

# ❄️ December STEM Family Challenges ❄️

## Welcome!

Join us each Sunday in December for hands-on, winter-themed STEM activities the whole family can enjoy. Share your creations with **Education Excelling** (either on Facebook or Instagram) and the family who participates the most will win a **Grand Prize** at the end of December!

## Week 1 – DIY Snow Town Challenge 🧑‍🔧 (December 7th)

### Materials:

- 2 cups baking soda
- Shaving cream
- Cups, spoon, bowl
- Recycled materials (cardboard, bottle caps, sticks, buttons, etc.)
- Fan or hair dryer

### Challenge:

Make your own snow, then build your own snow town with snowmen, igloos, or mini houses and test which structures can survive a winter storm!

## Week 2 – Light-Up Winter Ornament Challenge 💡 (December 14th)

### Materials:

- Popsicle sticks
- Aluminum foil
- LED light
- 3-volt coin battery
- Binder clips
- Glue stick, tape
- Markers, glitter, decorations (optional)

### Challenge:

Build a winter ornament that lights up using a simple foil circuit.

### Instructions:

**Step 1:** Test your battery and LED light by sliding your 3-volt cell battery between the prongs of the LED. Place the LED long leg (+) on the positive side of the battery and the LED short leg (-) on the negative side.

**Step 2:** Cut 2 strips of aluminum foil 1 inch wide and 4.5 inches long.

**Step 3:** Using the glue stick, spread glue down the length of the popsicle stick.

**Step 4:** Place your LED on one end of your popsicle stick. Place a mark on the + side of the LED.

**Step 5:** Place the aluminum foil strip on top of the glue and LED, completely covering the LED

prongs, down towards the cut end of the popsicle stick.

**Step 6:** Attach the binder clip to the popsicle stick, opposite end of the LED. Repeat on the other side.

**Step 7:** Place a 3-volt battery, positive side up, on the side of the popsicle stick marked in step 4.

**Step 8:** Tape only the top of the battery to the popsicle stick.

**Step 9:** Flip the binder clip prongs up on both sides of the popsicle stick.

**Step 10:** Test your ornament. The LED should turn on and off when you lift and lower the metal prongs of the binder clip. Adjust battery placement if needed.

**Step 11:** Decorate the popsicle stick as an ornament.



### Week 3 – Marshmallow Igloo Challenge (December 21st)

#### Materials:

- Mini marshmallows
- Toothpicks
- Small tray or plate (optional)

#### Challenge:

Build an igloo or dome structure using marshmallows and toothpicks. Test how stable your igloo is – can it stand on its own or hold a small weight?

### Week 4 – Candy Cane Bridge Challenge 🍭 (December 28th)

#### Materials:

- Candy canes
- Marshmallows (for connectors)
- Small weights (coins, toys, or figurines)
- Flat surface or tray

**Challenge:**

Build a candy cane bridge that can hold the most weight. Test your design and see how much weight it can support before collapsing!

**Share Your Creations!**

We'd **LOVE** to see your creations! Share photos or videos with us and tag **Education Excelling** to show off your hard work. The family who participates the most throughout the month will win a **Grand Prize**!