RAISE "LIVE" Dancing Bubbles!

BEHOLD! THE FUTURE of SCIENCE!

ohio4h.org/10-minute-science
The inspiration for this book comes from the graphic ads found in Johnson Smith catalogs and adventure comics of the 50s, 60s & 70s. My friends and I were fascinated by these ads enticing us to buy some scientific marvel.

Incredible! Unbelievable! Eyeglasses that let you see through walls. The secrets to super-human strength. Scary seven-foot tall ghosts that do your bidding. The promise of X-Ray vision. The ability to throw one’s voice. Raising frolicking sea monkey pets.

It took repeated disappointments and a dwindling allowance to open my eyes. The sad fact is that these advertisements didn’t always tell the truth.

In 2012, I came across a book by artist and historian Kirk Demarais, who runs the Gen X nostalgia site Secret Fun Spot. In his book “Mail-Order Mysteries,” he reveals what you really got when you ordered any one of 150 supposed scientific marvels. Encouraged by his work, I set out to create a comic book that celebrates this graphic style of advertisement. I hope to attract you to some Totally Thrilling Science that really does work! The activities in this comic book and corresponding web page are a compilation of science activities that I created or modified over the years. I hope you enjoy them as much as I do!

Dr. Bob
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Find more activities online at:
ohio4h.org/10-minute-science

Disclaimer
The use of brand names in the activity descriptions are merely examples of products that provide consistent and dependable results and is not intended as a product endorsement.

Additional copies of this book and other Ohio State University Extension, 4-H Youth Development publications are available through local OSU Extension offices and online at estore.osu-extension.org. Ohio residents get the best price when they order and pick up their purchases through local Extension offices.
RAISE
“LIVE”
Dancing Bubbles!

Teach them:
WALTZ · BALLET · DISCO
BREAK DANCE · HULA
FUNKY · OLD SKOOL
any dance style you can think of!
METHOD

1. In a 2-cup container, mix \( \frac{1}{4} \) teaspoon (slightly heaping) powered Xanthan Gum and 1 teaspoon rubbing alcohol to make a slurry.

2. Add 1 cup hot tap water to the slurry and stir well until lumps are gone.

3. Pour slurry into 2-quart container with 3 cups hot tap water. Continue to stir well.

4. Add \( \frac{1}{4} \) cup Dawn® dish washing liquid and stir well.

5. Add \( \frac{1}{2} \) teaspoon (slightly heaping) baking powder and stir well. Let mixture rest for 15 minutes. Longer resting time = better results.

6. Distribute the solution in cups with bubble wands and make the bubbles dance.

For a bigger dance, use larger wands made from string and straws. These bubbles are known for their ability to stretch into monster dance partners!

You will need...

- Bubble wands
- Measuring cups and spoons
- Plastic cups
- Hot tap water
- \( \frac{1}{2} \) teaspoon baking powder
- 1 teaspoon rubbing alcohol
- \( \frac{1}{4} \) teaspoon Bob’s Red Mill® Powdered Xanthan Gum (located in baking section) Guar gum can also be substituted for Xanthan gum
- 1 cup Dawn® concentrated dish washing liquid
LIVE NEXT DOOR to ALL your friends

BY TELEPHONE

With just STRING AND SOME CUPS
Find a 12’ piece of kite string and two 16 oz. plastic cups.

Punch a hole at the bottom of each cup just small enough for the string to fit through. Use a push pin or any other sharp point. Make the holes large enough to put the string through and no larger.

Pass the string through the hole of each cup.

Tie a knot in each end of the string. Pull the string tight so the knot rests in the bottom of the cup.

Get a partner.

Place the open end of one cup over your ear and have your partner speak into the open end of the other cup. Make the string as tight as you can.

You will need...

- 12-FT PIECE OF KITE STRING
- 16 OZ. PLASTIC CUPS
- SCISSORS
- PUSH PIN
Be the LIFE OF THE PARTY!

Use your BRAIN NOT YOUR HANDS TO BUILD A PYRAMID!

Oh No! Hide our cups! Here comes Jane!

Genius!

The GREATEST SHOW on EARTH!
Challenge teams of 3-5 members to stack ten plastic cups into a pyramid using a 4” rubber band and 6-foot lengths of string.

Instruct the group to place their place ten plastic cups face down on the floor.

For each team member, evenly space and attach a length of string to the rubber band.

When the team members pull on their string in unison, the rubber band will expand.

When the rubber band contracts over a cup, the group will be able to pick up and move a cup.

The goal: to build a pyramid out of the plastic cups . . . four on the bottom row, three on the next, then two, and one on the top.

Participants may only touch or hold onto the end of the string they have been given.

You will need...
- Ten 16 oz. plastic cups
- Rubber bands wide enough to fit around the cup
- Kite string
- Scissors
- At least three teammates
Just before the big barbecue, Alberto realizes he is out of barbecue sauce!

Alberto’s brilliance saves the day!

HOLY COW! I’M IN TROUBLE NOW!

Tasting is Believing

The Taste Test

VOTE

Let’s turn this disaster into a fun contest!

Make your own barbecue sauce, and we’ll have a taste test!
Distribute two 3 oz. paper bathroom cups and a stir stick to each member.

Pour 1 tablespoon each of Welch's® grape jelly and French's® yellow mustard in separate 3 oz. cups.

Begin by adding small amounts of mustard to the grape jelly and tasting the results before adding more.

You can dial the sweetness up or down by changing the amount of mustard used.

Vote on which recipe is the best!

This ready-to-use dipping sauce goes really well with smoky links, chicken nuggets, or crockpot meatballs.

You will need...

- PAPER (BATHROOM) CUPS (3 OZ. SIZE)
- STIR STICKS
- WELCH'S® GRAPE JELLY
- FRENCH'S® YELLOW MUSTARD
MAKE

Lightning

at HOME

Amaze YOUR FRIENDS

SCARE YOUR NEIGHBORS
METHOD

1. Slice two or three grapes in half from end to end.

2. Cut each grape half most of the way through, leaving the skin intact so that it still holds together.

3. Arrange three of the sliced grapes from step 2 in the microwave around the outer edge of the glass carousel plate, skin-side down.

4. Microwave the grapes for no more than 10 seconds, and watch sparks fly!

5. See if adding more grapes is better.

You will need...

- RED SEEDLESS GRAPES
- PLASTIC KNIFE
- MICROWAVE OVEN
For Better EYESIGHT Use Veggie Ink

Easily Leave your MARK ON THE WORLD

BONUS! Together, we can make a HUGE IMPRESSION!
METHOD

1. Distribute a set of materials to each member.

2. Blend water and Kool-Aid® in 3 oz. plastic cup using a stir stick.

3. Add soybean oil and stir well.

4. Add lecithin and stir. (Ok if some lumps remain.)

5. Fold a paper towel in half, then in half again.

6. Pour the contents of the cup into the center of the paper towel. The soy ink is quickly absorbed.

7. Use a rubber stamp or paint brush to print images on paper or stationary. Let dry.

Once the ink dries, scratch the surface.
You will smell the Kool-Aid®.

You will need...

- 3 oz. plastic cup
- Paper towel
- 1/8 teaspoon soybean (vegetable) oil
- 1/8 teaspoon granular lecithin (found in health food stores)
- 1 packet unsweetened Kool-Aid®
- 1 teaspoon water
- Stir sticks
- Paper for printing
- Rubber stamps or paint brush
With this Miraculous Bouncy Ball WORKOUT

AMAZE YOUR FRIENDS with just ONE BOUNCE!

Don't be Bashful BE A HERO

WACK!

SHUCKS!
Bill just caught that ball with one hand behind his back!

MY HERO!
METHOD

1. Distribute a set of materials to each member.

2. Pour 2 tablespoons warm water and 1/2 teaspoon borax powder into the 9 oz. cup.

3. Stir the mixture to dissolve the borax.
   Add food coloring, if desired.

4. Add 1 tablespoon of cornstarch to the cup.
   Wait to stir for 10 seconds.

5. Pour 1 tablespoon of Elmer’s® Clear Glue into another 9 oz. cup.

6. Pour the borax solution into the glue cup.
   Stir them together to fully mix.

7. Once the mixture becomes impossible to stir, take it out of the cup and start molding the ball with your hands.

The ball will start out sticky and messy, but will solidify as you knead it.

You can store your plastic ball in a sealed Ziploc® bag when you are finished playing with it.

TIP!

You will need...

- 20 MULE TEAM BORAX® LAUNDRY BOOSTER
- ELMER’S® CLEAR GLUE
- 9 OZ. PLASTIC CUP
- CORNSTARCH
- MEASURING SPOONS
Mount Blast is erupting, spewing lava all over town! Will our fiery superhero, Lava Kid, arrive in time to save the day?
**METHOD**

1. Distribute a 3 oz. paper bathroom cup and a plastic dinner plate.

2. Form a 9” tall volcano around the cup using newspaper and masking tape.

3. Place 1 tablespoon baking soda in the cup.

4. Fill a second 3 oz. cup with white vinegar. Add two drops red food coloring, ½ teaspoon Dawn® concentrated liquid dish soap and gently stir.

5. Pour the cup’s contents into the volcano then stand back and watch the eruption.

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**You will need...**

- **PLASTIC PLATES (9” DIAMETER)**
- **NEWSPAPER**
- **BAKING SODA**
- **WHITE VINEGAR**
- **STIR STICKS**
- **3 OZ. PAPER BATHROOM CUPS**
- **DAWN® CONCENTRATED LIQUID DISH SOAP**
- **RED FOOD COLORING**
STEP BACK IN TIME

DINOSAURS ALIVE!

WILL YOU LIVE TO TELL OTHERS?
Go to the 10-Minute Science web page and download the life-size Velociraptor Raptor puzzle pieces.

Duplicate one set of puzzle pieces for every team of 3-5 members.

Mix up and scatter the sets of puzzle pieces in an open area called the dino dig.

One person from each group randomly picks up 14 puzzle pieces.

Each group assembles their puzzle pieces to form a complete Velociraptor skeleton.

Eventually, they will discover the need to trade pieces with other teams to properly complete their skeleton.

Once complete, each team tapes their pieces together and posts their skeleton on the wall.

You will need...

- VELOCIRAPTOR RAPTOR PUZZLE PIECES FROM THE 10-MINUTE SCIENCE WEB PAGE
- TAPE
Learn to Fly

In 6 Easy Steps

A Colossal Deed Performed with AMAZING SPEED!
Go to the 10-Minute Science web page and download the kite pattern. Fold the pattern along Fold 1, Fold 2, and Fold 3. Then fold up the corners.

Tape the top and bottom of the pattern together, as indicated on the pattern.

Tape a straw or stir stick onto the pattern.

Punch a hole for the towline. Tie on a 10-foot length of thread to serve as the towline.

Add a tail of brightly colored plastic flagging tape or strips of paper and string as shown.

Find a windy spot, and watch your glider soar!

You will need...

- GLIDER PATTERN
- COLORED PLASTIC FLAGGING TAPE
- SEWING THREAD
- STRAW OR STIR STICK
- CLEAR TAPE
- SCISSORS
- HOLE PUNCH
The 4-H Pledge

I pledge
My Head to clearer thinking,
My Heart to greater loyalty,
My Hands to larger service, and
My Health to better living,
For my club, my community,
my country, and my world.