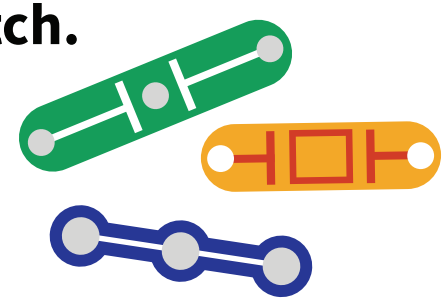
MackinMaker

SNAP CIRCUITS

ELENCO

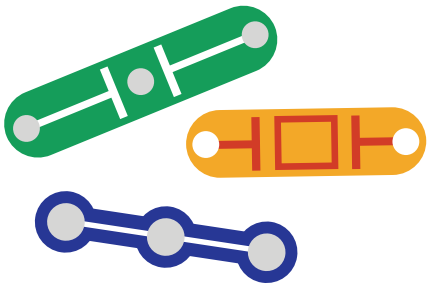
1

Build a circuit that lights up with the help of a switch.



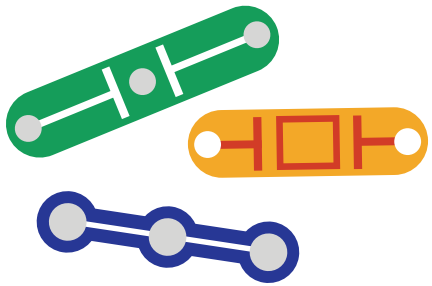
2

Build a fan.



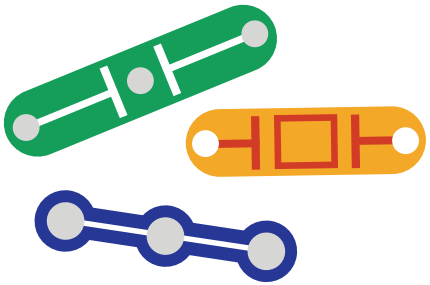
3

Design a circuit that incorporates sound.



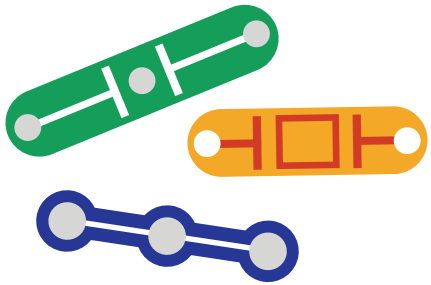
4

Design a parallel circuit.



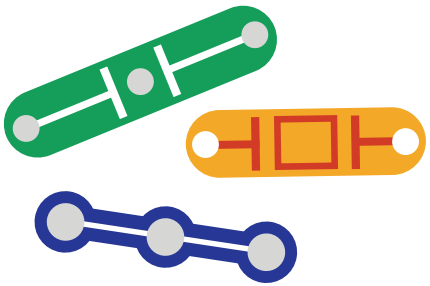
5

Design an alarm.



6

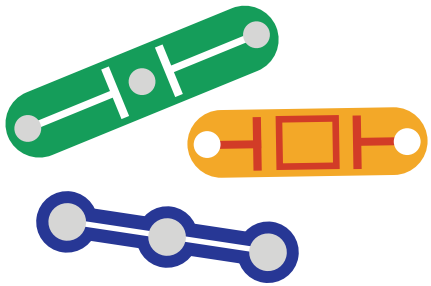
Design a circuit by adding a conductive material you find on your own.



7

Design a circuit by adding as many lightbulbs as possible.

What happens when you remove one of the bulbs?



8

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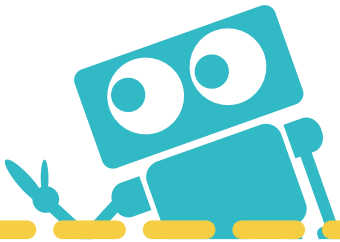
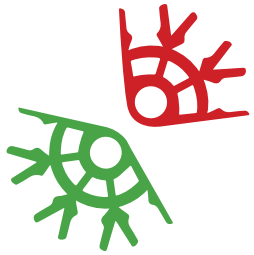
K'nex



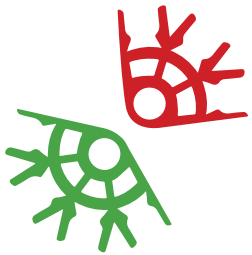
1

Design a marble run.



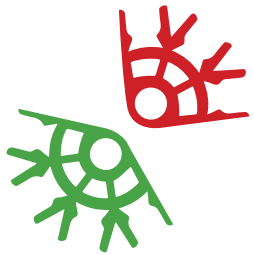
2

Design something that spins.



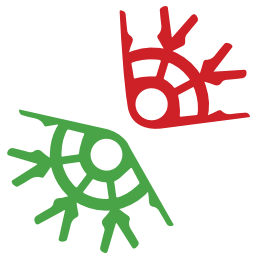
3

Design a catapult.



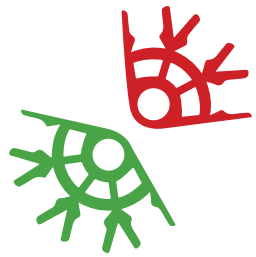
4

Design a skateboard ramp.



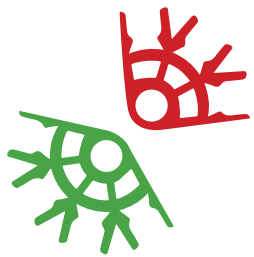
5

Design a bicycle.



6

Design a conveyor belt.



7

Design a ride you would find at a fair or amusement park.

8

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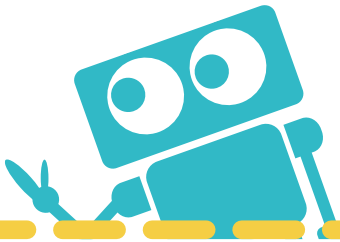
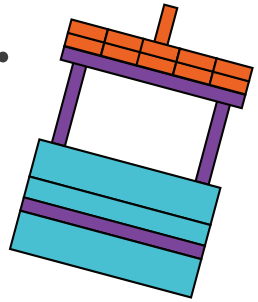
KĒVA® planks



1

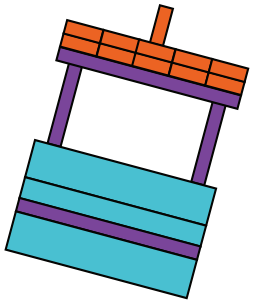
Create the tallest structure possible with KEVA planks without it falling over.



2

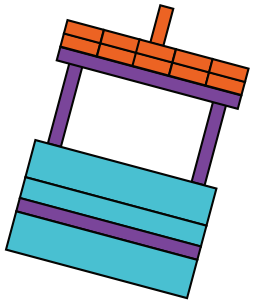
Create a maze with KEVA planks.

Bonus: Try using an Ozobot to navigate the maze you created.



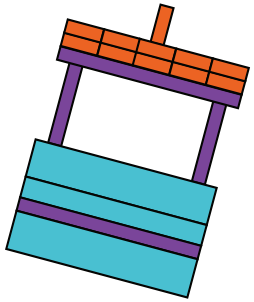
3

Create a bridge that can hold a book.



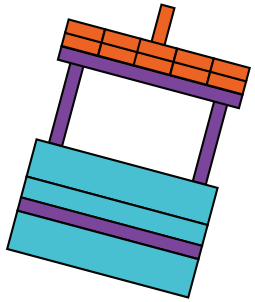
4

Design a marble run.



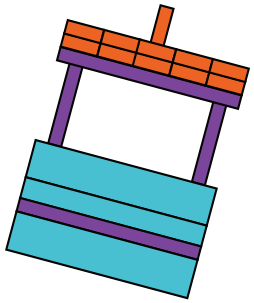
5

Create a piece of art.



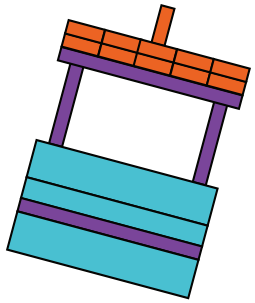
6

Make a ramp.



7

Make something that starts with the letter R.



8

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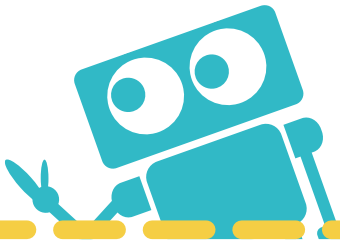
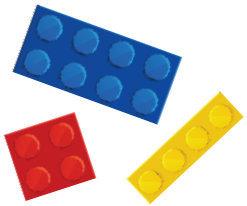
LEGO®



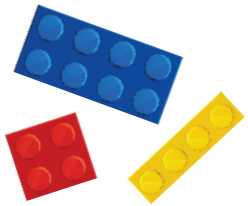
1

Design an animal using at least 3 different colored LEGO® bricks.



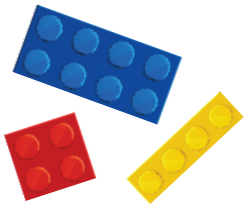
2

Design a boat and test to see if it floats.



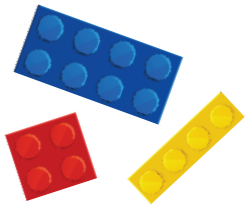
3

Design a car and challenge your friends to a race.



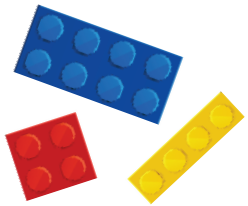
4

Design a multi-story castle.



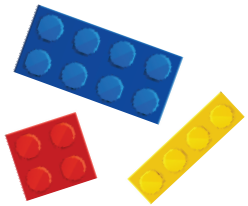
5

Design a scene or prop from your favorite movie.



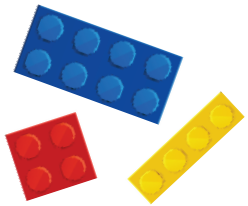
6

Design a scene or prop from your favorite book.



7

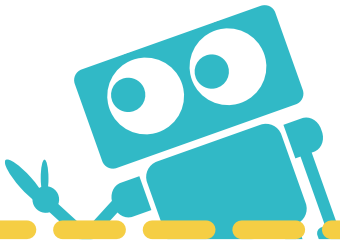
Design something that will help others.



8

MackinMaker

makedo™



1

Design a piece of furniture (life size or miniature).

2

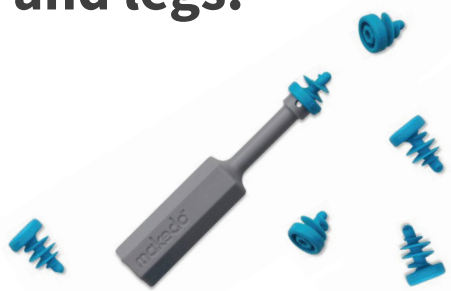
Design a piece of playground equipment.

3

Build something to store your school supplies.

4

Design an animal that can move its arms and legs.



5

Design a ride you would find at an amusement park.

6

Build a musical instrument.

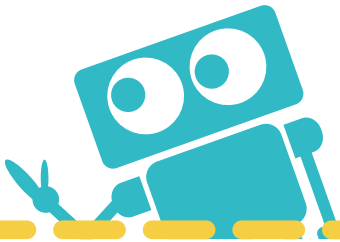
7

Design a car to use for a “Drive-In” movie.

8

MackinMaker

ozobot

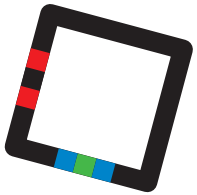


1

CALIBRATION CARD (make the circle smaller - 1-inch in diameter).

2

Draw a path that includes commands that make Ozobot go FAST and then make a U-Turn.

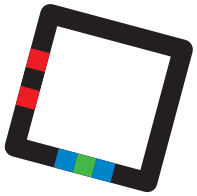


3

Draw four 7-inch lines. Write a program that makes Ozobot “jump” from one line to the next.

4

Pick two color markers, plus the black marker. How fast can you make Ozobot go with just those two colors?

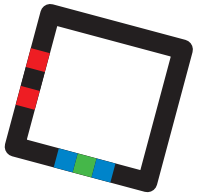


5

Go to Ozoblockly.com and select “Getting Started.” Follow the tutorial and complete the “Walk a Square” activity.

6

Using the Ozobot Evo app or Ozoblockly.com, write a program that makes Evo dance to your favorite song.



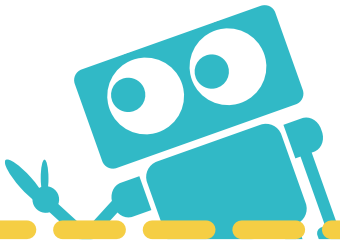
7

Using the Ozobot Evo app or Ozoblockly.com, write a program that drives like a police car (fast and blinking lights).

8

MackinMaker

squishycircuits®



Make a simple circuit (a simple circuit is way to get the energy to flow from one place to another).

We just need two lumps of our colored dough (conductive dough), the battery and the LED light. Connect the wires on the battery, one to each lump of dough. Make sure our lumps aren't touching.

How does the white dough (insulating dough) work? What happens when we try making a simple circuit but place the insulating dough between the colored conductive dough?

Create a parallel circuit using three different pieces of colored conductive dough and two inductive white doughs.

What happens to the LED lights? Why do you think that is?

Create a car with a working horn (buzzer) and headlights.

5

Create the game Operation.

6

Create a fairy tale creature.

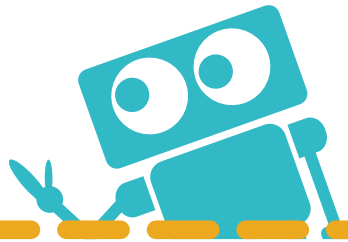
7

Create an alien or alien technology.

8

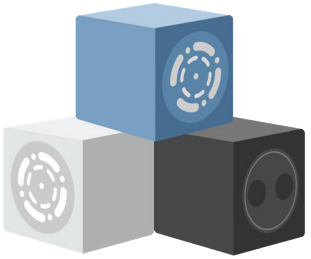
MackinMaker

cubelets



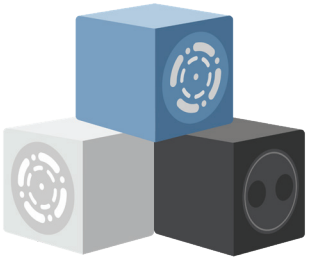
1

Create a robot with a flashlight.



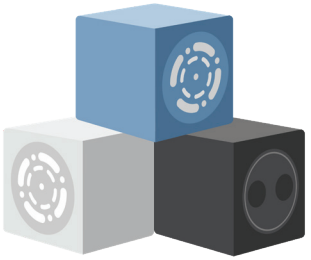
2

Create a robot that will turn on its light when it gets dark.



3

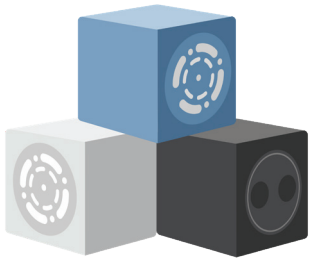
Create a safety robot that will stop itself from going off the edge of a table.



4

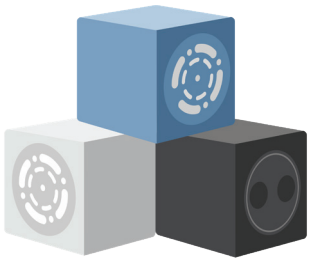
Create a robot that behaves like a pet.

What characteristic of the pet does your robot resemble?



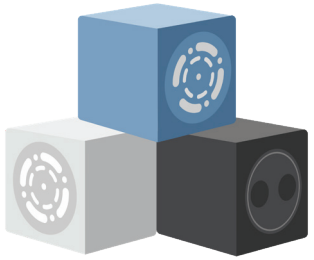
5

Create a police robot that will turn its light on when someone comes near it.



6

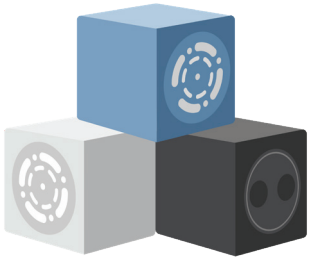
Create a scaredy-bot, a robot that will run away from your hand.



7

Create a robot that uses every piece.

Bonus: Switch the blocks around and see how the new robot differs from the first one.



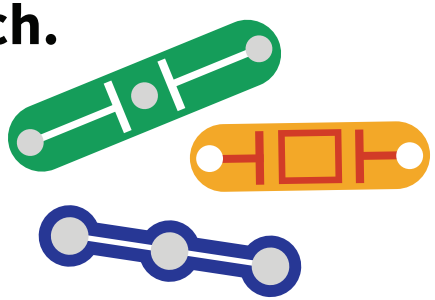
8

MackinMaker

SNAP CIRCUITS

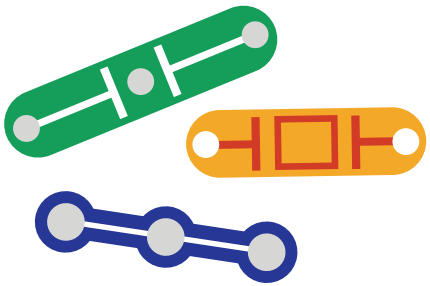
1

Build a circuit that lights up with the help of a switch.



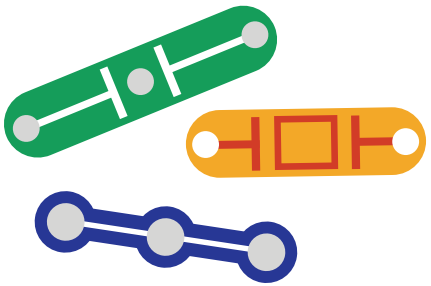
2

Build a fan.



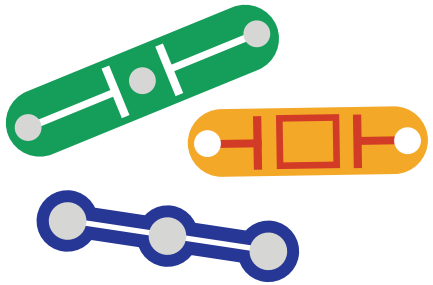
3

Design a circuit that incorporates sound.



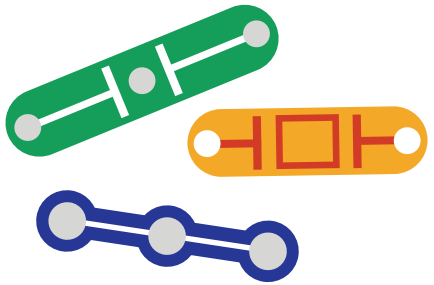
4

Design a parallel circuit.



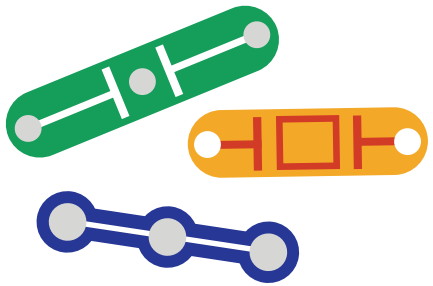
5

Design an alarm.



6

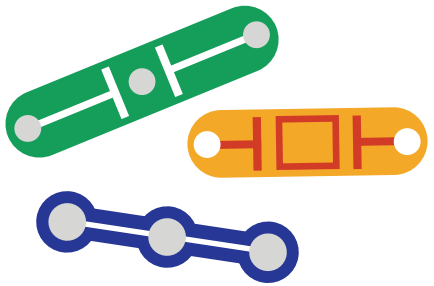
Design a circuit by adding a conductive material you find on your own.



7

Design a circuit by adding as many lightbulbs as possible.

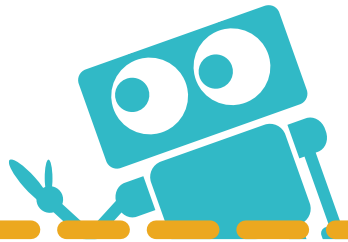
What happens when you remove one of the bulbs?



8

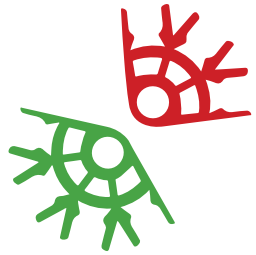
MackinMaker

K'NEX



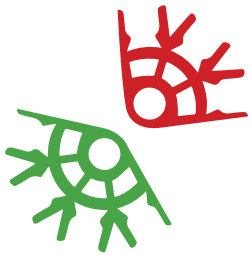
1

Build a mode of transportation.



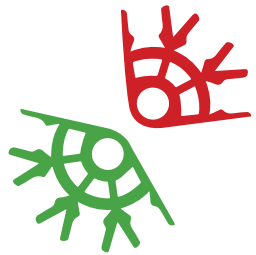
2

Design a house with a window.



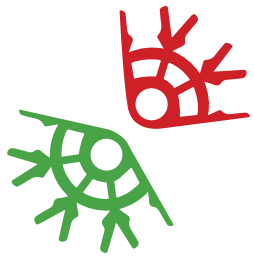
3

Design something that spins.



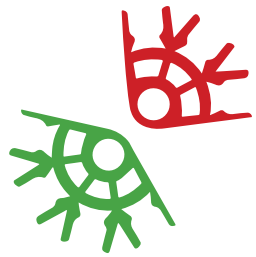
4

Design a catapult.



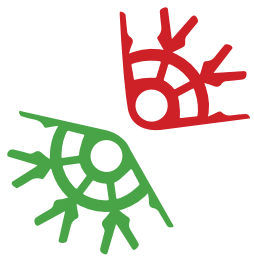
5

Create something that swims in water.



6

Design something that you would find at a construction site.



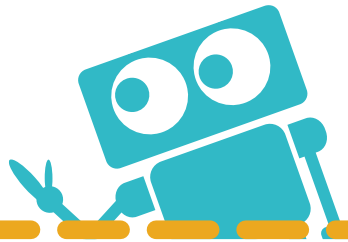
7

Design a marble run.

8

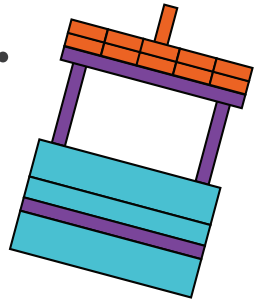
MackinMaker

KĒVA planks



1

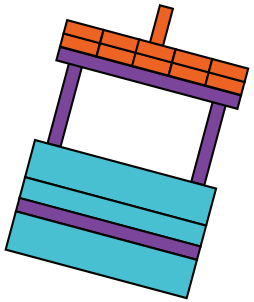
Create the tallest structure possible with KEVA planks without it falling over.



2

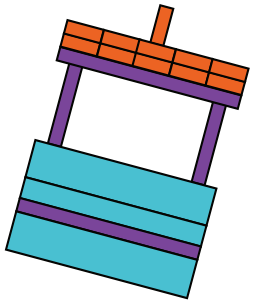
Create a maze with KEVA planks.

Bonus: Try using an Ozobot to navigate the maze you created.



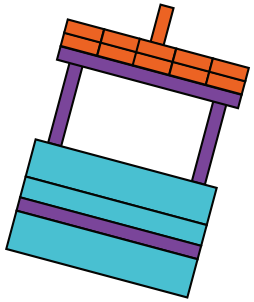
3

Create a bridge that can hold a book.



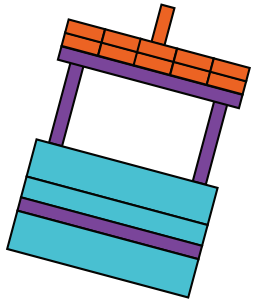
4

Design a marble run



5

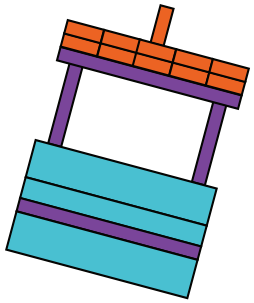
Create a piece of art.



6

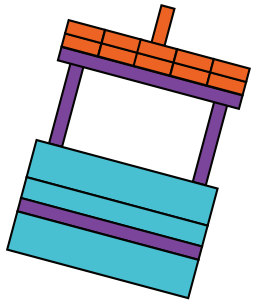
Design a winding staircase

Bonus: design the stairs so the marble can run down them.



7

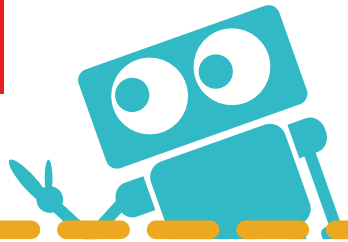
Design a “mouse-trap” type of contraption.



8

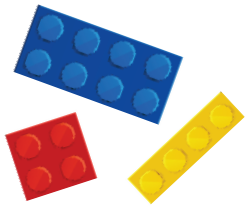
MackinMaker

LEGO®



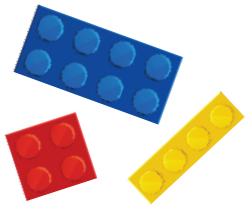
1

Design an animal using at least 3 different colored LEGO® bricks.



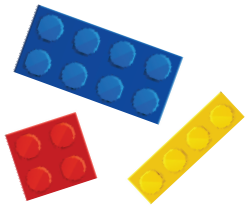
2

Design a boat and test to see if it floats.



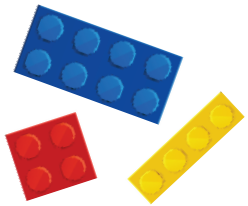
3

Design a car and challenge your friends to a race.



4

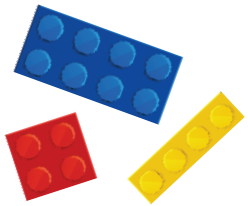
Design a multi-story castle.



5

Design a home for people who live in flood areas.

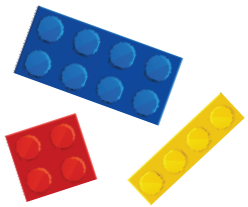
Hint: What are the unique challenges you have to overcome?



6

Design a prop from your favorite movie.

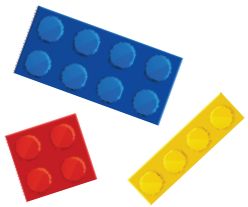
See if your classmates can guess what movie.



7

Design a piece of scenery from your favorite book.

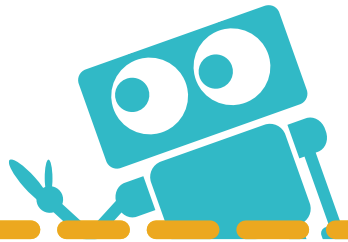
See if your classmates can guess the book.



8

MackinMaker

littleBits™

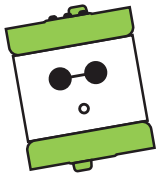


1

Construct a simple circuit using **Power** + **Pressure Sensor** + **Bar Graph**.

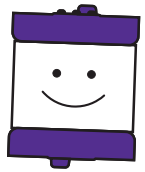
2

Construct a circuit using **Power** + **Sound Trigger** + **Bar Graph**.
How can you make the bar graph light up?



3

Open the “Hello World” activity in the Code Kit app. Follow the instructions to code your first message. Try replacing “Hello World” with your name.

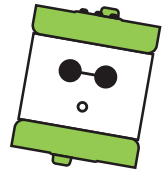


4

Create your very first video game controller. Head to the Input & Output section of the littleBits Code Kit app and follow the tutorial.

5

Ready to add sound effects to your game? Follow the tutorial “Arcade Sound Effects” to learn how to use the speaker Bit.



6

Let’s design our own game. Follow the Invention #1: Ultimate Shootout tutorial to create a game that automatically keeps score.

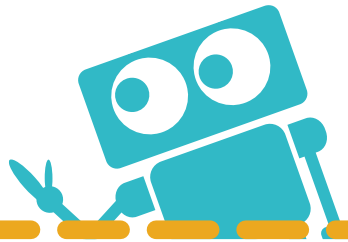
7

Design your own musical instrument. If you need some inspiration or assistance, you can follow Invention #3: Rockstar Guitar.

8

MackinMaker

MAGFORMERS®



1

Design a home for your pet.

2

Design the tallest structure you can.

3

Design a ride for an amusement park.

4

Design a castle.

5

Build a fence to border your castle.

6

Design something you'd use in your favorite sport. Maker Max loves soccer!

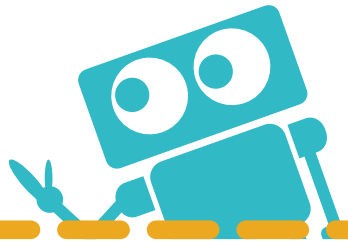
7

Design a piece of furniture.

8

MackinMaker

makedo™



1

Design a piece of furniture (life size or miniature).

2

Design a piece of playground equipment.

3

Design something for your bedroom.

4

Build something to store your school supplies.

5

Design an animal that can its move arms and legs.

6

Design a ride you would find at an amusement park.

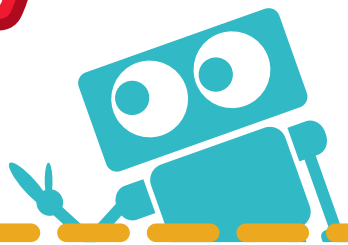
7

Build a musical instrument.

8

MackinMaker

Makey Makey®



1

If you haven't already, watch the MakeyMakey video to learn the basics of MakeyMakey.

You will need to gather some conductive material to use the MakeyMakey (play doh, paperclips, and aluminum foil).

2

Go to MakeyMakey.com/apps and choose Flappy Bird (near the bottom).

Connect one end of the alligator clip to SPACE and the other end to your conductive material. Connect yourself to GROUND. Challenge your friends to a game of Flappy Bird.

3

Go to MakeyMakey.com/apps and choose the Bongo.

Connect one end of the alligator clip to the corresponding key and the other end to your conductive material. Connect yourself to GROUND. Now play the bongos!

4

Let's connect some more!

Open the Piano app and connect all 6 keys. Don't forget to GROUND yourself. Can you play a song?

5

Are you a Tetris Master?

Let's find out. Reconfigure your piano to resemble a four-directional joystick and see how long you can last.

6

Did you know that your pencil lead is conductive?

Go to MakeyMakey.com/apps and try to control one of the programs using the drawing you've created.

7

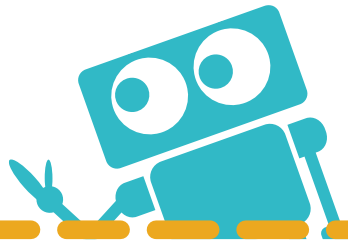
Scratch is a program that allows you to create your own games.

Head to Scratch to create a game and design a controller using Makey Makey.

8

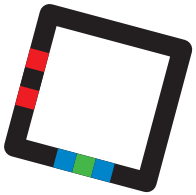
MackinMaker

ozobot



1

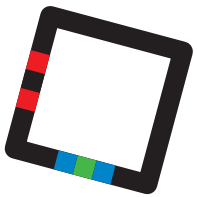
Write your name and have Ozo "read" your name through its sensors.



2

Design a maze and run your Ozo through it.

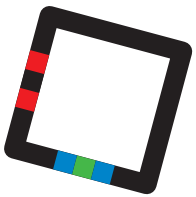
See if your classmates can code Ozo through your maze.



3

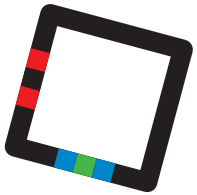
Perform a timed trial for your Ozo.

Can you make your time faster the second time around?



4

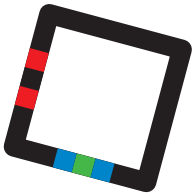
Teach your Ozo to drive backward.



5

Teach your Ozo a unique dance.

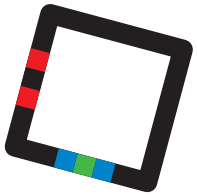
Try Drawing and Blockly.



6

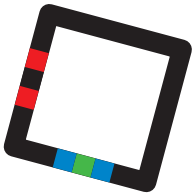
Play Ozo bowling. Set up small pins or obstacles, and code Ozo to knock them down.

Bonus if you can do it in one line of code.



7

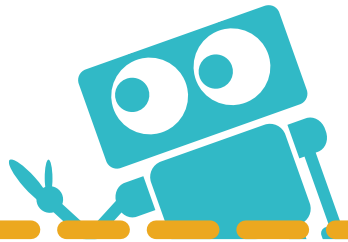
Using the Evo app or Ozoblockly.com, make your Ozo into an emergency vehicle, have it flash changing colors as it heads to its destination.



8

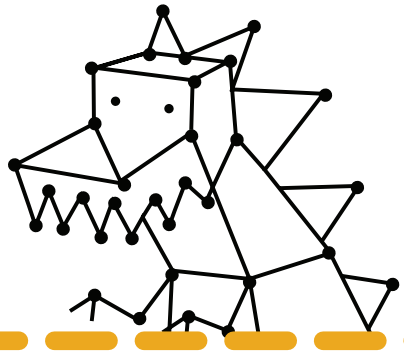
MackinMaker

Strawbees®



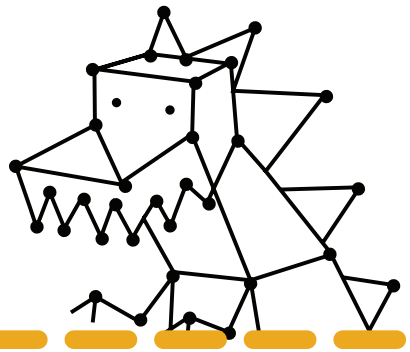
1

Design and build a prehistoric creature.



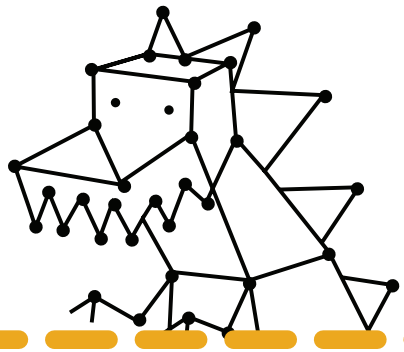
2

Design and build something to keep an egg from breaking from a fall.



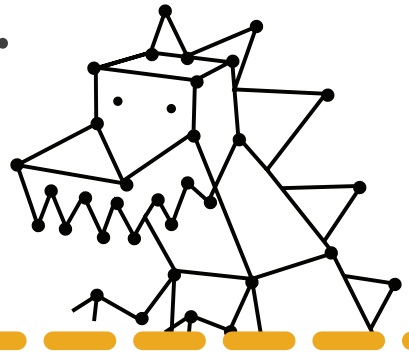
3

Design and build a boat that actually floats in water.



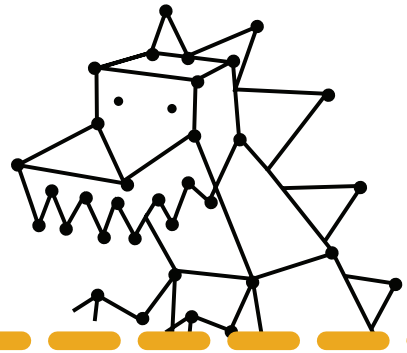
4

Design and build a bridge that will hold a book without collapsing.



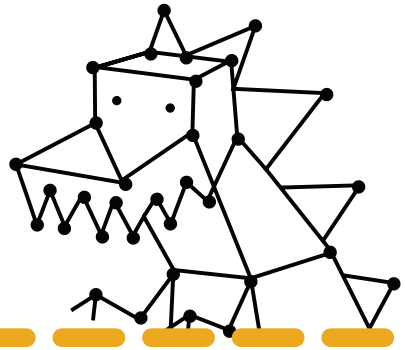
5

Design and build a catapult.



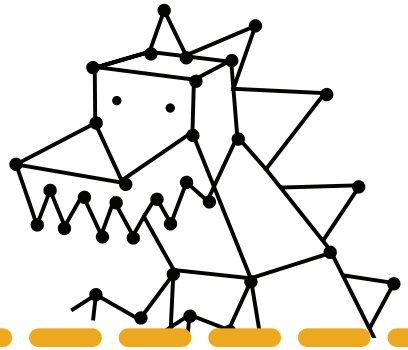
6

Design something to keep people safe from bad weather.



7

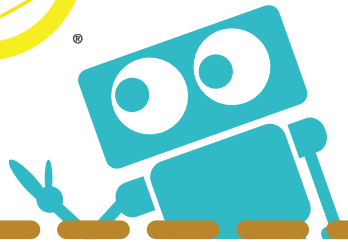
Design a robot to keep Maker Max company.



8

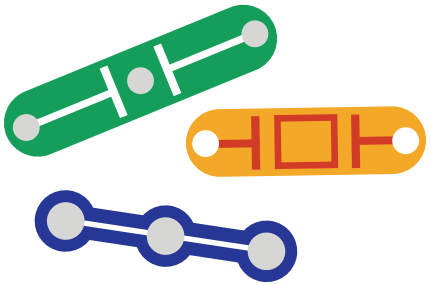
MackinMaker

SNAP CIRCUITS



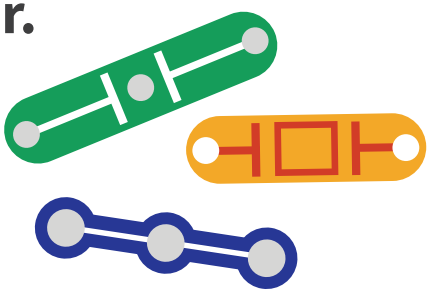
1

Create an art machine that spins. Will you be the next van Gogh?



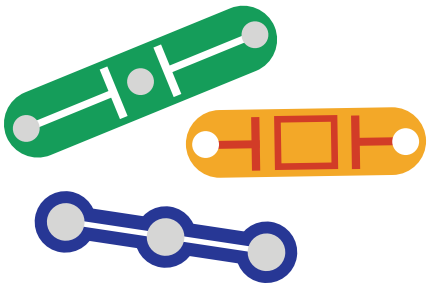
2

Danger! Danger! Create an alarm that goes off when danger lurks around the corner.



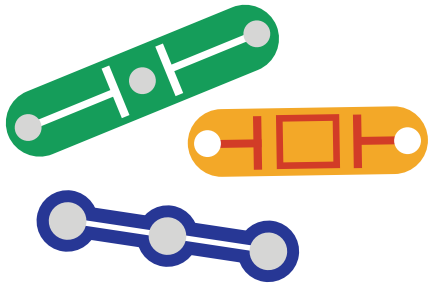
3

Lights, camera, action! Create a circuit that lights up a strobe light.



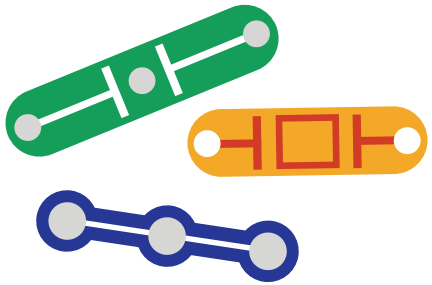
4

Design a sound machine. Can you make something that makes sound?



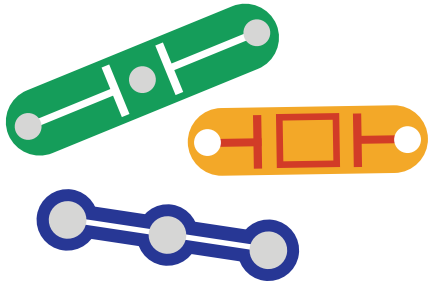
5

Create a circuit that can power the most number of objects.



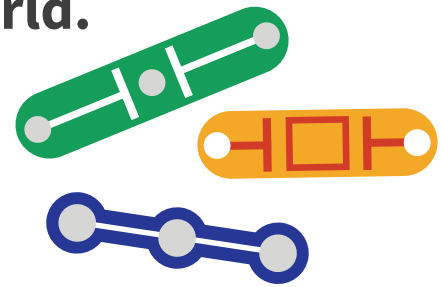
6

Design a spacecraft that can launch into space.



7

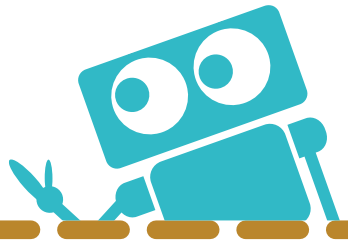
Rule the world! Create a voice-activated machine that will allow you to rule the world.



8

MackinMaker

Buddha BOARD



1

Create a prototype of a car of the future. What makes it unique?

2

Design a maze with only one entrance and exit.

3

Create a new symbol that represents you.

4

Recreate the setting from your favorite book.

5

Design a symmetrical figure.

6

Recreate the main character from a book.

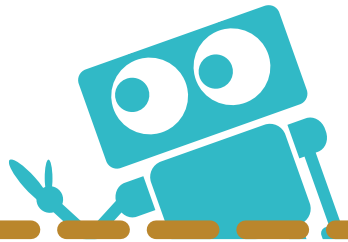
7

Design something new to play on at the playground.

8

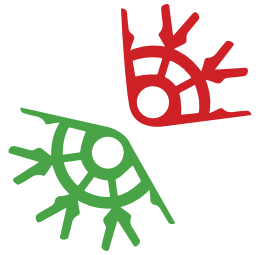
MackinMaker

K'nex



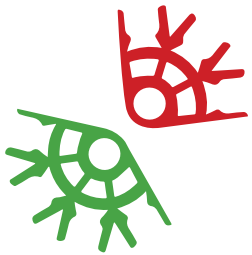
1

Design and create something that spins.



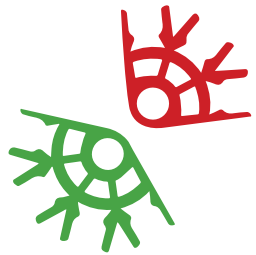
2

Build something that would be useful at school.



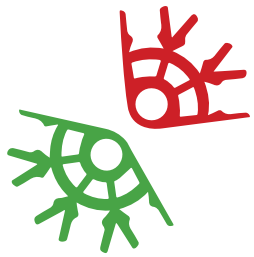
3

Create a tool that could be used in the kitchen.



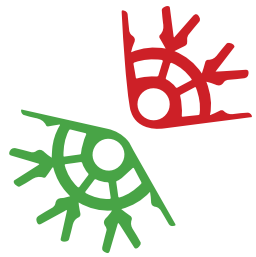
4

Create a vehicle that moves.



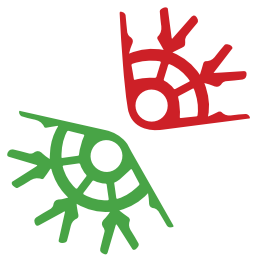
5

Design and create an amusement park ride.



6

Create something that will launch a rubber band.



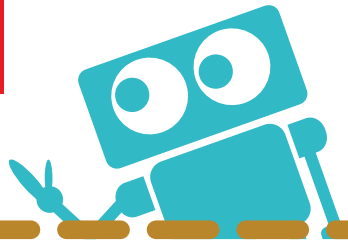
7

Design and build a machine to solve a problem.

8

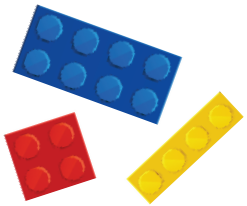
MackinMaker

LEGO®



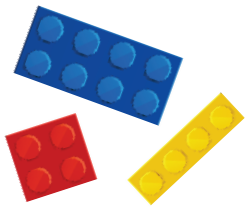
1

Create an animal and its natural habitat.



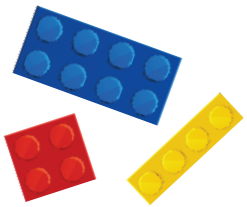
2

Create a 3D model of a shape.



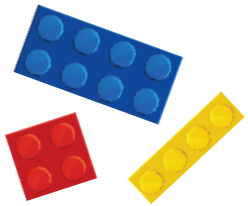
3

Design a new pair of glasses.



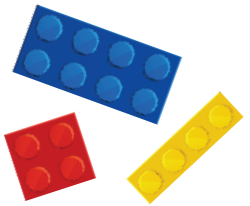
4

Build something in one minute.



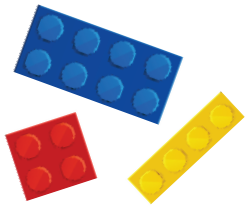
5

Design a treehouse that you would like to live in.



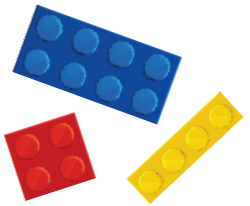
6

Create a stand or a case for a cell phone.



7

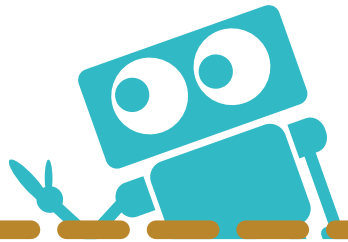
Create a robot that you would have as your personal assistant.



8

MackinMaker

makedo™



1

Design a shelter.

2

Create a marble maze.

3

Build a bridge that can hold a book.

4

Design something that you can wear.

5

Create a new animal that can move.

6

Build an instrument.

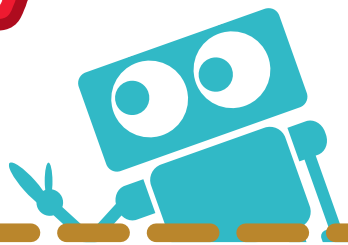
7

Design something that someone with a disability could use.

8

MackinMaker

Makey Makey®



1

Create a Makey Makey keyboard with tinfoil and popsicle sticks.

2

Create a switch with Play-Doh that will light up a LED.

3

How many LEDs can you power?

4

Can you make a circuit and make yourself part of the circuit?

5

Create a quiz board.

6

Create a controller that you can use for a video game.

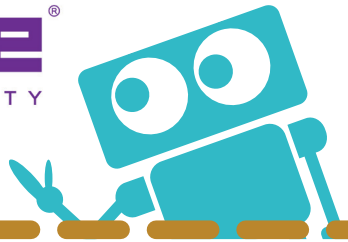
7

Design a new workout game.

8

MackinMaker

MERGE®
VIRTUAL REALITY



1

Become a galactic explorer! Use the Galactic Explorer app with your Merge Cube and hold the solar system in the palm of your hands!

Share what you learn with the record feature and teach the rest of the class all about your explorations!

2

The body is amazing! Use the Mr. Body app to learn some new facts about the major organs in your body system. How do they work together?

3

Do you like to choose your own adventure?

Then get the 57 North app and see all the different ways your story can end! It's an adventure around every corner.

4

Everyone loves the logic behind the Rubik's Cube. Download the Rubik's Cube app and twist and turn your virtual Rubik's Cube.

5

Do you love Minecraft? Then you will love Dig! It's like Minecraft in the palm of your hand! Get digging!

6

Plan and build your own design. Use the Dig! app and see what you can create!

7

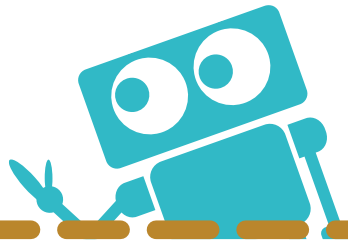
Shipwrecked! Use the Things! app to head to Pirate Island. Look through the telescope; what do you see?

What items would you need to survive on this island? Make a list of most important to least important. Why are those your items?

8

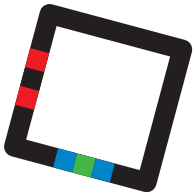
MackinMaker

ozobot



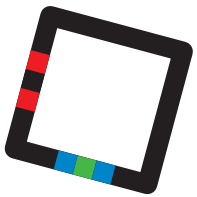
1

Turn your name into a track for Evo.



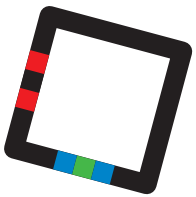
2

Create an accessory for Evo.



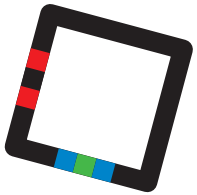
3

Design a racetrack for your Evo to race on.



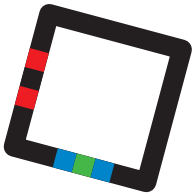
4

Create a map of your school or classroom that Ozobot can follow.



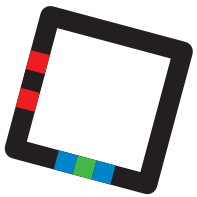
5

Make your Evo into a plow and plow through obstacles on a course.



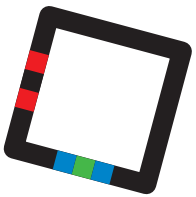
6

Dance party! Program a dance routine for Evo to follow.



7

Design a maze for Evo.



8