FROM ORCHARD TO CREATION

6 STEM PROJECTS WITH

PRESENTED BY

THE PRODUCE MOMS

SugarBee® owes its unique origin story to a very special honeybee. One sunny spring day, the bee collected pollen from an unknown apple blossom and then landed on a Honeycrisp blossom.
Mother nature did her part and...

SUGARBEE® APPLE WAS BORN!

SugarBee®'s flavor leans toward the sweet side, yet it's more nuanced with notes of honey, caramel,
and molasses. A crisp juiciness and a touch of acidity adds a complexity that will make you crave your next bite.

SugarBee® can be uniquely identied in store by its honeycomb sticker, which can be found on SugarBee® apples across all retailers.

Both SugarBee®'s amazing avor, and natural origin story make it a truly unique apple that will leave you saying,

"Oh honey, THAT's good!"™


SugarBee Apple
2lb
SugarBee
Oh Honey, that's good!™
2 lb · U.S. Extra Fancy · Produce
MIN. DIA. 60 mm (2⅜")
Distributed By: Chelan Fresh, Chelan WA




WELCOME TO THE WONDERFUL WORLD OF STEM –

Science, Technology, Engineering, and Math –
brought to life through the SugarBee® apple!
We are big believers that children should "play" with their food.

WHY WE BELIEVE APPLES ARE THE PERFECT STEM PARTNER:

Accessibility: Let's face it, apples are easy to come by and are available year round. Plus, they are a budget-friendly option for STEM projects.

Versatility: Apples come in various shapes, sizes, and colors, offering opportunities for comparison, classification, and experimentation. This diversity makes them perfect for exploring scientific concepts.

Engaging: Kids (and adults) love working with food. The sensory experience of touching, smelling, and even tasting (when appropriate) makes learning more engaging and memorable.

Relatability: Apples are a familiar object, making STEM concepts less intimidating and more approachable. Connecting learning to something they already know and enjoy can spark a lifelong interest in STEM.




This ebook is your guide to a collection of engaging, hands-on projects that use this readily available fruit to explore key scientific principles, engineering challenges, and mathematical concepts.

Whether you're a teacher looking for exciting classroom activities, a parent eager to spark your child's curiosity, or simply someone who loves to tinker and discover, you'll find a wealth of inspiration from our 6 projects.

Get ready to slice, dice, build, and experiment as we unlock the surprising STEM potential hidden inside the SugarBee® apple!

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SUGARBEE® APPLE TOWER BUILD

GOAL: Build the tallest freestanding structure on the surface of a table in 5 minutes (time can be adjusted).

SUPPLIES NEEDED:

- 2 SugarBee® apples
- 50+ toothpicks
- Paper plate
- Tape Measurer

DIRECTIONS:

- Cut the SugarBee® apples into small, square pieces. You will want approximately 40-50 pieces.
- Place a paper plate on the table with the apple pieces and toothpicks.
- Start the timer to build.
- When the time is up, students must stop.
- Measure tower from the table top to the highest point.
- Have students complete the sheet on the next page.

SugarBee® Apple

APPLE TOWER CHALLENGE

Build the tallest Apple Tower in the time allotted.

DRAW: My Apple Tower

What was easy or worked well?	What was a challenge?	What did you learn?

SUGARBEE® APPLE BEE POLLINATION EXPERIMENT

GOAL: To simulate how bees pollinate flowers and observe how pollen transfers from one flower to another, demonstrating the process of cross-pollination.

SUPPLIES NEEDED:

- Black and Yellow Pipe Cleaners
- 3 Cupcake Liners or ramekins
- 3 Different Kool-Aid or Jello Flavors
- 3 Flower Cut Outs
- Scotch tape

DIRECTIONS:

- Make a Bee Ring with the black and yellow pipe cleaner.
- Place the cupcake liners in the middle of each flower cut out.
- Add a teaspoon of each Kool-Aid or Jello powder in each of the 3 cupcake liners.
- Have the kids tap their bee into one of the powders 3 times.
- Then, tap their bee into a different flower. Repeat for 1-2 minutes to simulate bees pollinating flowers.
- Have the kids examine the pipe cleaner on their finger. Next, have them look closely at the flower powder at their desk. What do they notice?
- Discuss cross-pollination.

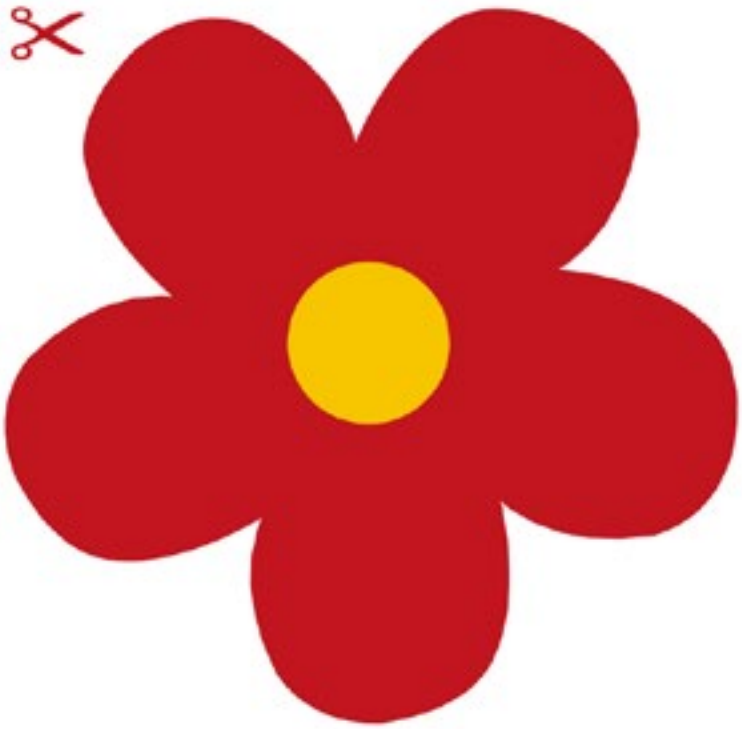
BEE POLLINATION EXPERIMENT

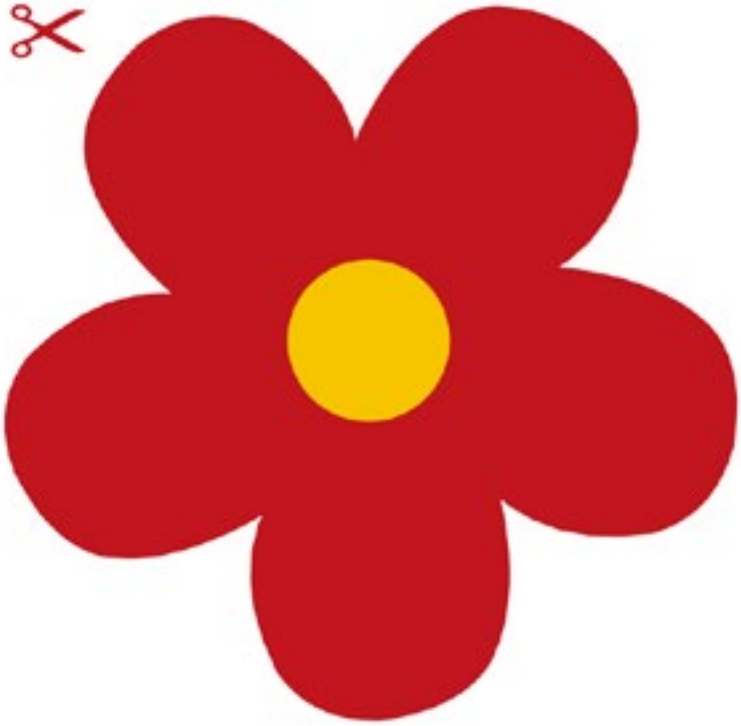
Make Your Bee Ring and Cut Out Your Flowers.

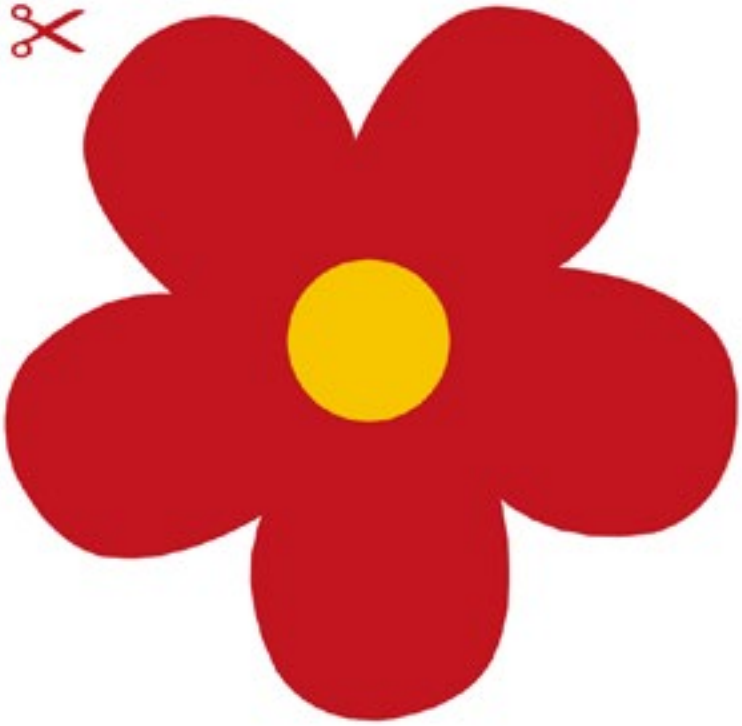
SugarBee® Apple

HOW TO MAKE A BEE RING:

- Pinch one end of a black pipe cleaner between your thumb and index finger, leaving about 1 inch on the end.
- Wrap the wire around your finger 2-3 times, leaving another inch at the end.
- Twist the 2 ends together to secure the ring.
- Bend the ends to look like antennae!
- Add in the yellow pipe cleaner by wrapping it around the "body" of the bee.
- Place a small piece of tape on the bottom of your bee.







BUILD A SUGARBEE® APPLE TREE

GOAL: To explore balance, prediction, and weight distribution by building a model apple tree and testing how many pom poms it can hold before tipping over.

SUPPLIES NEEDED:

- Empty toilet paper roll (or paper towel roll)
- Green popsicle sticks
- Red pom poms

DIRECTIONS:

- On a flat surface, place your toilet paper or paper towel roll standing up.
- Place 4 small green popsicle sticks on the top of the roll.
- Predict how many pom poms you can get to balance with 4 sticks.
- Place your pom poms on the sticks before the tree falls. Record how many pom poms you can get on the sticks without them falling.
- Repeat with using 5 popsicle sticks. Predict how many pom poms you will get. Place the pom poms on the sticks before the tree falls. Record how many you got.
- Repeat with using 6 popsicle sticks. Predict how many pom poms you will get. Place the pom poms on the sticks before the tree falls. Record how many you got.

SugarBee® Apple

BUILD AN APPLE TREE

Build a tree with sticks and see how many pom pom apples you can balance before it tips over!

How many sticks?	How many apples do you think it can hold?	How many apples did it hold?	What happend?
4			
5			
6			

What did you learn?

Explain what you saw and what surprised you?

SUGARBEE® APPLE BALANCE SCALE

GOAL: To explore balance and weight by creating an apple-themed scale and comparing the weights of different objects.

SUPPLIES NEEDED:

- SugarBee® apple
- Apple Slicer or knife
- Plastic Coat Hanger
- Yarn
- Plastic Applesauce Cups
- Hole Punch
- Items to weigh

DIRECTIONS:

- Punch a hole on opposite sides of each of your applesauce cups with a hole punch.
- Cut two pieces of yarn that are 2 feet long.
- Thread one end of a piece of yarn through one of the holes in the applesauce cup and tie the end of the yarn to the yarn on the outside of the cup.
- Thread the other end through the other hole, and tie it in place.
- In the groove of the hangers, hang the center of the yarn attached to each cup over the top of the hanger.
- Hang the hanger on a knob or nail to hold in place to start at “0.”
- Slice the SugarBee® apple
- Fill out your sheet of what you will be weighing and your predictions.

SugarBee® Apple

APPLE BALANCE SCALE

Use your apple balance scale to compare weights and find out if objects are heavier, lighter, or equal to your apple slices!

What to do:

- Pick how many apple slices you want to use.
- Choose an object to test on your apple balance scale.
- In the Predictions column, write what you are weighing and what you think will happen.
- After testing, color in the circle for MORE, LESS, or EQUAL to show what happened.

Predictions (What are you weighing?)	Result (Circle one!)
_____	○ MORE ○ LESS ○ EQUAL
_____	○ MORE ○ LESS ○ EQUAL
_____	○ MORE ○ LESS ○ EQUAL
_____	○ MORE ○ LESS ○ EQUAL

What did you learn?

I learned that...

_____

_____

_____

_____

_____

DO SUGARBEE® APPLE BOATS FLOAT?

GOAL: To explore buoyancy by creating apple slice boats and testing whether apples sink or float in water.

SUPPLIES NEEDED:

- 1-2 SugarBee® apples
- Card stock
- Toothpicks
- Pan or bowl of water

DIRECTIONS:

- Cut out your "sails" from the cardstock in different shapes and sizes (you can also decorate them with markers, stickers, stamps, etc.).
- Cut small slits into each sail. Then, put the toothpick through each sail.
- Cut the apples in half and then into quarters.
- Insert the "sail" into the flat-side of each apple slice.
- Fill a large bowl (or sink) with water. Then, place each apple boat in the water.
- Watch and evaluate whether they sink or float.
- Have students complete the sheet on the next page.

SugarBee® Apple

WHAT FLOATS YOUR BOAT?

Make apple boats and see if they float or sink in water!

What shape of sail did you choose for your boat?
Draw it:

What size of apple did you choose for your boat?
Circle one:

Big **Small**

Draw it:

Insert or draw a picture of your boat.

Did it float?
Circle one:

Yes **No**

What did you learn?

_____

_____

_____

_____

_____

_____

SUGARBEE® APPLE OXIDATION

GOAL: To observe and compare how different liquids affect the browning (oxidation) of apple slices over time.

SUPPLIES NEEDED:

- 2 SugarBee® apples
- Apple Slicer or knife
- 6 clear plastic cups
- 1 cup each of 6 liquids:
    - Water
    - Salt Water
    - Lemon Juice
    - Orange Juice
    - Sprite
    - Pineapple Juice
- Labels for your liquids
- Board or platter to observe slices

DIRECTIONS:

- On the next page, write your predictions for each liquid.
- Prepare the liquids in each cup (remember to label).
- Slice your SugarBee® apples into slices (you will need 7)
- Immediately place 1 apple slice into each liquid (makeing sure the white part is covered). Leave one apple slice out as the controlled variable.
- After 5 minutes, take the apple slices out of the cups and lay flat on a board (make sure you keep them labled on the board).
- Let them sit for 5 minutes, observe their changes and make notes on chart. Then, wait 5 more minutes and record your observations. Were your predictions correct?

SugarBee® Apple

APPLE OXIDATION EXPERIMENT

Let's find out which liquid keeps apples from turning brown!

What you'll do:

- Predict what will happen to each apple slice.
- Put slices into the different liquids.
- Watch what happens after 5 and 10 minutes.
- Write down your results and see if your guess was right!

OBSERVATION CHART

Liquid:	🤔 What I think will happen:	⏰ After 5 Minutes:	⏳ After 10 Minutes:	What Really Happened
🍎 No Liquid (Just Air)				
💧 Water				
🧂 Salt Water				
🍋 Lemon Juice				
🍊 Orange Juice				
🥤 Sprite				
🍍 Pineapple Juice				

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