

Makerspace  
STEM  
Challenge  
Cards



Hello! Thank you for your purchase!

These Makerspace STEM Challenge Cards are a great way to inspire and challenge your students. We use them in whole class challenges, small group challenges, and as individual learning opportunities. It has been wonderful to see what students create when given these ideas as a starting point.

These cards are double sided so that one side has the “Makerspace Challenge” frame, and the other side lists the challenge with the corresponding color. Just remember to set your printer to print on both sides starting with page 3. If you don't want the “Makerspace Challenge” side, you can set your printer to print every other slide instead.

Be sure to check out my store, [EduTechie Teacher](#), and my blog, [www.edutechieteacher.blogspot.com](http://www.edutechieteacher.blogspot.com) for more Makerspace STEM learning ideas! Thank you!





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## Paper Airplane Challenge

- Can you create a paper airplane?
- How far can your plane go?
- How fast can your plane go?
- What materials make your plane go faster/further?

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## Catapult Challenge

- What materials can you use to make your catapult?
- How can you change the catapult so your items fly further?
- Which items fly furthest in your catapult?

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## Makey Makey Challenge

- Can you run the computer using the Makey Makey?
- What materials can you use to operate the Makey Makey?
- How many different materials can you use?

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## Rocket Design Challenge

- Can you create a rocket?
- What materials can you use to build this ship?
- What are some ways you could add motion to this rocket?

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## Brick Car Challenge

- What kind of vehicles can you create?
- How do different vehicles operate?
- How can you make your car faster or more efficient?

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## Brick Building Challenge

- What types of buildings can you create with building bricks?
- Can you replicate famous buildings?
- Can you make your dream building or house?

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## Brick Design Challenge

- What can you create with building bricks?
- Can you create buildings, places, creatures, activities, or contraptions?
- Can you make it move?

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## Brick Movement Challenge

- Can you make your building brick creations move?
- How can you use motors or circuits to make your bricks move?

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## Building Challenge

- How tall of a building can you create?
- What materials can you use to make your building?
- How durable is your building?

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## K'Nex Creation Challenge

- What can you create with K'Nex?
- Can you make buildings, vehicles, bridges, creatures, or contraptions?

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## K'Nex Motion Challenge

- Can you create a K'Nex creation that moves?
- Can you change how it moves?
- Can you make it move on its own?

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## Coding Game Design Challenge

- Code your own video game on [www.scratch.mit.edu](http://www.scratch.mit.edu)
  - Click Explore → Games for examples
- Have your friends play it when you finish!

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## Duct Tape Design Challenge

- What can you design with duct tape?
- How can you use different colors to enhance your creation?

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## Snap Circuits Challenge

- How many different types of Snap Circuits can you make using the Snap Circuits guides?
- Can you make a circuit that lights up?
- Can you make a circuit that makes noise?

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## 3-D Color Challenge

- Using the apps Quiver or Color Alive, how can you make your pictures come to life?
- Can you view it from different angles?
- Can you take a screenshot of your picture and share it?

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## Paper Circuits Challenge

- Can you design and complete a paper circuit?
- What do you need to do to complete the circuit?
- Can you position your circuit so that you can turn it on and off?

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## Video Creation Challenge

- Can you make a video?
- Can you add special effects, like transitions, music, animation, or green screen, to help tell your story?
- How will you share your video?

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## Stop Motion Animation Challenge

- Can you create a stop motion animation video that tells a story?
- Can you add special effects, like music, text, or transitions to help tell your story?

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## Sphero Coding Challenge

- Can you create a program to drive your Sphero?
- What different ways can you make Sphero move?
- How does changing your program change the Sphero?

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## Sphero Maze Challenge

- Can you drive Sphero through a maze?
- How should the maze be designed?
- Who can drive it through the maze the fastest?

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## Sewn Circuits Challenge

- How can you make a complete circuit within fabric?
- How does the placement of the light/batteries/conductive thread impact the circuit?
- What other sewn circuits could you create?

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## Little Bits Circuits Challenge

- Using the included guide, how many different circuits can you create?
- How can you use Little Bits to create a new type of circuit?
- Can you use other materials too?

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## Makey Makey Game Controller Challenge

- What kind of conductive game controller can you make?
- Try making it using a number of different materials
- Try shaping the controller in different ways

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## Cardboard Creation Challenge

- What can you create out of cardboard?
- Can you make a building, vehicle, or machine?
- Can you make your creation move?

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## Take Apart Technology Challenge

- What can you learn from taking apart technology?
- Can you identify the parts that you took apart?
- Can you put them all back together?

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## Rube Goldberg Machine Challenge

- Can you make a Rube Goldberg Machine?
- What task will your machine complete?
- What materials will you use to do this?

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## Origami Challenge

- What kind of origami creations can you create?
- Can you create animals, flowers, or boxes using a guide?
- Can you create something without a guide?

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## Makey Makey Music/Dance Challenge

- Can you make music with a Makey Makey? Try making a piano, drums, or another instrument.
- Can you create a dance dance revolution platform for the Makey Makey?

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## 3-D Apps Challenge

- Can you view items in 3-D?
- Create music or play games with Enchantium
- View the solar system with Daqri
- View chemical reactions with Elements 4D

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## Marble Run Challenge

- Can you create a marble run?
- What materials can you use to create your marble run?
- How can you position the run so that the marble runs smoothly through the course?

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## Design a Claw Challenge

- Can you create a moving claw?
- What materials can you use to create a claw?
- What type of items can your claw pick up?

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## Cardboard Arcade Challenge

- Can you create a cardboard arcade?
- What sort of games can you make out of cardboard?
- View the video [www.cainesarcade.com](http://www.cainesarcade.com) for ideas!

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## Puppet Circuit Challenge

- Can you create a circuit using copper tape, a coin cell battery and an LED light?
- Can you make a puppet using fabric, a paper bag, or another material?
- How can you attach your circuit to your puppet so it lights up?

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## Bookmark Circuit Challenge

- Can you create a circuit using copper tape, a coin cell battery and an LED light?
- Can you make a bookmark out of foam sheets, card stock, or felt?
- Can you attach your LED circuit to your bookmark securely?

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## Greeting Card Circuit Challenge

- Can you create a circuit using LED lights, copper tape, and a coin cell battery?
- How can you best position your circuit in the card securely?
- How can you incorporate the light into your greeting?

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## Mask Circuit Challenge

- Can you create a circuit using LED lights, copper tape, and a coin cell battery?
- Can you make a mask out of given materials?
- How can you attach your circuit to your mask so it lights up?

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## Spaghetti Tower Challenge

- Can you build a tower out of spaghetti noodles and marshmallows?
- How tall of a tower can you build?
- Who can build the tallest tower using just marshmallows and 30 noodles? 15 noodles?

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## Straw Tower Challenge

- Can you create a tower out of straws and tape?
- Can you create a straw tower that holds a ping pong ball? How about a tennis ball? How many straws does it take?
- What is the fewest number of straws you can use to create your tower?

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## Balloon Powered Car Challenge

- Can you create a car using bricks, cardboard, or other materials?
- Can you attach a balloon motor using a balloon, a straw, and tape?
- Where should you put the balloon so the car can move?
- What other materials can you use to change how far the car goes?

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## Hovercraft Challenge

- Can you make a CD Hovercraft using a CD, balloon, straw, tape, and styrofoam?
- How can you attach these materials to make your hovercraft?
- How big will you need to blow up the balloon so it will fly?

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## Boat Float Challenge

- Can you create a boat that will float out of aluminum foil?
- How many pennies can your boat hold and still float?
- What other materials could you use to make your boat?

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## Handy Helper Challenge

- Can you make a carrier for a student on crutches to carry their school supplies?
- What materials will you need?
- How will it make it easier for the student?
- Bonus: Create this using only cardboard, tape, bubble wrap, rubber bands, and aluminum foil

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## Classroom Design Challenge

- How would you design our classroom? Keep in mind our daily routines.
- What would you change and how would that make it better?
- How can you share your design? A drawing, computer images, Google Sketch Up, build a model?

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## Marshmallow Launcher Challenge

- Can you create a marshmallow launcher by securing half of a tied balloon to a paper cup?
- How far can your marshmallow go?
- What other materials could you use to launch a marshmallow?

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