

# STEM Family Game Night



Handmade Kids Art for Playdates

Handmade Kids Art for Playdates

# Put a new twist on family game night by hosting a family STEM challenge night.

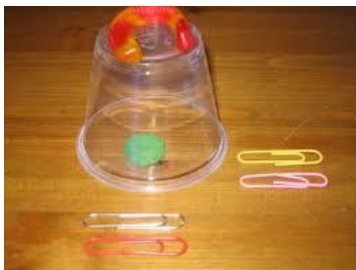
STEM challenges encourage children's critical thinking, creativity, curiosity and innovative thinking. It is also a fun and engaging activity the whole family can participate in.

- First, have your family members form two teams. If, you have a large family, divide up into multiple teams (between 2-3 per team).
- Gather supplies from around the house. You can either try a STEM challenge from the list below or have your kids create their own STEM challenge.

## STEM Challenge Ideas:

### Challenge #1: The Misadventure of Fred the Worm

#### 1. Save Fred!!!!



#### Supplies:

Cup

Paperclip

Gummy worm and lifesaver

Fred decided to try whitewater rafting on the Eagle River in Colorado and his raft tipped over! His life vest slipped off and now Fred is stuck on top of the capsized raft! He needs to get his life vest on because he can't swim! He's a worm for goodness sake, not a fish!

Fred the Worm is on top of the cup and the life vest is under the cup. Each team can only use two paperclips to put the life vest onto Fred. They cannot use their hands to touch anything but the paper clips!

## 2. Safe Landing for Fred

### Supplies:

Cups  
String  
Egg cartons  
Tissue paper  
Small plastic trash bags  
Scissors  
Paperclips  
Straws  
Gummy worm (Fred)

Fred caught another ride and headed southwest to Arizona. He climbed to the top of a mountain to see the desert below. Now he is trapped on top of Superstition Mountain in Arizona and he needs to get down to the ground to his campsite. How on earth can he get down safely without going splat on the ground below? Watch out for cacti!

Each team must create a transportation device to bring Fred safely to the ground. They can use any materials that you provide!

## 3. Bridge for Fred

### Supplies:

Paper  
Glue  
Scissors

Finally, Fred starts heading east to the Midwest. Fred is now trying to cross the Mississippi River from Missouri to Illinois, but he can't find a way across. Teams must build him a bridge, as long as they possibly can, so he can make it across the River! Set a time limit and see which team can build the longest chain within that timeframe.



## 4. Keep Fred Dry

### Supplies:

Cup  
Bucket of water  
Gummy Worm (Fred)

Fred made it all the way to the Atlantic Ocean in Norfolk, Virginia! He wants to go in the ocean, but he knows the salt water would hurt him. He has to go all the way under the water in his makeshift submarine (a cup he found on the beach). Humans shouldn't litter!

Teams must submerge Fred in a cup without getting him wet! This is tricky!

## Challenge #2: Who can build the tallest tower that can hold a tennis ball?



### Supplies:

Straws

Tape

Tennis Ball

Stopwatch (optional)

**Step 1:** Give every team the same materials.

**Step 2:** Build a tower that can hold a tennis ball. Set a time limit if needed.

**Activity Tip:** For younger children, try using a lighter weight ball.

## Challenge #3: House of Card Engineering Challenge



### Supplies:

Deck of playing cards per team



**Challenge:** Build the tallest, free-standing card structure. Set a time limit.

**Alternative Challenge:** If using index cards instead or you do not care what happens to the deck of card, allow scissors. The cards can be folded and cut when building card structure.

## Challenge #4: Strongest Paper Bridge

### Supplies:

**8 ½ x 11 copy paper  
(one each team)**

**Two textbooks or  
other large books  
per team**

**Challenge:** What is the strongest bridge your team can make using only one piece of copy paper.

Each team must build a bridge, using one piece of paper, spanning across two books. The strength of each bridge will be tested by seeing how many pennies it can hold (weight). The bridge with the most pennies is the winner.

## Challenge #5: Cup Pyramid Challenge



### Supplies:

**Plastic cups (same # per team)  
4 pieces of string (per team)  
1 Rubber band (per team)**

**Challenge:** Build a pyramid with only the string and rubber bands!

You may NOT touch your partners string at any time! Otherwise you will have to restart.

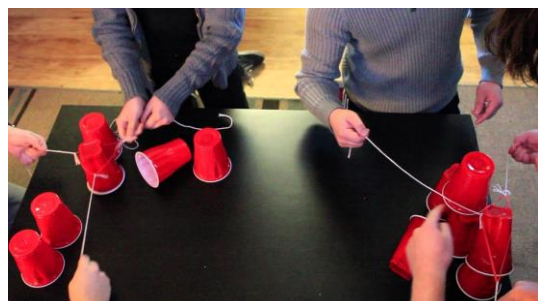
You may NOT touch your rubber band at any time! Otherwise you will have to restart.

If you drop your cup on the floor, you may pick it up and place it on the corner of your table to continue.

Your hands may NOT touch the cups anytime they are on the table. Otherwise you will have to restart.

No switching of strings during the challenge!

Time each team and see who gets the fastest time.



## Challenge #6: Using just wooden clothespins, binder clips and craft sticks, complete the following challenges:

### Supplies:

Same amount per team...

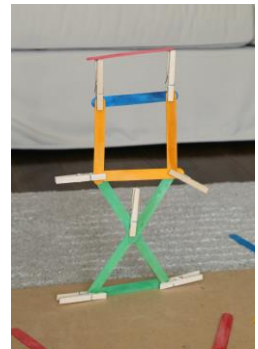
Wooden clothespins  
binder clips  
craft sticks

**Challenge #1: Build a structure that can support the most possible weight.**

For this one, you could either challenge teams to build a true bridge, or just a structure that supports weight.

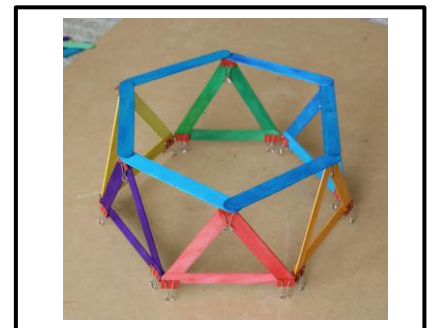


**Challenge #2: Build the tallest structure.**



**Challenge #3: Build the tallest structure with the fewest clothespins.**

**Challenge #4: What can you build with triangles?**



**Challenge #5: Build a domino chain reaction.**



## Challenge #7: Marshmallow Tower



### Supplies:

Each team gets...

- 1 large marshmallow
- 20 strands of spaghetti
- 1 yard of tape
- 1 yard of string

**Challenge:** Teams must try and create the tallest freestanding structure with only the given materials. They are allowed to use some or all of the materials, however, they may not receive extras. The tower must feature the whole marshmallow at the very top.

**Note:** If you do not have these materials, make up your own tower building contest with items you can find around the house. Be creative!

## Challenge #8: Build an Unsinkable Ship



### Supplies:

- Tinfoil
- Pennies, marbles or pebbles (used as weights)
- Tub, sink or bucket filled with water

**Challenge:** Each team gets a piece of aluminum foil the size of 8x8 inches. They must design and build a boat that can hold the most weight before sinking.

