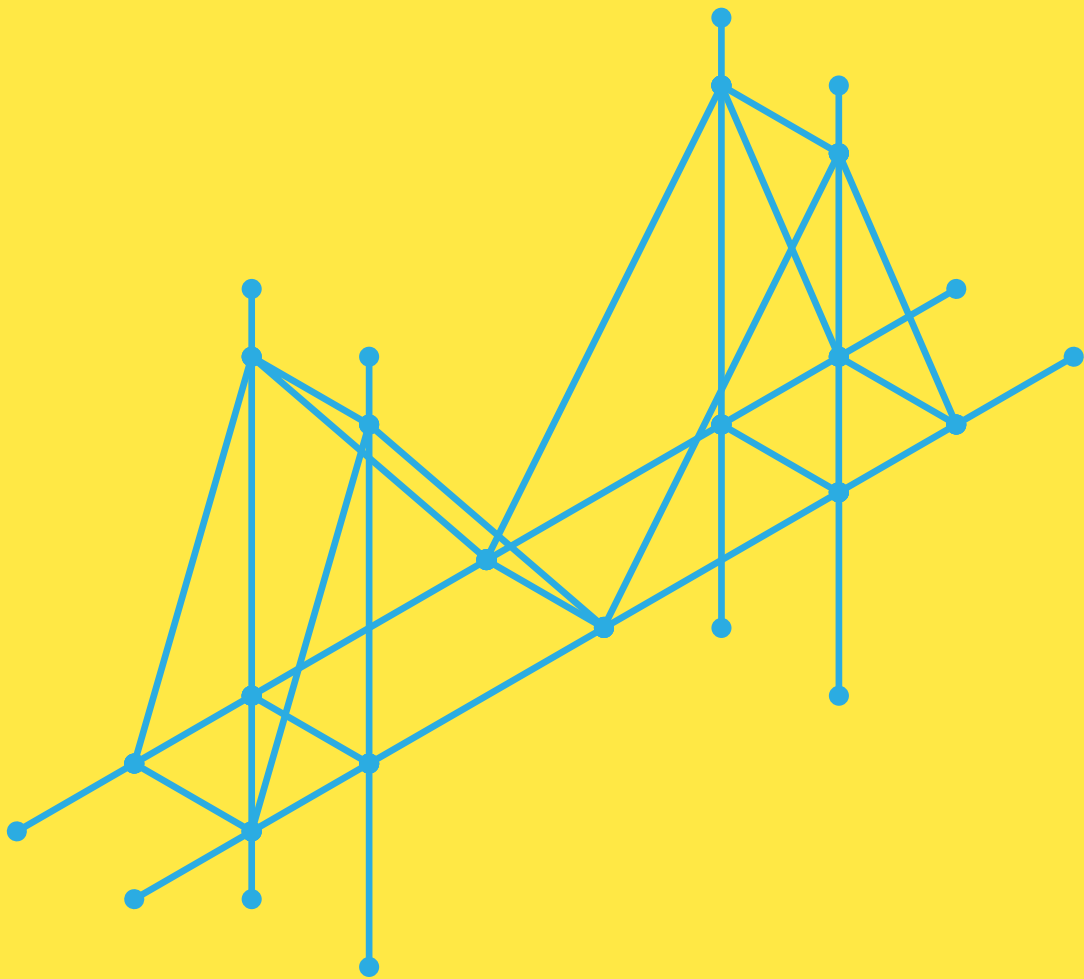
2. PUSH THE LEG THROUGH THE HOLE TO LOCK

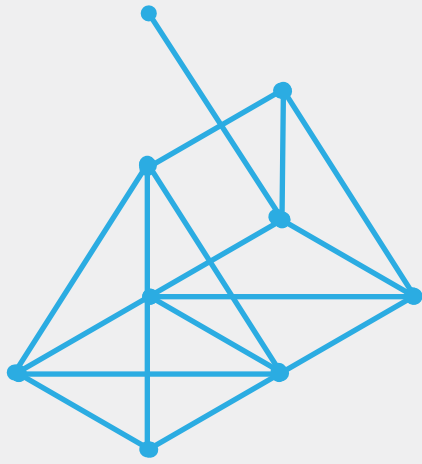


# LESSON PLANS



You can find and print full lesson plans at [learning.strawbees.com](https://learning.strawbees.com) with the keyword of each lesson.





## INTRO TO STRAWBEES

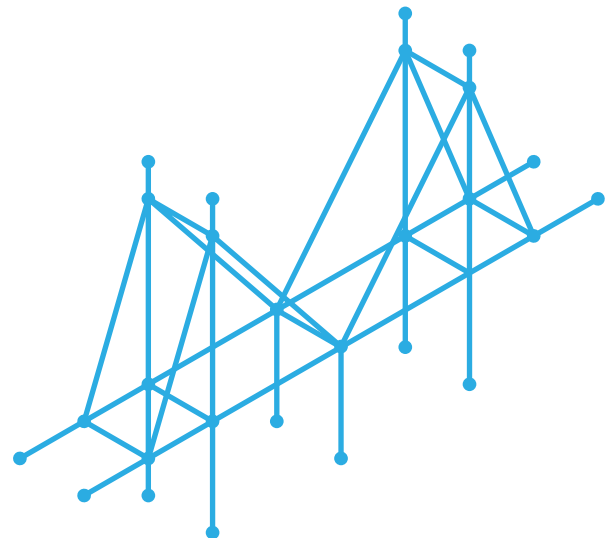
Discover the capabilities of Strawbees through explorative building with an introduction to combining connectors together. Brainstorm an idea then collaboratively to transform it into physical model for an open-ended challenge.

🔍 Search for “**Intro Strawbees**” at [learning.strawbees.com](https://learning.strawbees.com)

## BUILDING BRIDGES

Structure a bridge design using a blueprint to build the biggest, strongest bridge to withstand a weight test. Learn about the shape geometry composing bridges, draft a design on paper, then build!

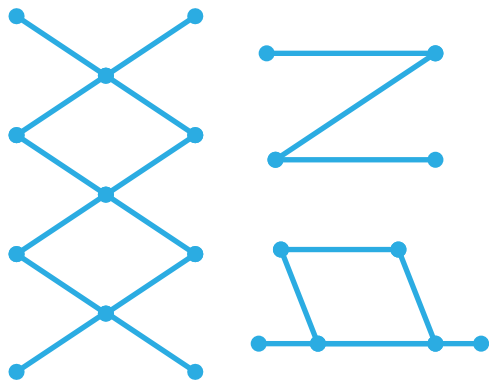
🔍 Search for “**Bridges**”



## GEOMETRY

Learn about polygons & polyhedra starting in 2D and transforming into 3D shapes. Build a knowledge of math by learning about the number of faces, vertices, edges, and groups of construction pipes used to make each shape.

🔍 Search for “**Geometry**”



## LINKAGES

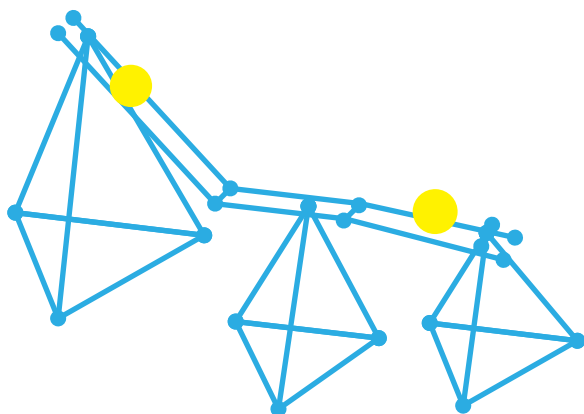
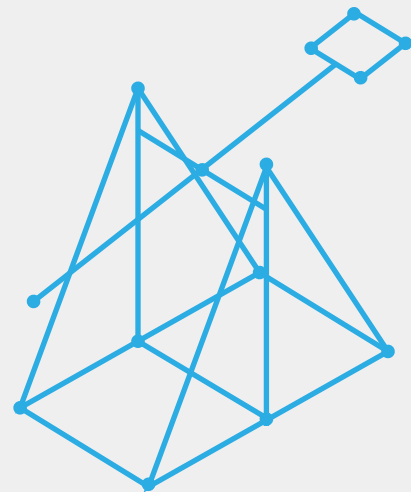
Animate structures exploring different ways to create Strawbees joints and locks to make moving, kinetic sculptures.

🔍 Search for “**Linkages**”

## CATAPULTS AND TREBUCHETS

Spring into constructing catapults and trebuchets to launch projectiles for a distance test challenge and then take aim with an accuracy test.

🔍 Search for “**Catapults**” and “**Trebuchets**”



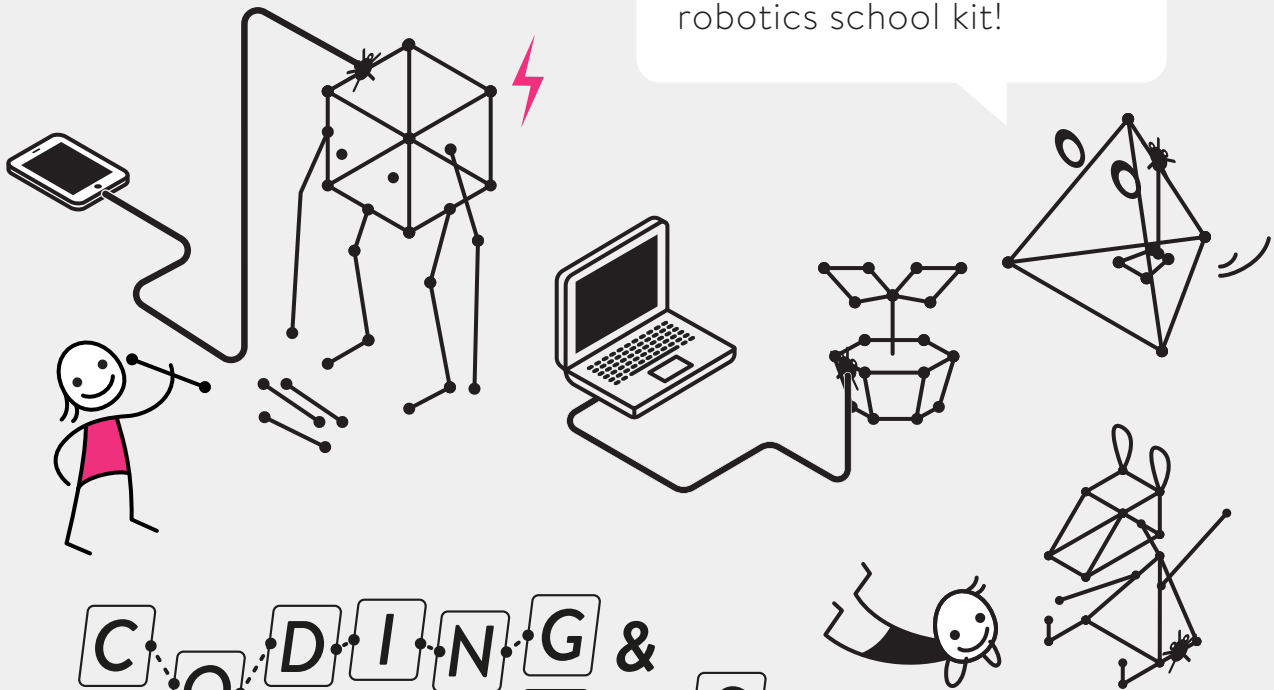
## ROLLERCOASTER RUN

Discover the potential energy of a ping-pong ball traveling down the longest running ramp in this collaborative challenge.

🔍 Search for “**Rollercoaster**”

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MAKING PROGRAMMING EASY**