

# Bread in a Bag

## Description

Learn food science in a fun and yummy way with this easy recipe for making bread in a bag.



## Supplies



+



+

Kitchen Towel



+

Oven Mitts



+



8x10 Baking Pan

## Ingredients

- 2 cups all-purpose flour
- 1 package quick-rising yeast
- 3 tablespoons sugar
- 1 tablespoon nonfat dry milk
- 1 teaspoon salt
- 1 cup hot water (125 to 130 degrees F)
- 3 tablespoons vegetable oil
- 1 cup whole wheat flour

## Activity Steps

1. Combine 1 cup all-purpose flour, undissolved yeast, sugar, dry milk and salt in a 1-gallon heavy-duty freezer bag with zipper lock.
2. Squeeze upper part of bag to force air out. Seal bag. Shake and work bag with fingers to blend ingredients.
3. Add hot water and oil to dry ingredients. Reseal bag. Mix by working bag with fingers.
4. Add whole wheat flour; reseal bag and mix thoroughly.
5. Gradually add enough remaining all-purpose flour to make stiff dough that pulls away from bag.
6. Remove dough from bag. On floured surface, knead dough 2 to 4 minutes until smooth and elastic. Cover dough; let it rest 10 minutes.
7. Makes 16 slices

## Baking



1. Using a rolling pin, roll dough to a 12 x 7-inch rectangle. Roll up from narrow end. Pinch edges and ends to seal.
2. Place in oiled 8 1/2 x 4 x 2 1/4-inch loaf pan; cover with plastic wrap and a kitchen towel. Place in shallow pan on counter; half fill with boiling water. Place baking sheet over shallow pan.
3. Let dough rise 20 minutes or until double in size.
4. Bake in preheated oven at 375 degrees F for 25 minutes or until done.
5. Remove from pan and cool on wire rack.
6. Slice with serrated knife to serve.

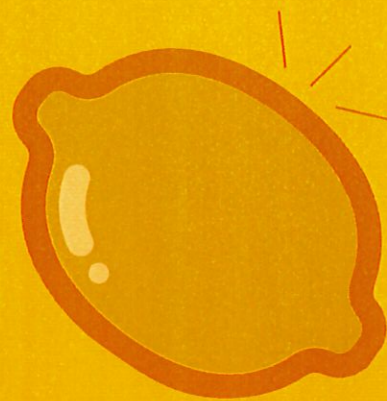
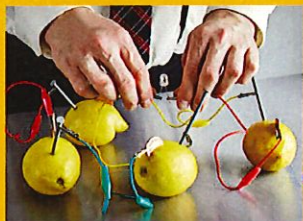
► Learn more at [4-H.org/Bread](http://4-H.org/Bread)

Thanks to Casey, Arkansas 4-H



# Fruit Batteries

Forget about making lemonade—generate home-made electricity instead! This activity teaches kids about the parts that make a battery work and the chemical reaction that makes it possible.



1. Give your lemon a quick roll to make sure the insides are extra juicy.
2. Carefully use a knife or scissors to cut two slots/holes in opposite ends of the lemon.
3. Insert the copper penny and the zinc nail into the pre-made holes. (If you're doing this to attempt a Guinness World Records title, you'll start the time at the beginning of this step).
4. Connect the nail and the coin (your electrodes) with the alligator clips. Make sure that one end is attached to the nail and the other to the coin.
5. Once you've joined up the lemon battery, you should be left with two free clips at either end—one coming from the nail and the other coming from the coin.
6. To complete the circuit, attach the clips to the LED.
7. If you're doing the Bonus Fun, now connect the voltmeter, take a reading of the output and photograph the display to send as evidence for the Guinness World Records title attempt.

► See the full activity at [4-H.org/Battery](https://4-H.org/Battery)

Brought to you by Guinness World Records

🕒 60 minutes | Grades: 6-8, 9-12

# Cooking Over Campfire Coals



## Description

Learn how to organize an outdoor cooking experience with this free activity guide from Iowa State University. It includes planning the

► Start planning at [4-H.org/CampCooking](https://4-H.org/CampCooking)

Brought to you by Iowa 4-H Youth Development

## Inspire Kids to Do



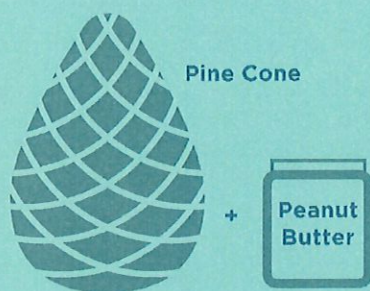
Learn to code your names and see who has the best design.

Code Your World is a four-part challenge that teaches kids ages 8-14 to apply computer science to the world around them through hands-on activities.

► Learn more: [4-H.org/NYSD18](https://4-H.org/NYSD18)



# Build a Bird Feeder



Monitor your bird feeder for a week and log the types of birds.

**Why is this important?** Just like people, the birds in your backyard also need nutritious foods.

► Get started: [4-H.org/BirdFeeder](http://4-H.org/BirdFeeder)

# Force and Friction



## Description

Newton's First Law of Motion states that an object will remain at rest or in motion until an outside force acts upon it. This activity uses Hot Wheels cars to explore the concepts of force and friction described by Newton. Youth will manipulate how hard a car is pushed and explore how to maximize the pull of gravity. ► Full tutorial at [4-H.org/NewtonsForce](http://4-H.org/NewtonsForce)

## Supplies

Tape Measure



Stop Watch



Masking Tape



4 Books, Movie Cases, or Boxes the Same Size



Hot Wheels Car



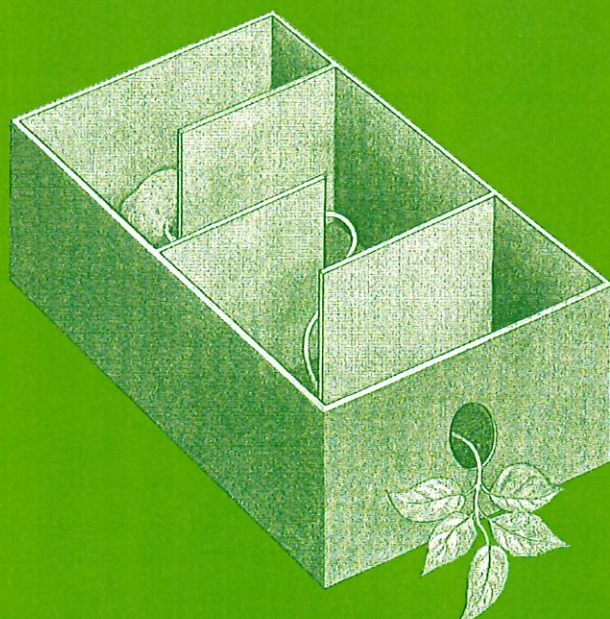
Hot Wheels Launcher



Hot Wheels Track



# Build a Potato Maze



## Description

Using just a cardboard box and a sprouting potato, do this fun activity to show kids the obstacles plants will overcome to find the light they need to grow.

## Activity Steps

1. Make a small hole in a short side of a long cardboard box.
2. With an adult's help, cut out several pieces of cardboard and stick them inside the box to make a maze like the one in the picture.
3. Put a sprouting potato at the end of the box opposite the hole and place the lid on the box.
4. Leave the box in a light place so that light can easily get into the box through the hole in the end.
5. After a few days, take the lid off the box. Has your potato found the pathway through the "maze" to reach the light?

► Get started at [4-H.org/PotatoMaze](http://4-H.org/PotatoMaze)

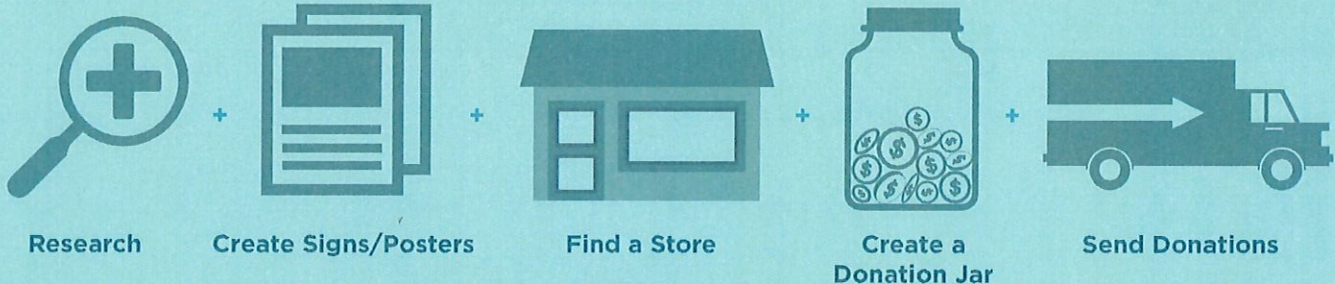
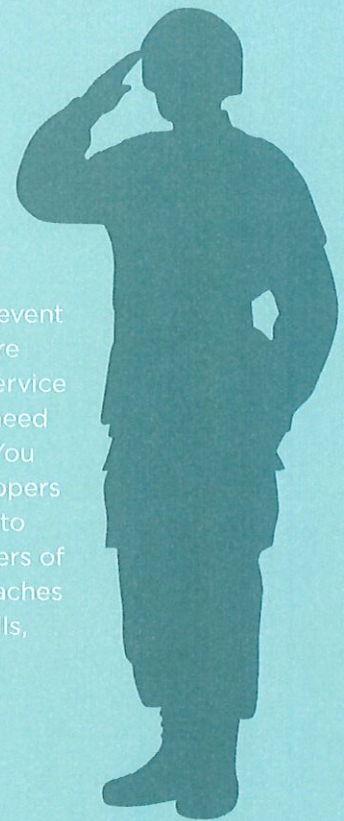


# Stuff a Truck for Service Members



## Description

Create a "stuff a truck" event or collection to send care packages overseas to service members (or others in need like hurricane victims). You can start by asking shoppers to buy something extra to say thank you to members of our Armed Forces. It teaches kids public speaking skills, fundraising, community support, and teamwork.



## Activity Steps

1. Research which organizations are providing care packages for service members, what kind of contributions they need, and where/how you can send supplies.
2. Select your organization and create signs or posters to inform people about the cause and organization you're supporting.
3. Pick a local store with a lot of foot traffic (or a handful if you'll do this with a big group or multiple times) and dates for your activity. Visit the store to speak with a manager to get approval for your plans.
4. Have kids stand by the main entrance of a popular store with posters describing their cause, preprinted notes with items for the public to purchase and bags to put them in.
5. Have a donation jar out and prime it with a few dollars.
6. Help the kids develop their pitches. For example:
  - Would you like to say 'thank you' to our Armed Forces by buying just a few items to put in a care package?
  - Would you like to add another item to your basket to help families affected by the hurricane?
7. Teach the kids to thank the person, whether they participate or not.
8. Send the donated items to the organization you chose, following their guidelines of where, how and what.

Thanks to Cathy, Massachusetts 4-H



# Paper Crafting

## Description

Check out this project idea guide that contains a list of activities and tips related to paper crafting. Paper crafting comes in many forms, but the main supply, as the name implies, is paper. Many of the other supplies can be found around the house, making this an inexpensive hobby.



## Pick One or More

The project guide at [4-H.org/PaperCraft](https://4-H.org/PaperCraft) lists many different paper craft techniques and ideas like card making, decoupage, origami, paper embroidery, embossing and more. Read starter ideas for each topic and select one or more to try your hand at.

Brought to you by Ohio 4-H Youth Development

🕒 30 minutes | Grades: Pre-K-2

# Fun and Tempting M&M Math



## Description

Practice early math skills with this tasty and tempting activity to help even the littlest of kids count and categorize their M&Ms—if they can resist the temptation!

► Start practicing at [4-H.org/Math](https://4-H.org/Math)

🕒 60 minutes | Grades: 3-5

# Grow a Bean in a Bottle



Learn about the life cycle of a plant from **Serena**, an Oklahoma 4-H'er, and discover what their plant needs to survive. They will also learn about innovative gardens that don't require going outside. This activity showcases how agriculture and science go hand-in-hand.

► Learn more: [4-H.org/Bean](https://4-H.org/Bean)



# Building Bridges

## Description

Try this fun challenge from Indiana 4-H'er, Arianna, to teach kids the concepts of engineering. Using toothpicks and gumballs, students will build a small bridge. First, we do the design phase, where students discuss characteristics of real bridges, and how it helps with common challenges. Then students build their bridges and go through testing stages before they present their final project.



**For a group of 10 kids:** Two 100-packs of wooden toothpicks (overestimate, you'll use a lot of them!) + Four packs of gumballs + A variety of materials to test the students' bridge strength + Small prizes for the winners

Thanks to Arianna, Indiana 4-H

## Activity Steps

1. Define "engineering" or, for older kids, confirm their understanding of what "engineering" is.
2. Explain the project, as well as how it relates to engineering—mention the specific concepts it teaches: design process, critical thinking, etc.
3. Discuss what common problems need to be addressed when building a bridge—start by discussing what a bridge's function is, and what might impede that function.
4. Pull up pictures of real bridges, and discuss what design features they have in common. Then discuss how these features contribute to the bridge's successful function.
5. Have students list the steps they'll use to make the bridge, or draw the bridge. Push them to be as detailed as possible—when they start building, they'll be glad they were.
6. Once designs are complete, set out materials. Students should have unlimited access to materials, but tell them to be reasonable—they shouldn't use an entire box of toothpicks on one bridge.
7. Using pre-selected materials, begin running students' prototype bridges through strength challenges. Each new challenge should be heavier than the last. These challenges will reveal structural flaws in the students' bridges.
8. Send students back to the drawing table, and have them re-work their bridges to fix the flaws. Consider having them start the entire process again—write out what issue they're facing, then draw/list how they'll fix it in their new design.
9. Bring all students' completed bridges together and run them through a single final challenge. This should be the heaviest challenge you present. Any student whose bridge supports the weights for at least 10 seconds wins the challenge!



# Wind Energy

## Description

Learn how wind can be converted into energy. In this activity, youth will build a simple windmill and use it to power a pulley system to lift a bucket.

► Get started at [4-H.org/UsingWind](http://4-H.org/UsingWind)

Brought to you by Hughesnet and Illinois 4-H Foundation



## Supplies

Construction Paper



+

String



+

Paper Clips



+

Small & Large Disposable Cups



+

Scissors



+

Tape



Rubber Bands



+

Large & Small Straws



# Inspire to Do



## Volunteer

Volunteer as a dog walker once a week at a local shelter.

# Origami Cube

## Description

Don't be square—have a go at the record for the fastest time to make a modular origami cube! The challenge here is that it's made from not one sheet of paper but six, inspired by traditional Japanese design.

## Supplies

- Six Pieces of Square Origami Paper or Rectangular Paper Cut into Squares
- Stop Watch



► Get started at [4-H.org/Origami](http://4-H.org/Origami)

Brought to you by Guinness World Records



# Intelligent Eggs {experiment}

Teach your kids about the principles of buoyancy with this fun "magic trick" using only simple household items!

► Start your experiment at [4-H.org/Eggs](http://4-H.org/Eggs)



## 1 SETUP

- Two 8-ounce glasses
- Water
- 4 tablespoons sugar
- Two uncooked eggs
- Laundry marking pencil

## 2 THE ACT

Announce you have two intelligent eggs that obey written commands. Give them to a member of your audience with a marking pencil and give him or her the choice...

## 3 TIPS

This trick uses an old standby of magicians called "misdirection."



## Create a Gratitude Journal

Help your kid learn to notice and appreciate the little things.

# Marshmallow Catapult

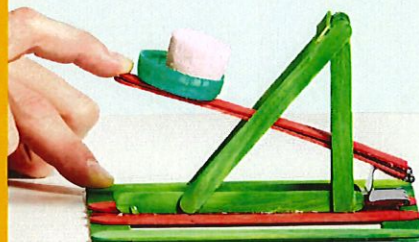
You'll need good aim and a faithful lab assistant (or at least a willing buddy) to take on this sweet experiment. Perhaps don't mention that their role will mainly involve having marshmallows fired at them!

### Supplies

- Bulldog Clip
- Bottle Caps
- Craft Sticks (Two Sizes)
- Marshmallows

### You will also need:

- Glue Gun
- Scissors



► Visit [4-H.org/Catapult](http://4-H.org/Catapult)

Brought to you by Guinness World Records



# Simple Healthy Lunch

## How to Make a Simple Healthy Lunch with a Friend

To encourage kids to eat healthier, show them how simple it is to make a healthy snack that tastes good. This activity encourages independence and thoughtfulness about what they're putting in their bodies.

### Supplies



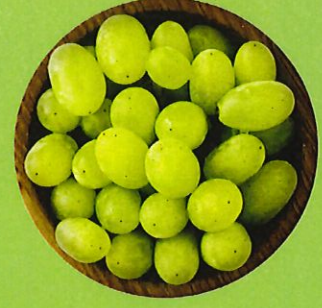
2 Apples



1/2 Cup Strawberries



1/3 Cup Peaches



1/4 Cup Grapes



3/4 Cup Orange Juice



1 Tablespoon Lemon Juice



Juice of 1/2 Grapefruit



Measuring Cup & Spoons



Knife



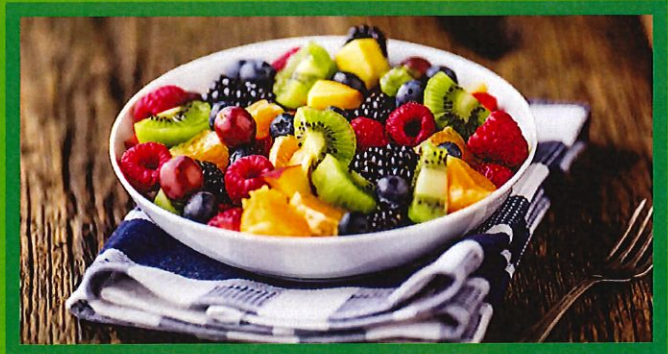
Hand Juicer



Serving Bowls

### Activity Steps

1. Chop and measure apples.
2. Chop and measure strawberries.
3. Chop and measure peaches.
4. Chop and measure grapes.
5. Place fruit in a medium-sized bowl.
6. Juice 1 lemon, measure and pour onto fruit.
7. Juice 1 grapefruit, measure and pour onto the fruit.
8. Measure out the orange juice and pour onto fruit.
9. Stir well and serve.



Get creative...add raspberries, kiwi, blackberries and more.

Thanks to Adarra, Oklahoma 4-H



# Learn the Right Way to Wash Your Hands



## Description

Learn how to wash your hands correctly to keep your kids and family better protected from germs.

## Supplies



Liquid Hand Soap



Paper Towels or a Hand Towel(s)



Sink/Water for Demonstration and Practice



8 oz. Bottle of Glo Germ and UV light

## Activity Steps

1. Apply Glo Germ to hands and hold hands under the UV light to show coverage.
2. Wash your hands:
  - Wet your hands with clean, running water (warm or cold), turn off the tap and apply soap.
  - Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers and under your nails.
  - Scrub your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song from beginning to end twice.
  - Rinse your hands well under clean, running water.
  - Dry your hands using a clean towel or air dry them.
3. Check hands under UV light to show areas that are not washed properly.



Thanks to Sofia, California 4-H



⌚ 30 minutes | Grades: 3-5, 6-8

# Herbs in a Jar

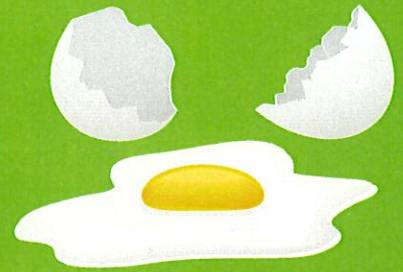
## Description

Plant your favorite herbs in a mason jar—look for recipes to use them as they grow.



⌚ 25 minutes | Grades: 6-8, 9-12

# Egg Drop Challenge

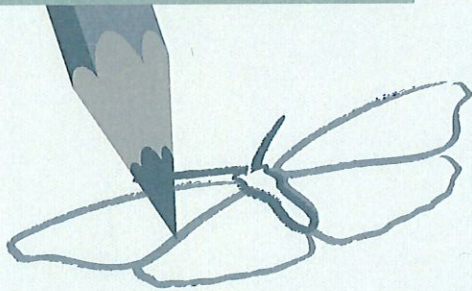


Hold an egg drop challenge—build containers to keep the egg from cracking.

The object of the game is for each team to determine how to drop an egg without breaking it.

► Get started: [4-H.org/EggDrop](http://4-H.org/EggDrop)

⌚ 60 minutes | Grades: Pre-K-2, 3-5, 6-8

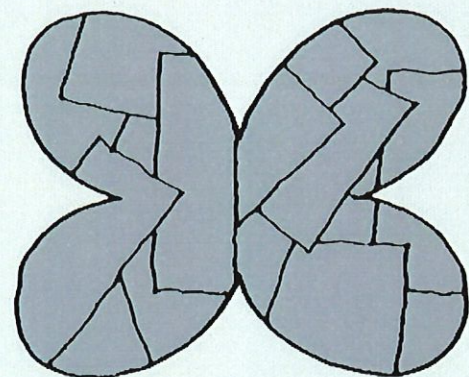


# “Stained Glass” Butterflies

## Description

Beautiful and delicate butterflies are a favorite for many kids. Their wings are covered with tiny overlapping scales that give them their lovely colors. Try this fun craft to enjoy this beauty every day from your window.

### Supplies



► Check it out at [4-H.org/GlassButterfly](http://4-H.org/GlassButterfly)