



Unplugged:  
**6 Ways to Teach  
Your Kids Coding  
Skills Without  
a Computer**

little **ROBOT** friends®

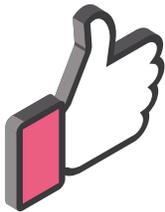
# Unplugged: 6 Ways to Teach Your Kids Coding Skills Without a Computer

You might be surprised to hear, but at Little Robot Friends we do believe in a healthy dose of JOMO (joy of missing out) when it comes to screen time.

Unplugging from digital devices and learning the fundamentals of coding through hands-on activities can help children understand abstract concepts while developing their problem-solving, creativity, and metacognitive skills.

It's one of the reasons we developed our [Paperbot Kit](#). We love finding a way for kids to get a taste of electronics without turning on a screen.

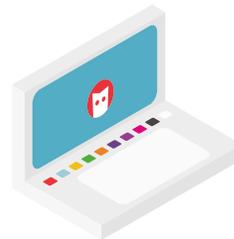
Simply learning the basics of coding is enough to spark an interest in programming, an essential 21st century skill. Here is what one hour spent on coding can do:



build confidence



encourage thought around how things work



provide access to computer skills



open up career possibilities

But how can you help your child be future-ready when sometimes you just want them to be completely unplugged?

There are many ways to build your child's skills that don't require access to tech. If you want less screen time for your kids, while still learning key STEM skills, we've compiled six fun unplugged activities to try with the kids in your life. They're so easy you can try them out the minute you finish reading!

Be sure to read to the end, as we have embedded a surprise gift for you! And use the [#littlerobotfriends](#) hashtag and tag us [@lilrobotfriends](#) when you share your story of implementing so we can feature you!

# Binary Code Bracelets



Binary code is the simplest form of computer code.

It's a way of representing information using only two options, 1s and 0s. All letters, numbers, and characters convert into an eight digit binary number by the computer. For example, as you can see in the chart below, the letter **a** is represented as **01100001**.

Making binary name bracelets is a great unplugged activity to introduce binary system to kids. It helps them get a sense of how computers process data.

## Binary chart:

a	01100001	h	01101000	o	01101111	v	01110110
b	01100010	i	01101001	p	01110000	w	01110111
c	01100011	j	01101010	q	01110001	x	01111000
d	01100100	k	01101011	r	01110010	y	01111001
e	01100101	l	01101100	s	01110011	z	01111010
f	01100110	m	01101101	t	01110100		
g	01100111	n	01101110	u	01110101		



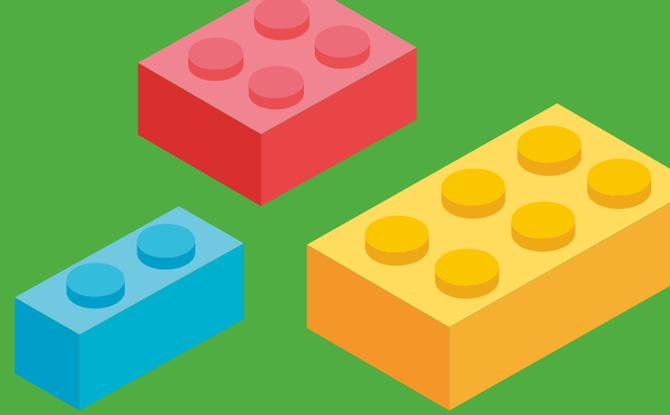
## How to make a binary bracelet:

- 1** To get started, you'll need beads in two colours for the 1s and 0s. You'll also need a string or a pipe cleaner.
- 2** Decide which colour bead represents 1s, and which colour bead represents 0s.
- 3** Using the chart, find the first letter of your name. You'll use the beads to represent this letter in binary code.
- 4** Tie or twist a knot into the end of your string or pipe cleaner.
- 5** Add the beads to the string or pipe cleaner.
- 6** Repeat steps 3-5 until your whole name is spelled and on your bracelet.
- 7** Tie the bracelet on your wrist. If you have a lot of letters in your name, it might become a necklace!

## Extension:

Once the bracelet is complete, encourage your kid to practice their binary skills by writing a message using binary. Use the Binary Code chart to help decipher the message.

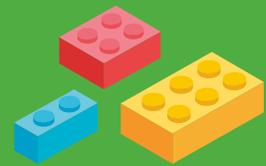
# Design a Lego Maze



**One of the first steps to learn to think like a programmer is understanding perspective.** Creating a maze, and planning the escape route, is a fun way to develop logical thinking and a programmer's mindset.

This open-ended task lets kids follow parts of a real design process, such as brainstorming, prototyping, and testing.





## How to build a Lego maze:

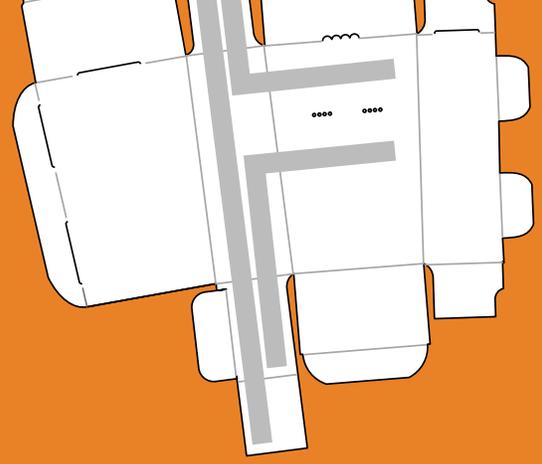
- 1** Find a large baseplate or create one using several flat pieces. Gather a variety of Lego pieces that are standard height.
- 2** Use the pieces create a wall around the perimeter of the baseplate. Leave space for a start and end point. The space should allow a marble to pass through.
- 3** Then create the maze inside the perimeter. Leave about 3-4 studs between walls to allow space for a marble.
- 4** Once complete, grab a marble. Pick up the baseplate. Drop the marble at one end of the maze, and tilt and move the baseplate until the marble makes its way to the end.

## Extension:

For an additional challenge, encourage your kid to first plan and design their Lego maze using dot paper.

# Paperbot Kit

by Little Robot Friends

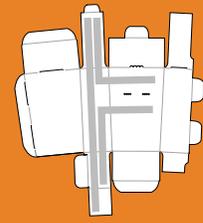


Our Paperbot Kit is another simple option to get started. **Paper circuit is a fun, low cost way to learn about electronic circuits.** We designed the Paperbot so that your kid has something adorable to show off in the end.

Using paper, LEDs, conductive tape, and a coin cell battery, kids learn about circuits, how to measure, cut, follow instructions and troubleshoot problems.

While working on the instructions to make their paper robot's eyes light up, kids will think, plan, and struggle as they connect the materials.





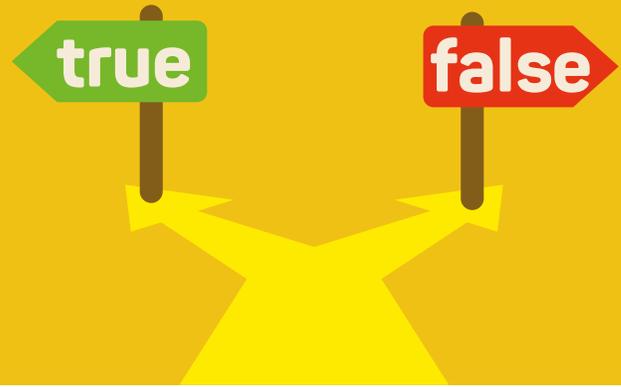
## How to make a Paperbot:

- 1 Order your [Paperbot Kit](#), or if you already have LEDs, conductive tape, and a watch battery, [download our paper template here](#).
- 2 Gather the tools and materials
- 3 Decorate your Paperbot.
- 4 Follow the instructions on the enclosed instruction card!

## Share it!

Once the Paperbot is active, show us! Tag us [@lilrobotfriends](#) and use [#littlerobotfriends](#) so we can show off your kid's Paperbot's creation too!

# If / Then Exercise



**Programmers write commands that prompt computers to complete an action depending on the variables that are present.** The program says IF one condition exists, THEN do something. It can be as simple as a Yes or No question and answer or it can prompt an action.

One of our favourite physical activities, the If-Then Game, is an age-appropriate way to teach kids about one basic of computer programming, the If/Then statement.





## Here's how to play:

- 1 Find a large, open space.
- 2 Choose one person to be the Programmer. The rest of the players are the Computer.
- 3 Begin with a practice command. The Programmer gives the Computers a command (e.g., If I lift my right arm, then you hop on your right leg!) and the Computers follow the command.
- 4 Now the game begins. The Programmer gives the Computers a command. They follow the command. This is a twist on Simon Says game, because the condition and the command can be different!
- 5 Repeat step 4 several times. Then have a new Programmer take over.

After playing the If/Then game several times, kids will internalize the concept of conditional statements and two main roles in programming through physical activity.

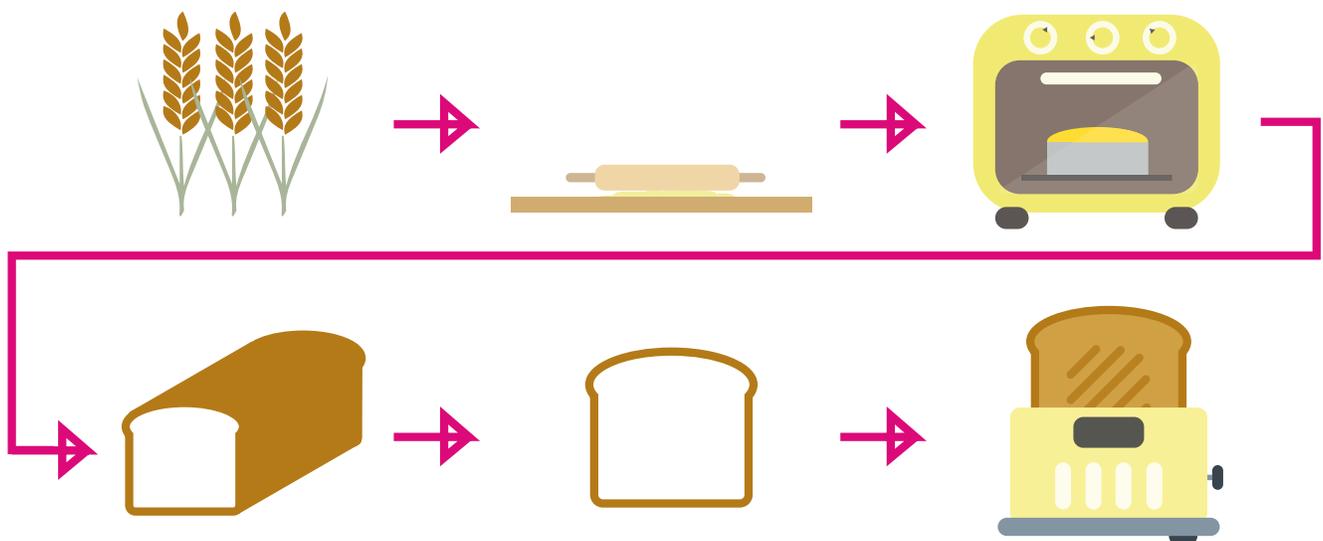
# Make Toast



When programmers are writing code to give computers a command, they break the problem or action into smaller chunks. They call this 'decomposition' which is a fancy word for when you break down a problem into smaller parts. By doing that, programmers are able to examine situations at hand and identify problems in order to complete a task. They can also reuse chunks of code they like for other programs.

The Make Toast activity is a great follow up to the If/Then physical activity as it shows just how much detail goes into giving a command in a seriously funny way, by having your kid tell you how to make toast.

## How do you make toast?



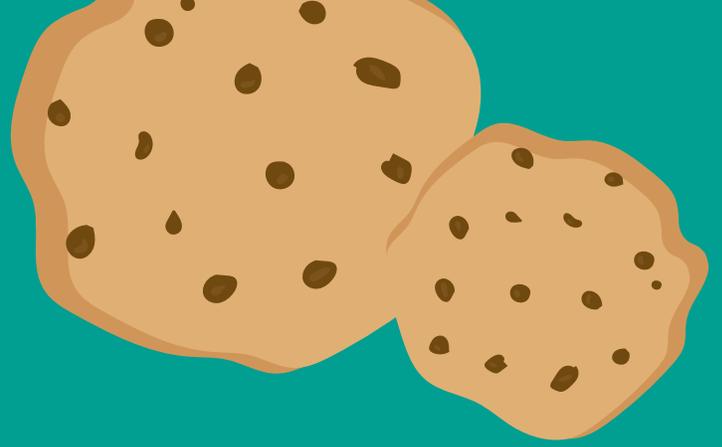


## How to play:

- 1** Go to the kitchen. Get out the bread and toaster. Put it on the counter.
- 2** Ask your kid to tell you how to make toast.
- 3** Follow their 'command' exactly. (e.g., If your kid says put the bread in the toaster, then pick up the bread in its bag and try to put in toaster).
- 4** After a few attempts, your kid will see they need to break their command down into smaller, more specific steps. (e.g., Take one piece of bread out of the bag. Put the bread in the toaster slot on the right. Push the start button etc).
- 5** Continue to play until you have a piece of toast to eat and enjoy!

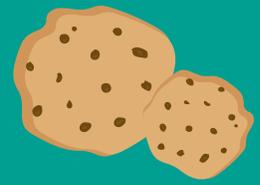
Decomposition is a useful problem-solving strategy. Not only can it help kids write code, it can help them solve problems in mathematics and everyday life. The key is to remember to break a problem down into small steps.

# Baking Cookies



**Baking and coding have a lot in common.** They each follow a set of instructions to make something—coding uses an algorithm and baking uses a recipe. They both use if/then statements (e.g., If that happens, then this happens), loops (repeating an action) and sorting to get the final product.





## How to make two-ingredient cookies

- 1** Add 2 bananas and 1 cup of quick oats to a bowl.
- 2** Mash them together until combined.
- 3** If you'd like, mix in a small handful of something extra (e.g., chocolate chips, coconut flakes, raisins, or nuts).
- 4** By the spoonful, drop the mixture onto a greased, silicon, or parchment paper lined tray. Makes about 12-16 small but delicious cookies.
- 5** Cook at 350 degrees in the oven for about 15 minutes or less.

Once your cookies are cooled, try them out. Just like a programmer, a baker tests if what they created is good, and makes notes of what to improve for their next round.

# Unplugged: 6 Ways to Teach Your Kids Coding Skills Without a Computer

Now that you have six of our favourite ‘unplugged’ creative ways to teach children that coding is serious fun. Which one will you try first?

Tag us [@lilrobotfriends](https://twitter.com/lilrobotfriends) and use [#littlerobotfriends](https://twitter.com/hashtag/littlerobotfriends) to share your experience implementing any of the tips above. We’d love to hear from you and feature your work!.

As parents raising our curious son, just like you, we care about raising kids who are resilient, curious, and have a positive attitude. For taking the time to read and commit to your child’s development, we’re gifting you a special 15% off discount code **UNPLUG** to use on our shop to [buy a Little Robot Friend of your very own](#).\*

**Ann Poochareon and Mark Argo**  
Founders of Little Robot Friends

\* This code can be applied to any Cubby robot package (individual or educator pack) and our new Paperbot Kit.

## Resources:

[Draw How To Make Toast](#)

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*I see kids get really excited about...getting to program and make them do something, which I don't think before the workshop they thought they were capable of doing.*

Michelle Mismash, Youth Coordinator

“

*My 9-year-old and his bestie participated in a PA Day workshop. Not only was it packed with really enjoyable activities all related to coding for their little robots, but it was run by really kind and excellent female coders. The children adored every second of the day and were made to feel incredibly welcome the whole time they were there. I cannot recommend Little Robot Friends enough. Terrific people, and a terrific intro to coding.*

Stacey Iseman, Mom

“

*My robot's name is E.T. I liked learning how to tap the sensors and make it do different things. I made expressions for all the parts.*

Emily M., 7 years old

**Our mission is to empower kids to think creatively with technology.**

Founded by Ann & Mark, a wife & husband duo, and based in Toronto, Canada, Little Robot Friends is a team of designers, engineers, and educators who are passionate about changing the way our kids learn. From basic introductions to code and electronics, to making robot superheroes, we are always running workshops and building products that will inspire kids' creative imagination. Connect with us at [littlerobotfriends.com](http://littlerobotfriends.com).

