

# PUMPKIN SCIENCE



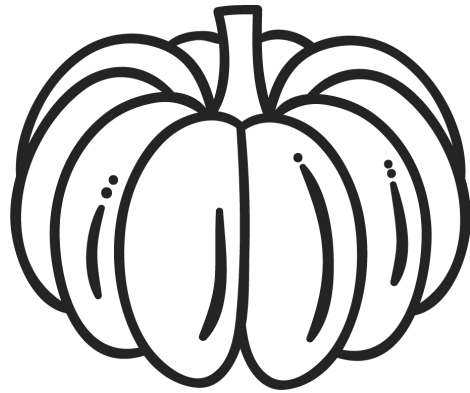
## STEM Pack



LITTLE BINS FOR LITTLE  HANDS



# PUMPKIN SCIENCE



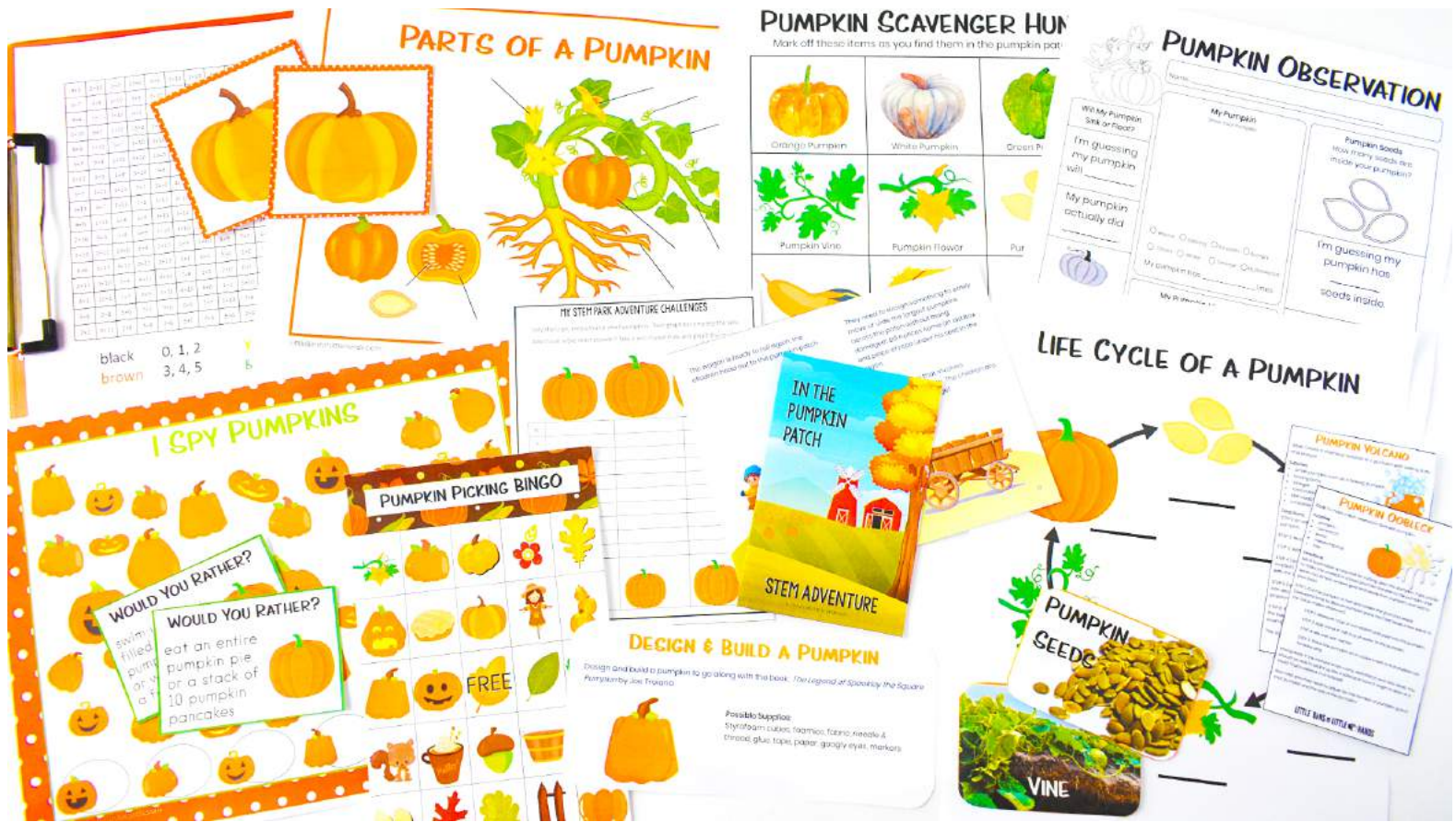
## STEM Pack



LITTLE BINS FOR LITTLE  HANDS



# PUMPKIN SCIENCE & STEM PACK



## INTRODUCTION:

Welcome to your Pumpkin Theme STEM Pack filled with great science activities and STEM projects every junior scientist or engineer should try! I hope it sparks creativity and curiosity within your young scientists, inventors, and engineers.

In this pack, find a fun selection of pumpkin theme activities, challenges, and experiments. I have added supplies, setup instructions, and simple science information for each activity. The pack also includes STEM projects and extras to share with your kids. A new pumpkin patch STEM story also awaits your budding readers! Bonus pumpkin theme fun pack included too.

Feel free to use this pack with one junior scientist or a whole group of junior scientists. You may copy activities as many times as you like for your class, but please send your friends to grab their pack instead of sharing files.

~ Thank you!

9+3	3+10	6+7	13+0	6+6	1+12	2+10	6+7	1+11	0+3	1+4	2+3	4+8	0+12	4+8	3+10	5+8	6+6	6+6	2+11	1+11	4+8
5+7	4+8	3+10	9+3	2+10	6+7	6+6	1+11	9+4	1+2	0+5	1+3	9+3	2+11	5+7	4+8	5+8	6+6	0+12	4+8	5+7	9+3
9+4	5+7	3+10	9+3	6+6	1+11	2+10	6+7	6+7	4+0	1+2	3+0	5+7	3+10	0+12	9+4	6+7	13+0	9+4	9+3	6+6	3+10
2+10	6+7	1+12	13+0	1+12	1+12	6+9	5+10	7+8	7+8	6+8	1+13	7+8	3+12	2+12	5+7	4+8	2+10	6+7	4+8	13+0	4+8
6+6	1+11	5+7	3+10	4+11	7+7	14+0	6+9	2+13	5+9	2+13	5+9	5+9	6+8	7+8	6+8	1+13	9+3	1+11	13+0	1+12	9+4
5+7	9+4	1+11	5+10	14+0	6+9	2+5	6+1	4+2	6+9	5+10	5+10	1+5	6+2	3+5	2+13	6+8	7+8	6+7	9+3	9+4	13+0
1+11	9+3	6+9	5+10	7+8	6+9	2+0	2+0	6+1	2+12	7+7	2+12	1+0	0+2	4+3	5+10	5+9	5+9	6+8	9+3	6+7	4+8
6+7	1+11	4+11	7+7	14+0	4+11	0+0	0+2	8+0	2+13	6+9	2+13	2+0	1+1	3+3	7+7	6+9	2+13	7+8	0+12	1+11	1+11
1+11	6+7	1+13	7+8	3+12	3+11	1+13	7+7	5+10	7+7	4+11	7+7	2+13	3+12	2+13	6+8	2+12	5+10	14+0	2+11	1+12	1+11
6+6	1+11	6+8	5+9	3+11	1+14	6+8	6+8	2+12	0+0	0+1	1+1	5+10	3+11	6+9	5+10	2+13	7+7	3+12	1+11	9+4	2+10
2+10	9+4	7+8	6+9	1+14	4+10	7+8	5+10	2+13	1+1	1+1	0+2	7+7	1+14	4+11	4+10	7+7	7+8	3+11	4+8	3+10	6+6
2+10	2+11	14+0	6+9	2+12	5+9	14+0	5+9	7+7	6+8	5+9	3+11	7+8	4+10	1+13	5+9	6+8	5+9	1+14	1+12	5+8	6+6
6+6	1+11	3+12	4+11	2+13	1+1	0+1	5+9	1+0	1+1	1+1	2+12	0+1	5+10	2+0	1+1	5+10	6+9	4+10	5+7	6+7	13+0
2+11	3+10	9+4	4+11	4+10	7+8	1+1	2+0	0+2	2+0	1+0	1+1	2+0	1+0	0+0	2+13	7+7	3+12	5+7	5+8	1+12	1+12
8+1	10+1	7+3	2+9	3+11	4+10	6+8	1+1	5+10	0+1	6+8	0+2	0+0	2+0	7+8	6+9	1+14	0+11	2+9	6+4	1+9	10+0
5+6	2+8	5+6	7+3	3+6	0+9	7+7	1+14	7+8	4+10	1+13	5+9	5+9	14+0	5+9	7+3	3+6	5+5	7+3	4+7	5+5	4+5
7+1	0+11	2+8	3+8	3+6	5+5	7+3	5+6	2+8	5+6	7+3	6+4	1+9	8+1	10+1	5+6	4+7	1+9	3+8	8+1	3+6	0+9

black 0, 1, 2

brown 3, 4, 5

yellow 6, 7, 8

green 9, 10, 11

blue 12, 13

orange 14, 15

9+3	3+10	6+7	13+0	6+6	1+12	2+10	6+7	1+11	0+3	1+4	2+3	4+8	0+12	4+8	3+10	5+8	6+6	6+6	2+11	1+11	4+8
5+7	4+8	3+10	9+3	2+10	6+7	6+6	1+11	9+4	1+2	0+5	1+3	9+3	2+11	5+7	4+8	5+8	6+6	0+12	4+8	5+7	9+3
9+4	5+7	3+10	9+3	6+6	1+11	2+10	6+7	6+7	4+0	1+2	3+0	5+7	3+10	0+12	9+4	6+7	13+0	9+4	9+3	6+6	3+10
2+10	6+7	1+12	13+0	1+12	1+12	6+9	5+10	7+8	7+8	6+8	1+13	7+8	3+12	2+12	5+7	4+8	2+10	6+7	4+8	13+0	4+8
6+6	1+11	5+7	3+10	4+11	7+7	14+0	6+9	2+13	5+9	2+13	5+9	5+9	6+8	7+8	6+8	1+13	9+3	1+11	13+0	1+12	9+4
5+7	9+4	1+11	5+10	14+0	6+9	2+5	6+1	4+2	6+9	5+10	5+10	1+5	6+2	3+5	2+13	6+8	7+8	6+7	9+3	9+4	13+0
1+11	9+3	6+9	5+10	7+8	6+9	2+0	2+0	6+1	2+12	7+7	2+12	1+0	0+2	4+3	5+10	5+9	5+9	6+8	9+3	6+7	4+8
6+7	1+11	4+11	7+7	14+0	4+11	0+0	0+2	8+0	2+13	6+9	2+13	2+0	1+1	3+3	7+7	6+9	2+13	7+8	0+12	1+11	1+11
1+11	6+7	1+13	7+8	3+12	3+11	1+13	7+7	5+10	7+7	4+11	7+7	2+13	3+12	2+13	6+8	2+12	5+10	14+0	2+11	1+12	1+11
6+6	1+11	6+8	5+9	3+11	1+14	6+8	6+8	2+12	0+0	0+1	1+1	5+10	3+11	6+9	5+10	2+13	7+7	3+12	1+11	9+4	2+10
2+10	9+4	7+8	6+9	1+14	4+10	7+8	5+10	2+13	1+1	1+1	0+2	7+7	1+14	4+11	4+10	7+7	7+8	3+11	4+8	3+10	6+6
2+10	2+11	14+0	6+9	2+12	5+9	14+0	5+9	7+7	6+8	5+9	3+11	7+8	4+10	1+13	5+9	6+8	5+9	1+14	1+12	5+8	6+6
6+6	1+11	3+12	4+11	2+13	1+1	0+1	5+9	1+0	1+1	1+1	2+12	0+1	5+10	2+0	1+1	5+10	6+9	4+10	5+7	6+7	13+0
2+11	3+10	9+4	4+11	4+10	7+8	1+1	2+0	0+2	2+0	1+0	1+1	2+0	1+0	0+0	2+13	7+7	3+12	5+7	5+8	1+12	1+12
8+1	10+1	7+3	2+9	3+11	4+10	6+8	1+1	5+10	0+1	6+8	0+2	0+0	2+0	7+8	6+9	1+14	0+11	2+9	6+4	1+9	10+0
5+6	2+8	5+6	7+3	3+6	0+9	7+7	1+14	7+8	4+10	1+13	5+9	5+9	14+0	5+9	7+3	3+6	5+5	7+3	4+7	5+5	4+5
7+1	0+11	2+8	3+8	3+6	5+5	7+3	5+6	2+8	5+6	7+3	6+4	1+9	8+1	10+1	5+6	4+7	1+9	3+8	8+1	3+6	0+9

black 0, 1, 2

brown 3, 4, 5

yellow 6, 7, 8

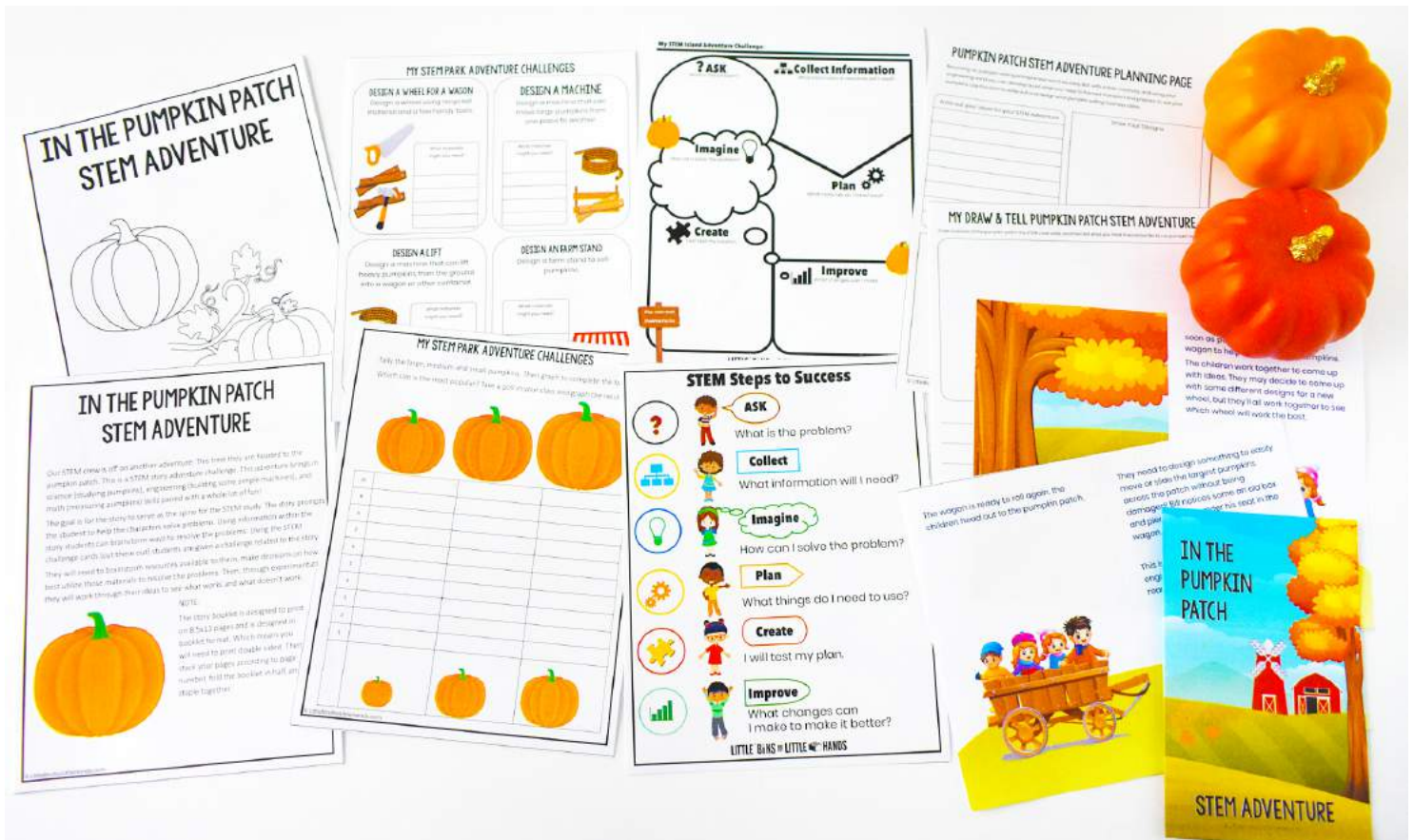
green 9, 10, 11

blue 12, 13

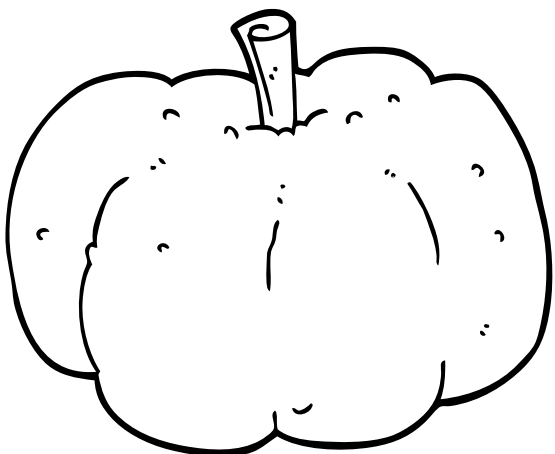
orange 14, 15

# STEM: STORY CHALLENGE

Go on a STEM filled adventure with this Pumpkin Patch STEM Adventure pack! Read the story and solve the challenges.



## What's Included:



- Engaging STEM Story
- STEM Challenges
- STEM Journal Pages
- STEM Supply List
- STEM Drawing Page

# IN THE PUMPKIN PATCH

What a fantastic and tiring day at the pumpkin patch. Once again, the STEM crew has solved problems using science, technology, math, and engineering while enjoying a fun, engaging adventure!

## STEM ADVENTURE

This time they're headed to the pumpkin patch. They are so excited about riding in the wagon, picking pumpkins, and even helping to stock the farm stand!



George grabs a soft tape measure and measures the first pumpkin. "Definitely large," he says with a grin. Bill moves it to the area Annie has put a sign next to for large pumpkins. The sign reads "Large Pumpkins \$5".



Finally, the STEM crew is finished sorting through all the pumpkins they picked and are open for business. They will easily be able to keep track of how many pumpkins they sell by tallying up the sales for each size.



Jill grabs a clipboard and suggests they keep a tally of how many of each size pumpkin they have for sale, so they can keep track of all the pumpkins. She can even make a graph when she's finished tallying up the pumpkins!



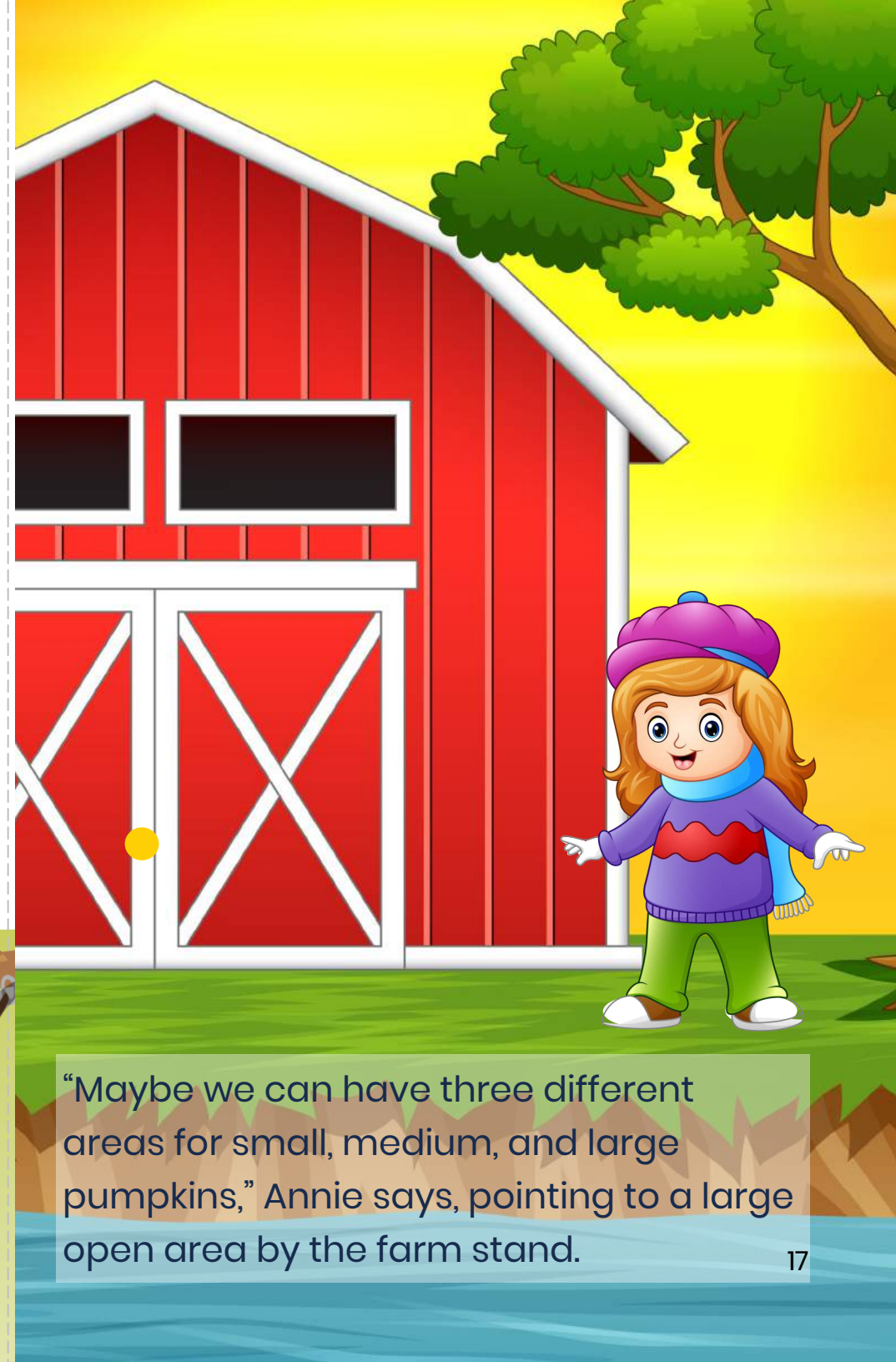
"I love pumpkins!" Jill shouts. She quickly adds, "Pumpkin pie, pumpkin seeds, and Jack O' Lanterns too!"

"Look at all the pumpkins in the field we can gather," George says. "I bet we could even make a pumpkin tower!"

Annie was thinking of the business venture. "I can't wait to sell some pumpkins," she says.



The STEM crew can start using their problem-solving skills right away. The children clamber aboard the wagon pulled by a tractor that will take them out to the field.



“Maybe we can have three different areas for small, medium, and large pumpkins,” Annie says, pointing to a large open area by the farm stand.

Before the children can sell their pumpkins, they need to organize them all by size. Do they measure the height or the circumference to decide?



As soon as the tractor starts rolling along, they hear a creak and a crack! Oh, no! The wheel is broken!



First, the children need to build a replacement wheel for the wagon to get them out to the field using materials they find in the work shed. They look around for scrap wood, recycled materials, and a few handy tools. They need to get to the pumpkin patch as

Once the children can move all of the picked pumpkins over to the wagon, they need to load them onto the wagon bed. Some of the pumpkins are too heavy to pick up and place on the wagon bed.

The STEM crew needs a simple machine to help make this task easier for them. What will they build?

Annie suggests that some sort of ramp or pulley system might do the trick!





soon as possible, and they need the wagon to help haul back the pumpkins. The children work together to come up with ideas. They may decide to come up with some different designs for a new wheel, but they'll all work together to see which wheel will work the best.

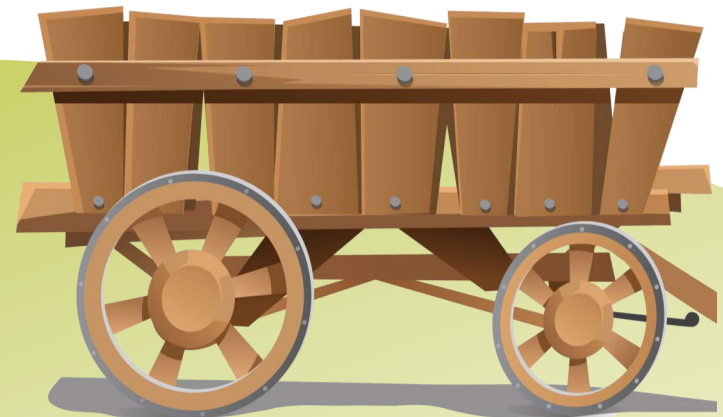


The wagon is ready to roll again, the children head out to the pumpkin patch.



They need to design something to easily move or slide the largest pumpkins across the patch without being damaged! Bill notices some an old box and piece of rope under his seat in the wagon.

This is a problem that involves engineering and math. The children are ready for the challenge!

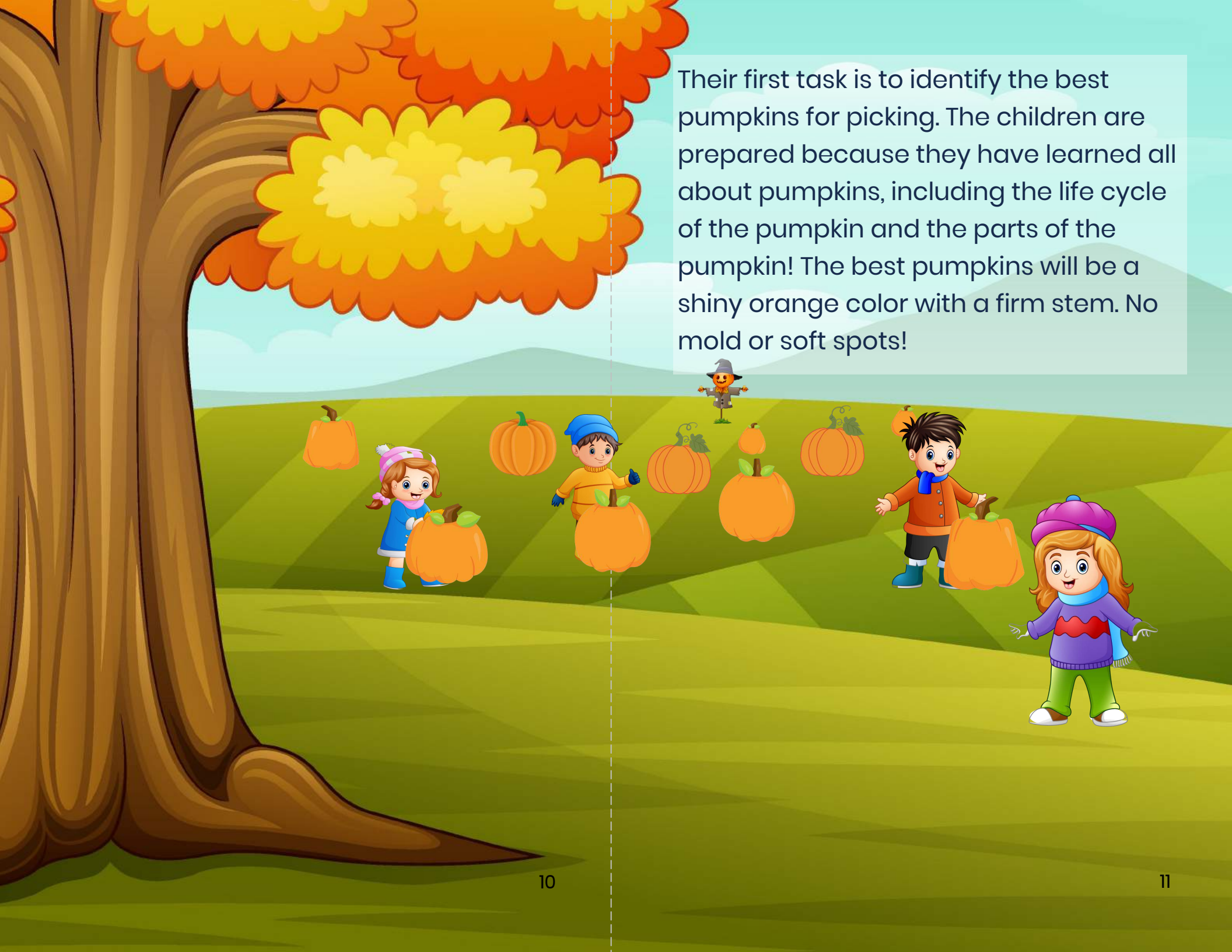


Next, the children need to find a way to move the chosen pumpkins over to the wagon, some of the pumpkins are huge!

This time, they need to look around the pumpkin patch for materials and ideas because they are no longer by the work shed filled with wheelbarrows!



Their first task is to identify the best pumpkins for picking. The children are prepared because they have learned all about pumpkins, including the life cycle of the pumpkin and the parts of the pumpkin! The best pumpkins will be a shiny orange color with a firm stem. No mold or soft spots!





# IN THE PUMPKIN PATCH

## STEM ADVENTURE



# IN THE PUMPKIN PATCH STEM ADVENTURE

Our STEM crew is off on another adventure. This time they are headed to the pumpkin patch. This is a STEM story adventure challenge. This adventure brings in science (studying pumpkins), engineering (building some simple machines), and math (measuring pumpkins) skills paired with a whole lot of fun!

The goal is for the story to serve as the spine for the STEM study. The story prompts the student to help the characters solve problems. Using information within the story students can brainstorm ways to resolve the problems. Using the STEM challenge cards (cut these out) students are given a challenge related to the story.

They will need to brainstorm resources available to them, make decisions on how to best utilize those materials to resolve the problems. Then, through experimentation they will work through their ideas to see what works and what doesn't work.



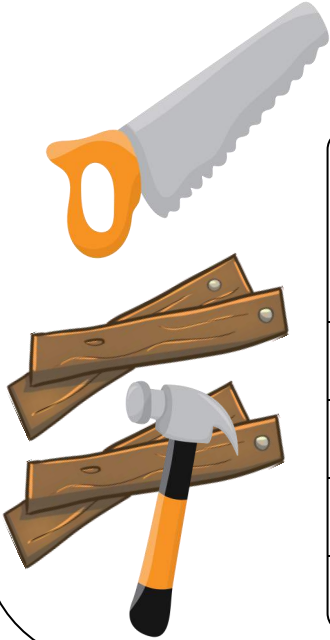
## NOTE:

The story booklet is designed to print on 8.5x11 pages and is designed in booklet format. Which means you will need to print double sided. Then stack your pages according to page number, fold the booklet in half, and staple together.

# MY STEM PARK ADVENTURE CHALLENGES

## DESIGN A WHEEL FOR A WAGON

Design a wheel using recycled material and a few handy tools.

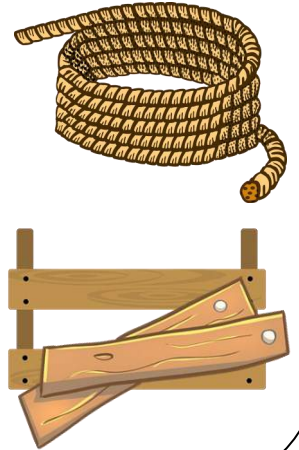


What materials might you need?


## DESIGN A MACHINE

Design a machine that can move large pumpkins from one place to another.

What materials might you need?

## DESIGN A LIFT

Design a machine that can lift heavy pumpkins from the ground into a wagon or other container.



What materials might you need?


## DESIGN AN FARM STAND

Design a farm stand to sell pumpkins.




What materials might you need?




# MY STEM PARK ADVENTURE CHALLENGES

Tally the large, medium and small pumpkins. Then graph to complete the tally. Which size is the most popular? Take a poll in your class and graph the results.



10			
9			
8			
7			
6			
5			
4			
3			
2			
1			
			

# PUMPKIN PATCH STEM ADVENTURE PLANNING PAGE

Becoming an pumpkin selling entrepreneur won't be easy. But, with a little creativity, and using your engineering mind you can develop a just what you need to harvest, transport and prepare to see your pumpkins. Use this form to write out and design your pumpkin selling business ideas.

Write out your ideas for your STEM Adventure


Draw Your Designs


Draw Your Designs


What books are you using for research?


# My STEM Island Adventure Challenge:

## ? ASK

What is the problem?



## Collect Information

What information & resources will I need?



## Imagine

How can I solve the problem?



## Plan

What materials do I have/need?



## Create

I will test my solution,



## Improve

What changes can I make



PICK-YOUR-OWN  
PUMPKIN PATCH

# MY DRAW & TELL PUMPKIN PATCH STEM ADVENTURE

Draw a picture of the pumpkin patch the STEM crew visits, and then tell what you think it would be like to run pumpkin business.



---

---

---

---

---

---

---

---

---

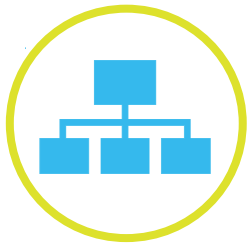
---

# STEM Steps to Success



**ASK**

What is the problem?



**Collect**

What information will I need?



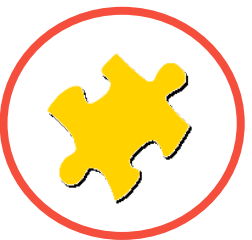
**Imagine**

How can I solve the problem?



**Plan**

What things do I need to use?



**Create**

I will test my plan.



**Improve**

What changes can I make to make it better?



# BONUS: PUMPKIN FUN PACK

Play a game, make some matches, ask a question or two, play bingo, or try an I-Spy! Print and play.



# Pumpkin Picking BINGO Game













# PUMPKIN PICKING BINGO



# PUMPKIN PICKING BINGO

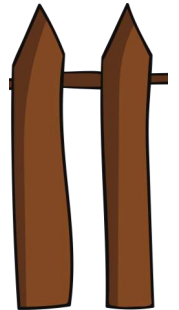
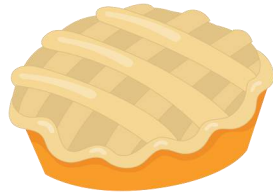
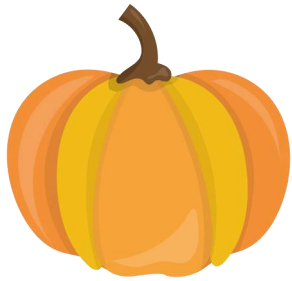


# PUMPKIN PICKING BINGO

				
				
		<b>FREE</b>		
				
				

# PUMPKIN PICKING BINGO

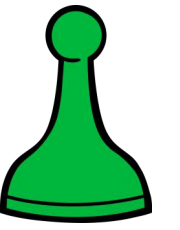
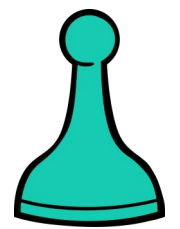
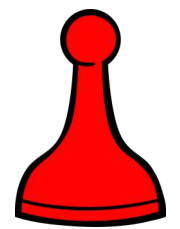
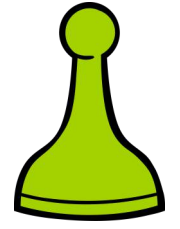
				
				
		<b>FREE</b>		
				
				

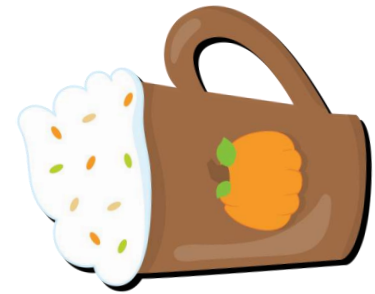
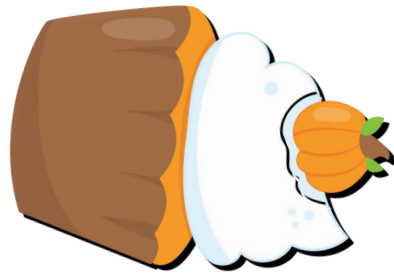
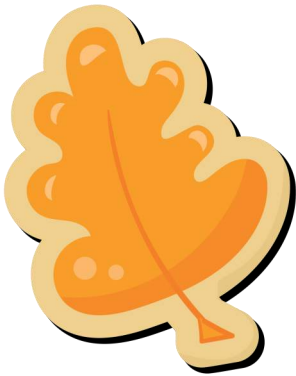


# PICK A PUMPKIN TREAT ROLL-A-CUBE BOARD GAME

yum!  
yum!







LittleBinsforLittleHands.com



# PUMPKIN TIME FUN PACK

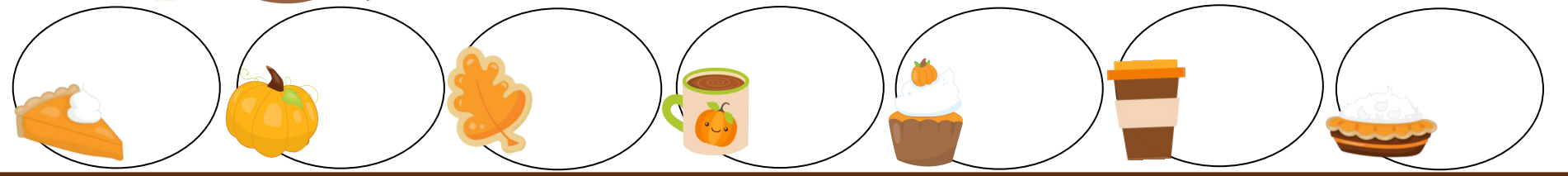
WITH 5 PUMPKIN TIME FUN ACTIVITIES



- I Spy
- BINGO
- Roll-a-Cube

- Would You Rather
- Match Game

# I SPY PUMPKIN TREATS



# I SPY PUMPKINS



# PUMPKIN PATCH MATCH GAME

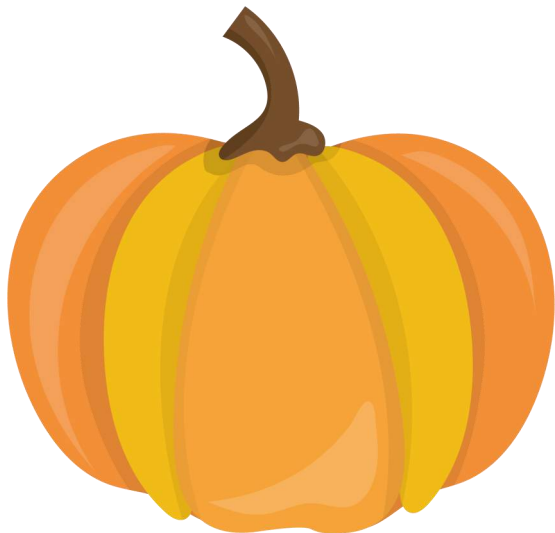




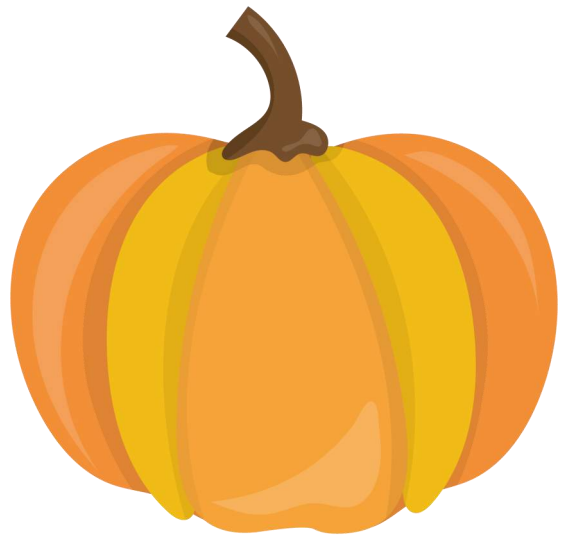
LittleBinsforLittleHands.com



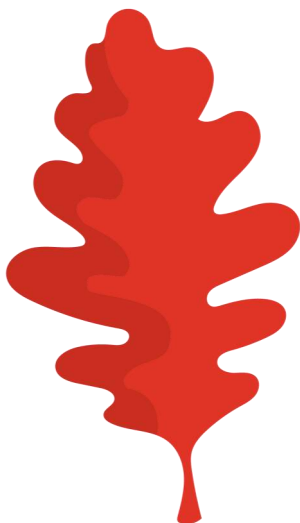
LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



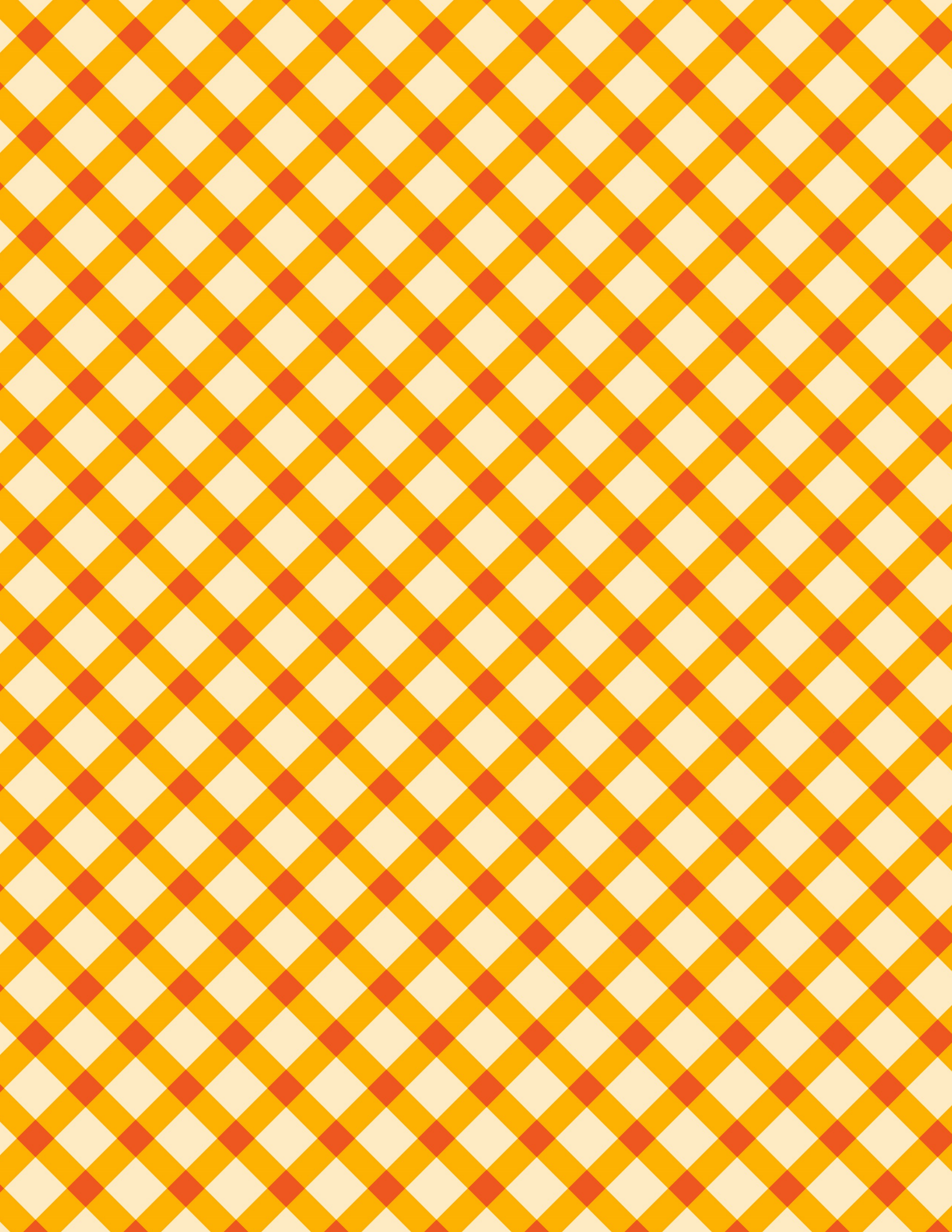
LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



LittleBinsforLittleHands.com





LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



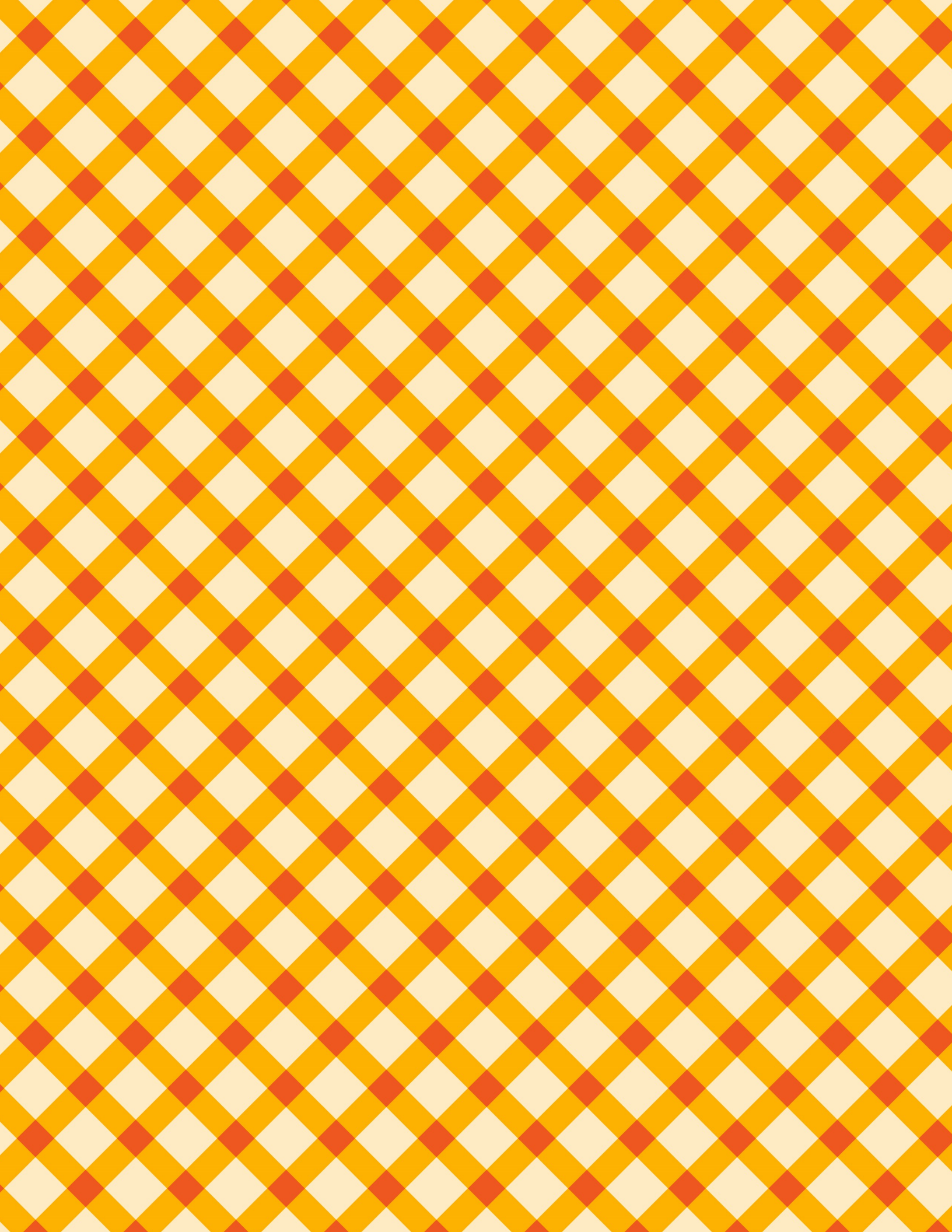
LittleBinsforLittleHands.com



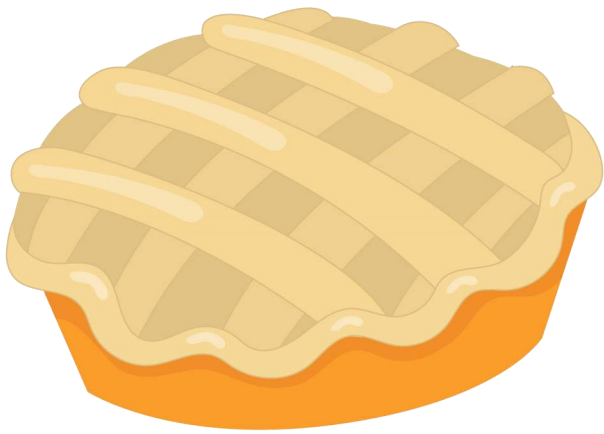
LittleBinsforLittleHands.com



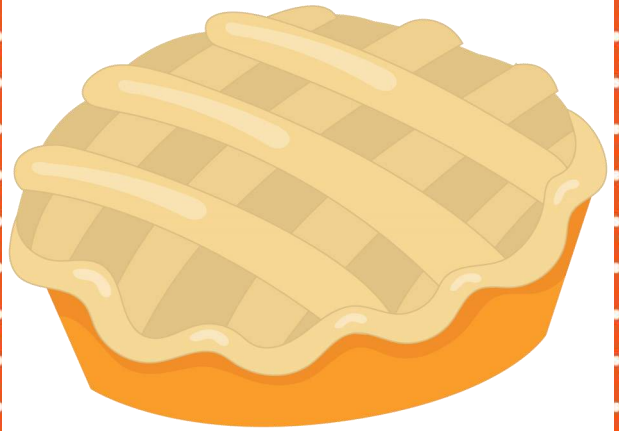
LittleBinsforLittleHands.com







LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



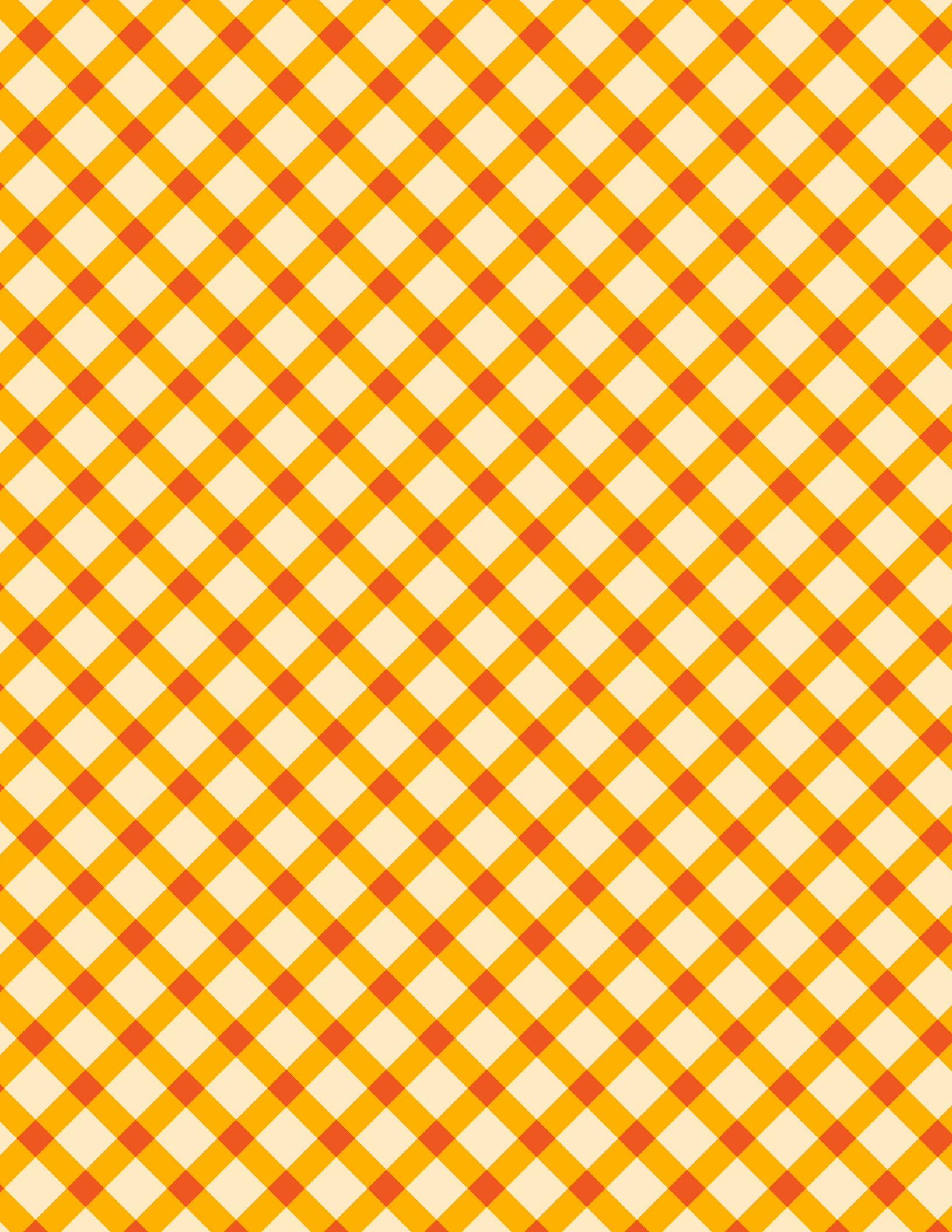
LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



LittleBinsforLittleHands.com





LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



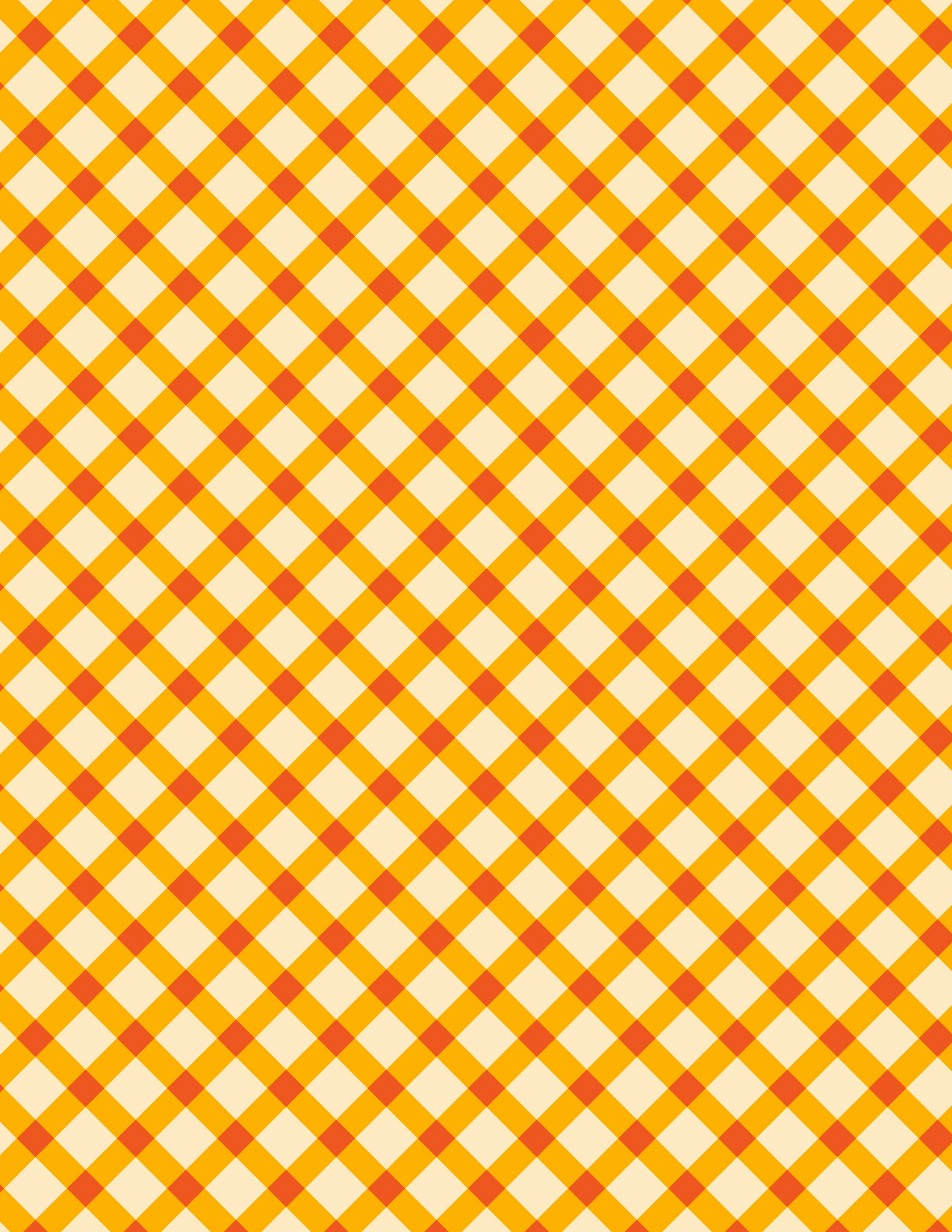
LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



LittleBinsforLittleHands.com



# WOULD YOU RATHER? CONVERSATION STARTERS



## IN THE PUMPKIN PATCH

## WOULD YOU RATHER?

carve a giant  
pumpkin or  
walk through  
a field of mud



## WOULD YOU RATHER?

eat pumpkin  
pie or  
sweet  
potato pie



## WOULD YOU RATHER?

Carve a joyful  
Jack-o-lantern  
or a scary  
one



## WOULD YOU RATHER?

eat an entire  
pumpkin pie  
or a stack of  
10 pumpkin  
pancakes



## WOULD YOU RATHER?

walk through the  
neighborhood  
with a pumpkin  
on your head or  
with pumpkins  
for shoes



## WOULD YOU RATHER?

eat your dinner  
served inside  
a carved out  
pumpkin or  
eat soup  
with your hands



## WOULD YOU RATHER?

roll a 25 lb.  
pumpkin across  
a football field  
or cross a river  
in a pumpkin boat



## WOULD YOU RATHER?

swim in a pool  
filled with  
pumpkin guts  
or walk across  
a field of grasshoppers



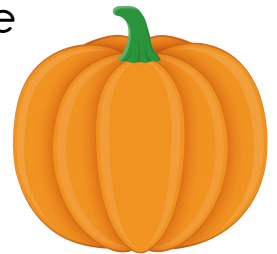
## WOULD YOU RATHER?

Have hiccups  
or a  
jack-o lantern  
smile



## WOULD YOU RATHER?

Hum the Charlie  
Brown song all  
day or watch  
"The Great  
Pumpkin"  
15 times



## WOULD YOU RATHER?

live in a giant  
pumpkin or  
a hollow  
tree



## WOULD YOU RATHER?

eat only  
pumpkin pie  
or pecan pie  
for the rest  
of your life



## WOULD YOU RATHER?

have a pumpkin  
for a nose, or  
wear a carved  
out pumpkin  
as a shirt



## WOULD YOU RATHER?

have pumpkin  
hands or  
pumpkin  
feet



## WOULD YOU RATHER?

eat pumpkin  
guts or  
chicken  
livers



## WOULD YOU RATHER?

sleep inside  
a giant  
pumpkin  
or inside  
a cave

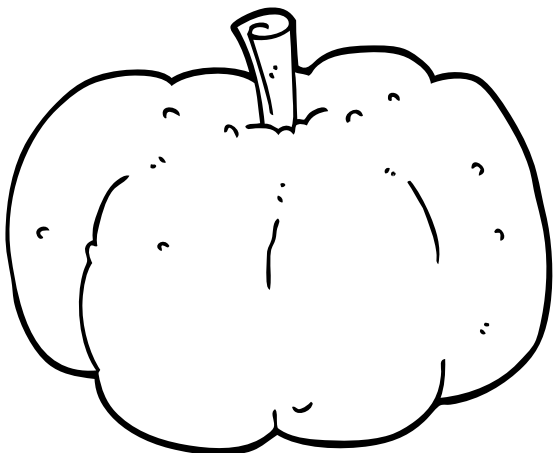


# PUMPKIN SCIENCE ACTIVITIES

Use real pumpkins to explore fun science concepts and STEM activities. Supplies, process, and basic science information are included.



## What's Included:



- Pumpkin Volcano
- Pumpkin Oobleck
- Pumpkin Sink or Float
- Pumpkin Measuring
- Pumpkin Weighing



# PUMPKIN CIRCUMFERENCE

**Goal:** Learn how to measure the circumference of a pumpkin and find out how big around the pumpkin is.

**Supplies:**

- pumpkin,
- string,
- measuring tape,
- scissors

**Directions:**

Use a piece of string to measure around the widest part of your pumpkin. Lay the string out on a table or the ground and measure with a ruler or measuring tape.



**Predictions:**

I think my pumpkin is \_\_\_\_\_ inches around.

**Results:**

My pumpkin is actually \_\_\_\_\_ inches around.

# PUMPKIN CIRCUMFERENCE

**Goal:** Learn how to measure the circumference of a pumpkin and find out how big around the pumpkin is.

**Supplies:**

- pumpkin,
- string,
- measuring tape,
- scissors

**Directions:**

Use a piece of string to measure around the widest part of your pumpkin. Lay the string out on a table or the ground and measure with a ruler or measuring tape.



**Predictions:**

I think my pumpkin is \_\_\_\_\_ inches around.

**Results:**

My pumpkin is actually \_\_\_\_\_ inches around.

# PUMPKIN WEIGHT

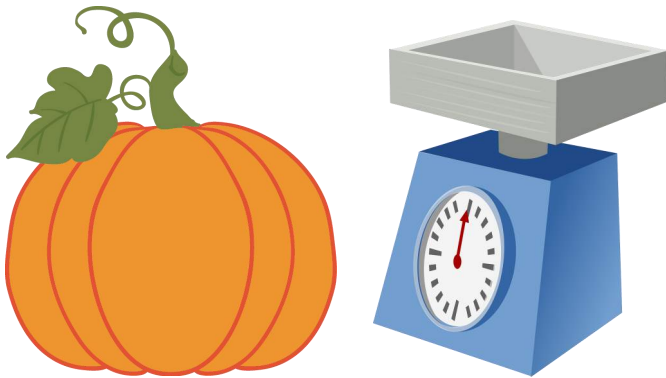
**Goal:** Use a scale to measure weight in pounds and/or ounces.

**Supplies:**

- pumpkin,
- small scale

**Directions:**

Place pumpkin on a scale and weight it!



**Predictions:**

I think my pumpkin weighs \_\_\_\_\_ pounds and/or ounces.

**Results:**

My pumpkin is actually weighs \_\_\_\_\_ pounds and/or ounces.

# PUMPKIN WEIGHT

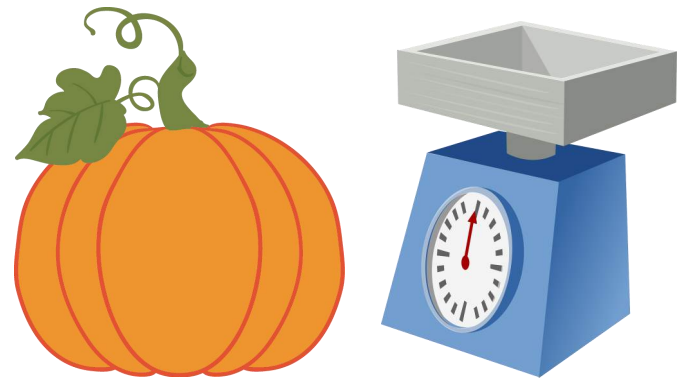
**Goal:** Use a scale to measure weight in pounds and/or ounces.

**Supplies:**

- pumpkin,
- small scale

**Directions:**

Place pumpkin on a scale and weight it!



**Predictions:**

I think my pumpkin weighs \_\_\_\_\_ pounds and/or ounces.

**Results:**

My pumpkin is actually weighs \_\_\_\_\_ pounds and/or ounces.

# PUMPKIN HEIGHT

**Goal:** Use non-standard measurement to find out the height of the pumpkin. Non-Standard measurement materials should all be the same item such as wooden blocks or building bricks, anything easily stackable.

**Supplies:**

- pumpkin,
- Items to use for measurement (building bricks, wooden blocks, etc.)

**Directions:**

To measure the pumpkin's height stack chosen items in a tower next to the pumpkin up to the tip of the stem.



**Predictions:**

I predict my pumpkin is \_\_\_\_\_ tall.

**Results:**

My pumpkin is actually \_\_\_\_\_ tall.

# PUMPKIN HEIGHT

**Goal:** Use non-standard measurement to find out the height of the pumpkin. Non-Standard measurement materials should all be the same item such as wooden blocks or building bricks, anything easily stackable.

**Supplies:**

- pumpkin,
- Items to use for measurement (building bricks, wooden blocks, etc.)

**Directions:**

To measure the pumpkin's height stack chosen items in a tower next to the pumpkin up to the tip of the stem.



**Predictions:**

I predict my pumpkin is \_\_\_\_\_ tall.

**Results:**

My pumpkin is actually \_\_\_\_\_ tall.

# PUMPKIN SINK OR FLOAT

**Goal:** Discover whether pumpkins sink or float.

**Supplies:**

- pumpkin,
- large tub or bucket,
- water

**Directions:**

Fill a tub with enough water so that there is plenty of room to place the pumpkin in it without the pumpkin touching the sides and so you can clearly see the results of the activity. Place the pumpkin in the water.



**Predictions:**

I predict my pumpkin will:

sink or float

**Results:**

My pumpkin actually:

sinks or floats

# PUMPKIN SINK OR FLOAT

**Goal:** Discover whether pumpkins sink or float.

**Supplies:**

- pumpkin,
- large tub or bucket,
- water

**Directions:**

Fill a tub with enough water so that there is plenty of room to place the pumpkin in it without the pumpkin touching the sides and so you can clearly see the results of the activity. Place the pumpkin in the water.



**Predictions:**

I predict my pumpkin will:

sink or float

**Results:**

My pumpkin actually:

sinks or floats

# PUMPKIN OOBLECK

**Goal:** To make a Non-newtonian fluid with pumpkin.

**Supplies:**

- pumpkin,
- cornstarch,
- water,
- measuring cup,
- tray



**Directions:**

Adult supervision is required for cutting open the pumpkin. If you prefer to make the oobleck in a bowl and then transfer to the pumpkin that works too, simply remove guts and seeds from pumpkin and add to your bowl.

STEP 1. Cut the pumpkin in half and loosen the guts and seeds (awesome time to discuss pumpkin parts too!) Set aside a few seeds to top the pumpkin afterward.

STEP 2. Measure 1 cup of cornstarch and pour into the pumpkin.

STEP 3. Add about a half cup of water to the pumpkin.

STEP 4. Mix well with hands!

STEP 5. Place the pumpkin on a cookie sheet or in a shallow tub for easy play.

Mixing Note: If the mixture is too runny, add starch and vice versa. You should be able to pick it up like a solid and have it begin to ooze as a liquid. That's oobleck in a nutshell!

Also note, you may need to adjust for the number of pumpkin guts in your pumpkin and the size of the pumpkin!

# PUMPKIN OOBLECK

**Goal:** To make a Non-newtonian fluid with pumpkin.

**Supplies:**

- pumpkin,
- cornstarch,
- water,
- measuring cup,
- tray



**Directions:**

Adult supervision is required for cutting open the pumpkin. If you prefer to make the oobleck in a bowl and then transfer to the pumpkin that works too, simply remove guts and seeds from pumpkin and add to your bowl.

STEP 1. Cut the pumpkin in half and loosen the guts and seeds (awesome time to discuss pumpkin parts too!) Set aside a few seeds to top the pumpkin afterward.

STEP 2. Measure 1 cup of cornstarch and pour into the pumpkin.

STEP 3. Add about a half cup of water to the pumpkin.

STEP 4. Mix well with hands!

STEP 5. Place the pumpkin on a cookie sheet or in a shallow tub for easy play.

Mixing Note: If the mixture is too runny, add starch and vice versa. You should be able to pick it up like a solid and have it begin to ooze as a liquid. That's oobleck in a nutshell!

Also note, you may need to adjust for the number of pumpkin guts in your pumpkin and the size of the pumpkin!

# WHAT IS OOBLECK?

Oobleck is a fun substance to play with which is made from cornstarch and water. It's a bit messy too!

This oobleck activity is also a great way to explore the properties of liquids and solids, known as the states of matter.

Here we are combining a liquid and a solid, but the mixture doesn't become one or the other. A solid has its own shape whereas a liquid will take the shape of the container it is put into.

**Oobleck is a bit of both!**

That's why oobleck is called a non-Newtonian fluid.

This means it is neither a liquid nor a solid but has properties of both! You can pick up a clump of the substance like a solid and then watch it ooze back into the bowl like a liquid. Touch the surface lightly and it will feel firm and solid.

If you apply more pressure, your fingers will sink into it like a liquid.

# WHAT IS OOBLECK?

Oobleck is a fun substance to play with which is made from cornstarch and water. It's a bit messy too!

This oobleck activity is also a great way to explore the properties of liquids and solids, known as the states of matter.

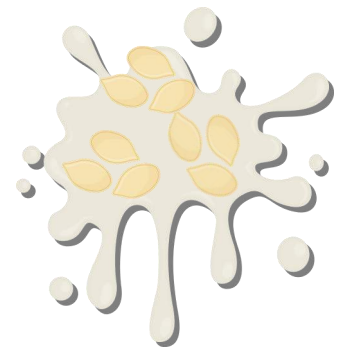
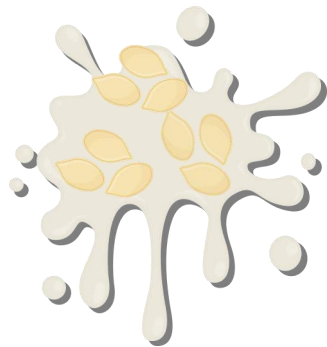
Here we are combining a liquid and a solid, but the mixture doesn't become one or the other. A solid has its own shape whereas a liquid will take the shape of the container it is put into.

**Oobleck is a bit of both!**

That's why oobleck is called a non-Newtonian fluid.

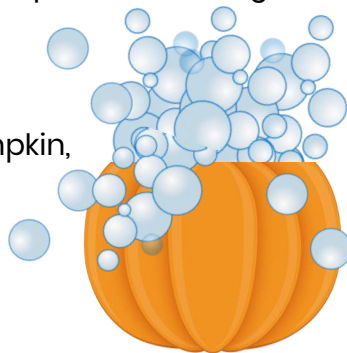
This means it is neither a liquid nor a solid but has properties of both! You can pick up a clump of the substance like a solid and then watch it ooze back into the bowl like a liquid. Touch the surface lightly and it will feel firm and solid.

If you apply more pressure, your fingers will sink into it like a liquid.



# PUMPKIN VOLCANO

**Goal:** Create a chemical reaction in a pumpkin with baking soda and vinegar.



## Supplies:

- small pumpkin such as a baking pumpkin,
- baking soda,
- vinegar,
- food coloring (optional),
- dish soap (optional),
- container or tray to hold pumpkin and catch mess

## Directions:

STEP 1: An adult should use a knife to cut a hole in the top of the pumpkin.

STEP 2: Next, you will want to clean out the guts.

STEP 3: Add a 1/4 of a cup of baking soda into the pumpkin.

STEP 4 (optional): Add a squirt of dish soap if you want a foamier eruption! The chemical eruption will produce frothier bubbles with the added dish soap and create more overflow too!

STEP 5 (optional): Add a few drops of food coloring if desired. You can also add food coloring to the vinegar for a deeper color eruption.

STEP 6: Pour 1-2 cups of vinegar into an easy to use container for the kids. Have them pour the vinegar into the pumpkin. Stop pouring when you see the eruption and watch the flow.

This activity can be repeated over and over again!

# PUMPKIN VOLCANO

**Goal:** Create a chemical reaction in a pumpkin with baking soda and vinegar.



## Supplies:

- small pumpkin such as a baking pumpkin,
- baking soda,
- vinegar,
- food coloring (optional),
- dish soap (optional),
- container or tray to hold pumpkin and catch mess

## Directions:

STEP 1: An adult should use a knife to cut a hole in the top of the pumpkin.

STEP 2: Next, you will want to clean out the guts.

STEP 3: Add a 1/4 of a cup of baking soda into the pumpkin.

STEP 4 (optional): Add a squirt of dish soap if you want a foamier eruption! The chemical eruption will produce frothier bubbles with the added dish soap and create more overflow too!

STEP 5 (optional): Add a few drops of food coloring if desired. You can also add food coloring to the vinegar for a deeper color eruption.

STEP 6: Pour 1-2 cups of vinegar into an easy to use container for the kids. Have them pour the vinegar into the pumpkin. Stop pouring when you see the eruption and watch the flow.

This activity can be repeated over and over again!

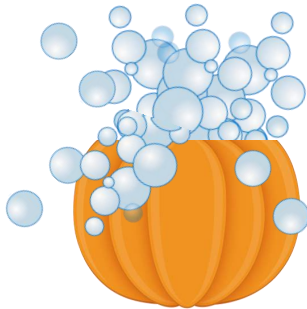
# PUMPKIN VOLCANO

## SIMPLE SCIENCE

Chemistry is all about states of matter including liquids, solids, and gasses. A chemical reaction occurs between two or more substances that change and form a new substance.

**In this case a gas called carbon dioxide.**

In this case, you have an acid (liquid: vinegar) and a base solid: baking soda) when combined make a gas called carbon dioxide which produces the eruption you can see.



The carbon dioxide escapes the mixture in the form of bubbles. You can even hear them if you listen closely.

The bubbles are heavier than air, so the carbon dioxide collects at the surface of the pumpkin or overflows the pumpkin because the mixture expands beyond the container which holds it.

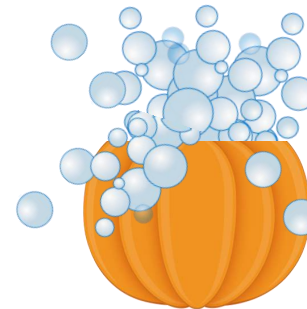
# PUMPKIN VOLCANO

## SIMPLE SCIENCE

Chemistry is all about states of matter including liquids, solids, and gasses. A chemical reaction occurs between two or more substances that change and form a new substance.

**In this case a gas called carbon dioxide.**

In this case, you have an acid (liquid: vinegar) and a base solid: baking soda) when combined make a gas called carbon dioxide which produces the eruption you can see.



The carbon dioxide escapes the mixture in the form of bubbles. You can even hear them if you listen closely.

The bubbles are heavier than air, so the carbon dioxide collects at the surface of the pumpkin or overflows the pumpkin because the mixture expands beyond the container which holds it.



# PUMPKIN PACK EXTRAS

Go on a pumpkin patch scavenger hunt!

If you can't get to a pumpkin patch, make one outside! Add hay bales, pumpkins, and whatever you can find for a fun experience.

Idea #1: Make a second copy of the sheet and cut out the items. Place the cutouts around the room for the kids to find and check off. Do you have small items to represent the items on the list you can hide?

Idea #2 For younger kids, you can print out a second copy and cut out the items to use in a sensory bin. Go on a pumpkin patch scavenger hunt inside the sensory bin. Fun sensory bin fillers could include popping corn or straw!

Idea #3 Encourage kids to write a short story using each of the images on the scavenger hunt. They can describe a past trip they have taken to a pumpkin patch or write a unique version of a trip to a pumpkin patch. Younger kids can tell you a story instead!

Idea #4 Make a copy of the scavenger hunt and cut apart the items. Hand one to each kid. Have the first kid start a story using the thing on the card as part of his or her story. Set a time limit and then pass the story to the next person. Items can be in any order!



# PUMPKIN SCAVENGER HUNT

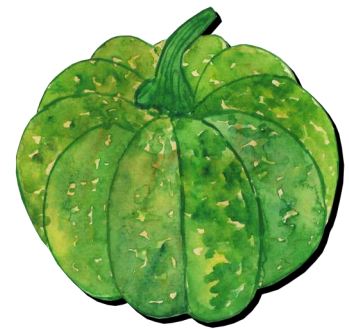
Mark off these items as you find them in the pumpkin patch.



Orange Pumpkin



White Pumpkin



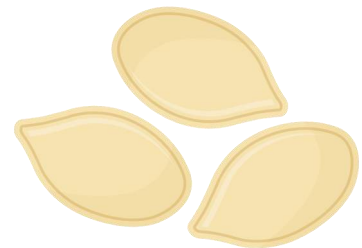
Green Pumpkin



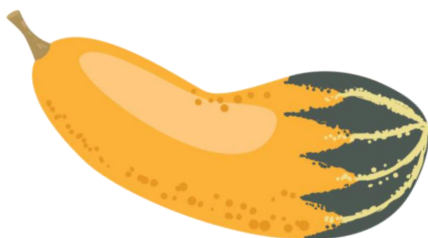
Pumpkin Vine



Pumpkin Flower



Pumpkin Seeds



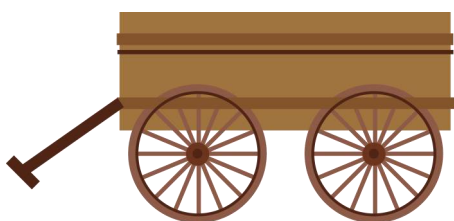
Gourd



Hay Bale



Scarecrow



Wagon

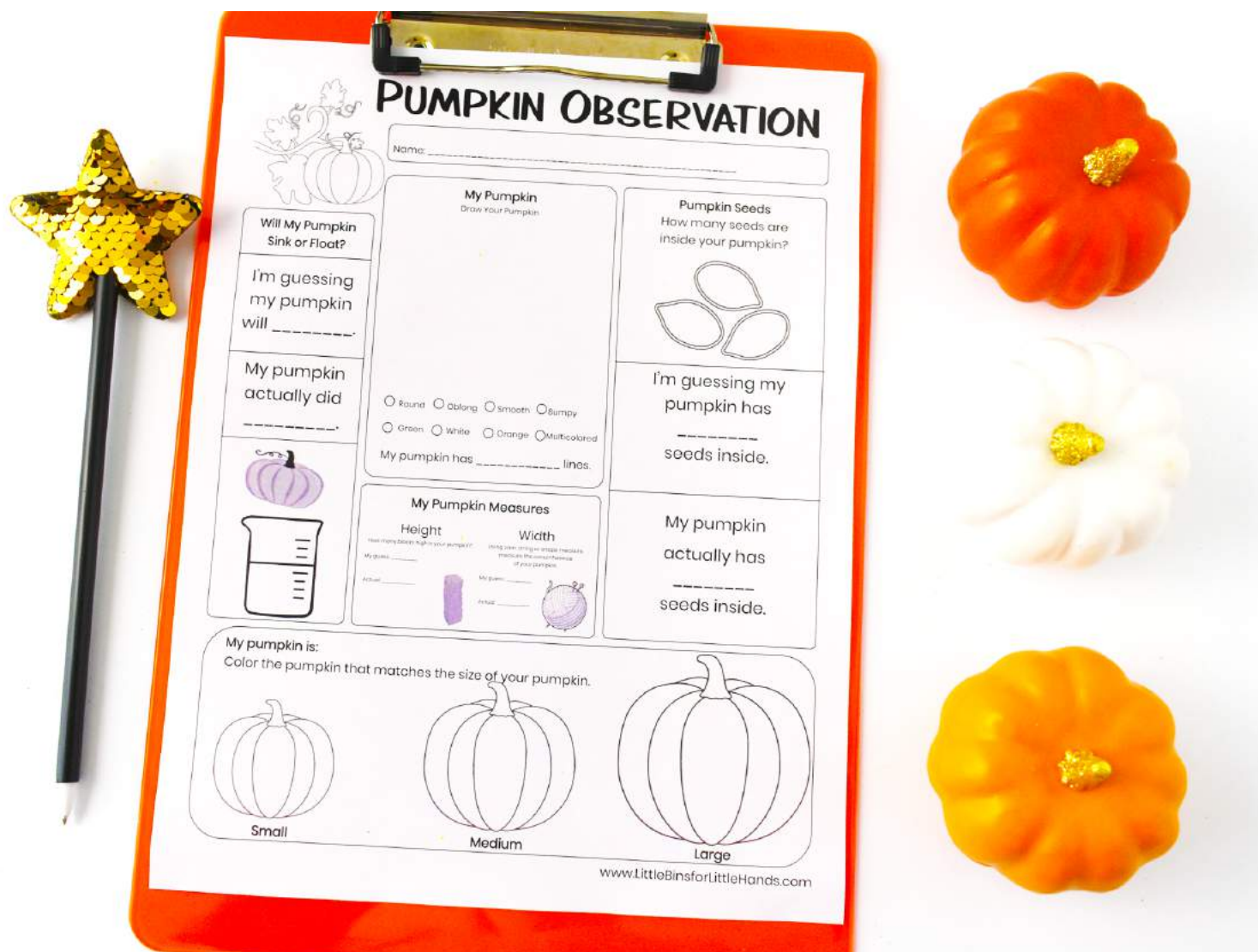


Tractor



Barn

# ALL ABOUT MY PUMPKIN



## SUPPLIES:

- Pumpkin
- Knife for cutting open the pumpkin (adults only)
- Water and bowl or bucket

## PROCESS:

**STEP 1:** Examine and observe your pumpkin! Encourage kids to fill in the sheet with the data they collect. Younger kids can talk about it with you! Older kids can present their findings to the group.

**STEP 2:** Save the seed counting for last! Adults should cut the top of the pumpkins to allow the kids to count the seeds inside. Pumpkin guts can be removed and placed in a bowl for ease of counting.



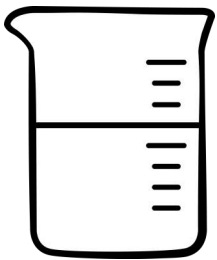
# PUMPKIN OBSERVATION

Name: \_\_\_\_\_

**Will My Pumpkin Sink or Float?**

I'm guessing my pumpkin will \_\_\_\_\_.

My pumpkin actually did \_\_\_\_\_.



## My Pumpkin

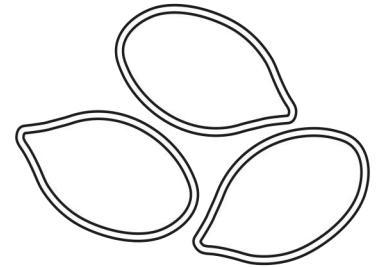
Draw Your Pumpkin

- Round     Oblong     Smooth     Bumpy  
 Green     White     Orange     Multicolored

My pumpkin has \_\_\_\_\_ lines.

## Pumpkin Seeds

How many seeds are inside your pumpkin?



I'm guessing my pumpkin has \_\_\_\_\_ seeds inside.

## My Pumpkin Measures

### Height

How many blocks high is your pumpkin?

My guess: \_\_\_\_\_

Actual: \_\_\_\_\_



### Width

Using yarn, string or a tape measure, measure the circumference of your pumpkin.

My guess: \_\_\_\_\_

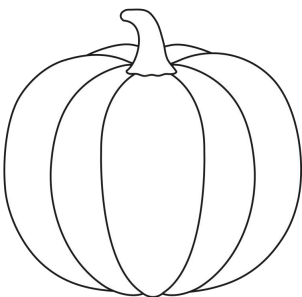
Actual: \_\_\_\_\_



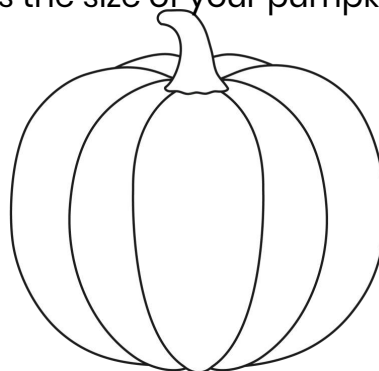
My pumpkin actually has \_\_\_\_\_ seeds inside.

**My pumpkin is:**

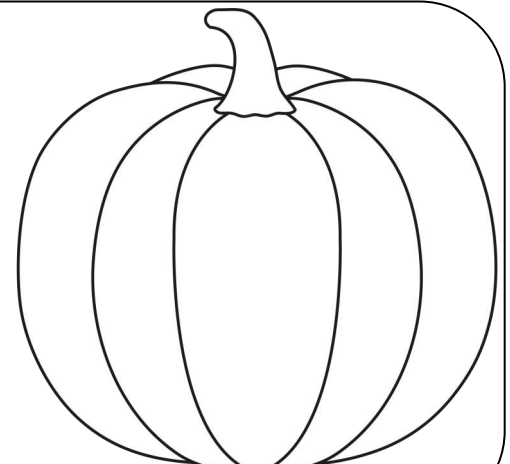
Color the pumpkin that matches the size of your pumpkin.



Small



Medium



Large

# PUMPKIN LIFE CYCLE AND PARTS OF A PUMPKIN



Explore the parts of a pumpkin and learn all about how a pumpkin grows.

## SUPPLIES:

Printable sheets

Scissors

Colored pencils, pens, crayons, and markers

Go ahead and include cutting up a real pumpkin as part of the activity if you have the opportunity. Exploring a real pumpkin and its parts is an excellent hands-on way to learn about a favorite fall item, and get the kids excited.

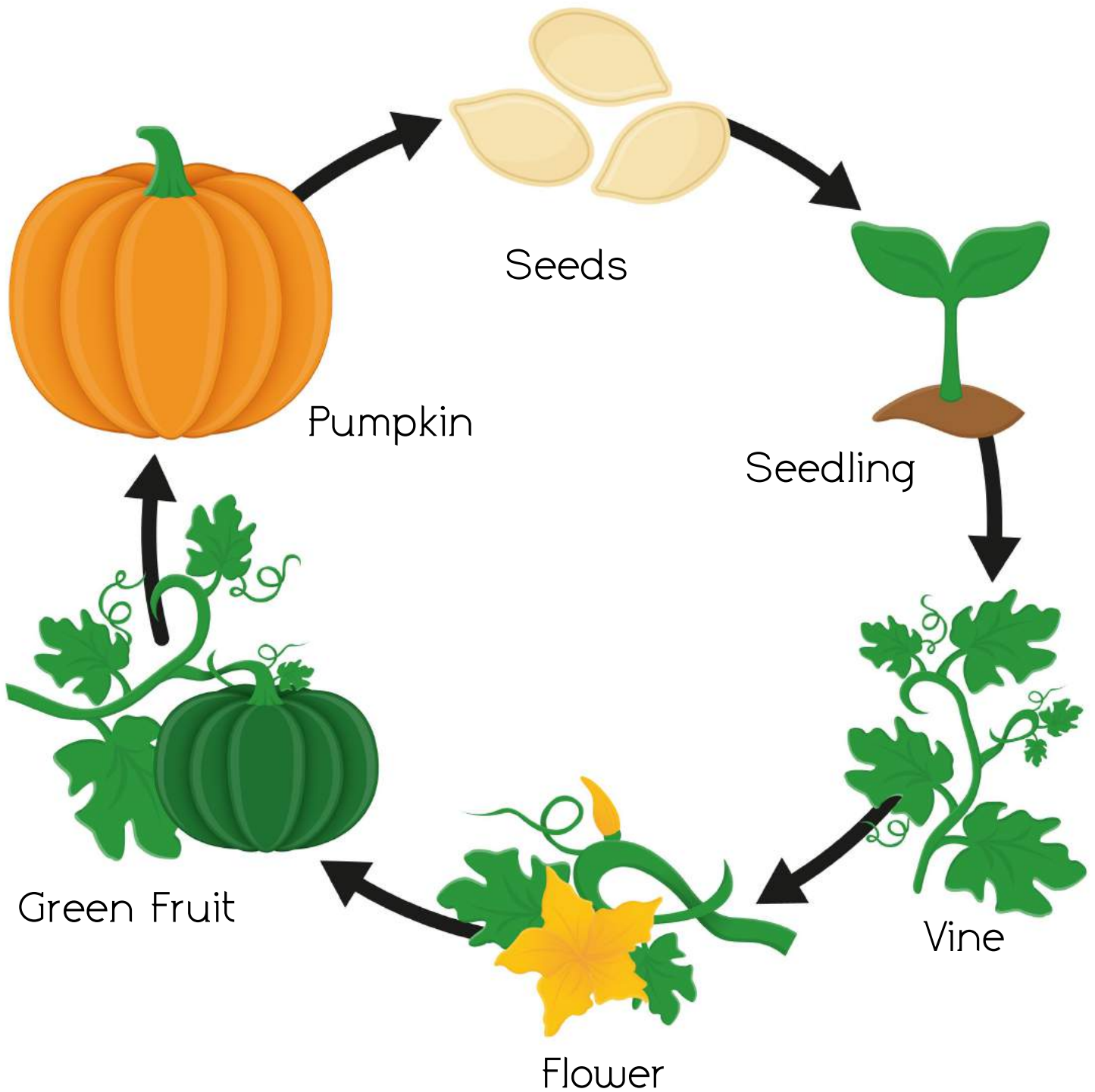
# Pumpkin Life Cycle



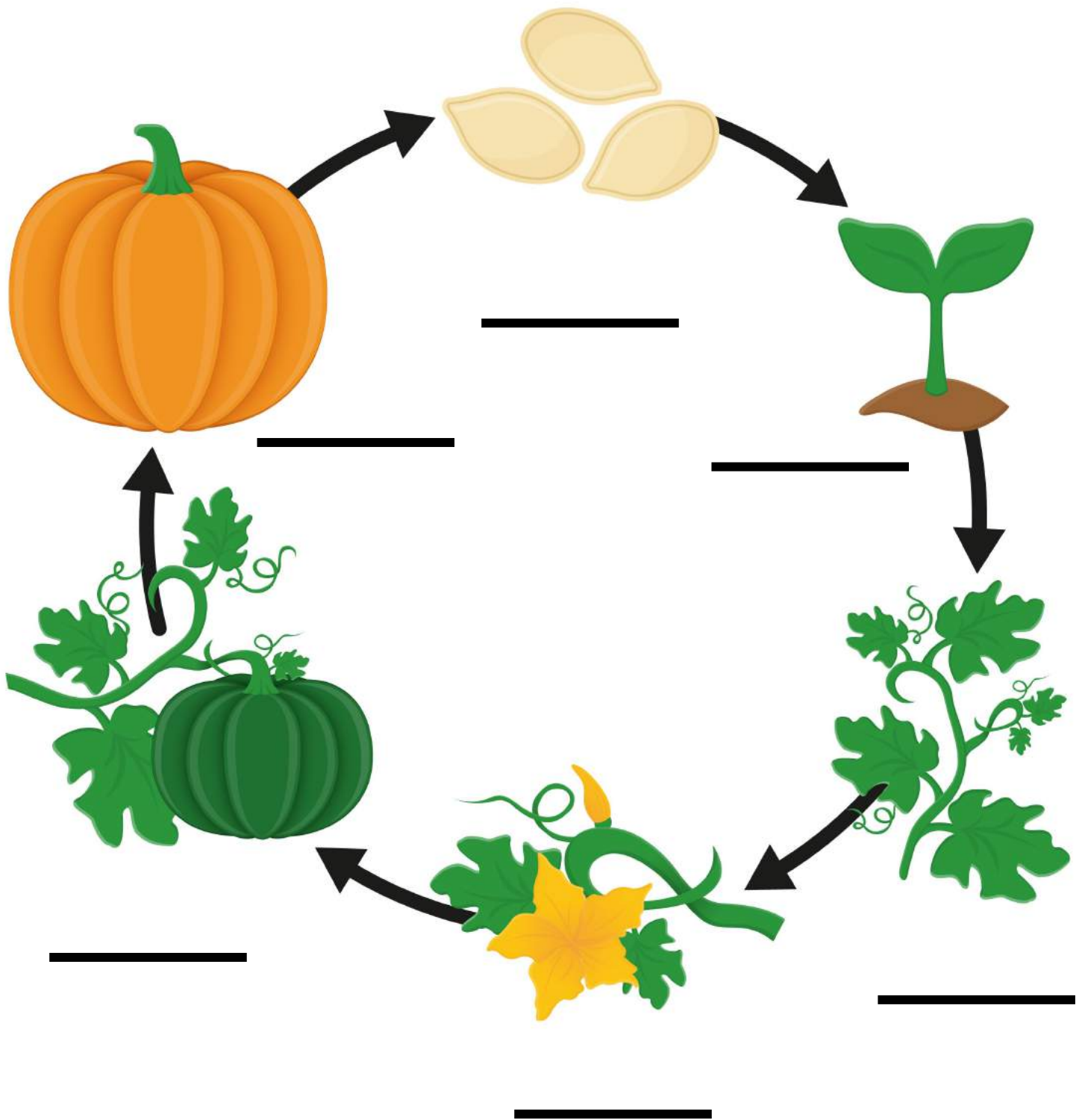
STEM PACK

LITTLE BINS FOR LITTLE  HANDS

# LIFE CYCLE OF A PUMPKIN



# LIFE CYCLE OF A PUMPKIN







Labels for Life Cycle of an Pumpkin

Pumpkin	Green Fruit	Seeds
Vine	Flower	Seedling

What is it?

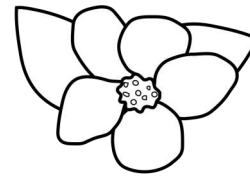


It all starts with a tiny little

\_\_\_\_\_.

But, within it is all the parts that make an apple tree grow and produce new fruit.

What is it?



Those pretty pink and white flowers aren't just the pretty part of the tree.

They grow past the flower stage into an \_\_\_\_\_.

What is it?

Once it's planted in the ground it'll need a little water to begin to grow.

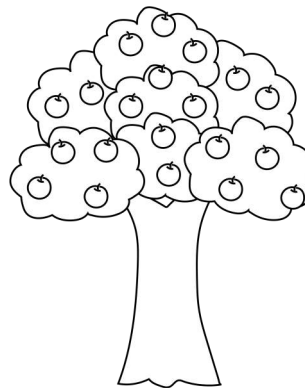
When you start to see a bit of green the

\_\_\_\_\_

has sprouted.



What is it?



Following the flowering stage the tree will begin to produce

\_\_\_\_\_.

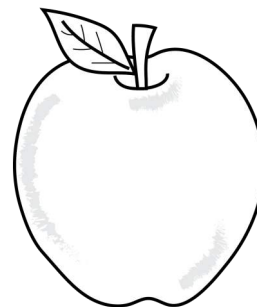
What is it?



Once the wood begins to appear you'll see a small tree which is called a

\_\_\_\_\_.

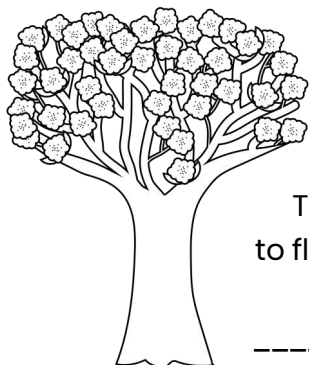
What is it?



This juicy,

\_\_\_\_\_ Can sometimes be sweet and other times are tart.

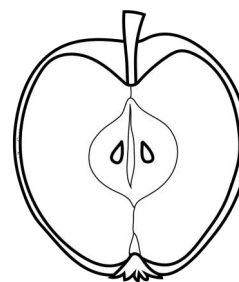
What is it?



In early spring The tree will begin to flower. These flowers are called

\_\_\_\_\_.

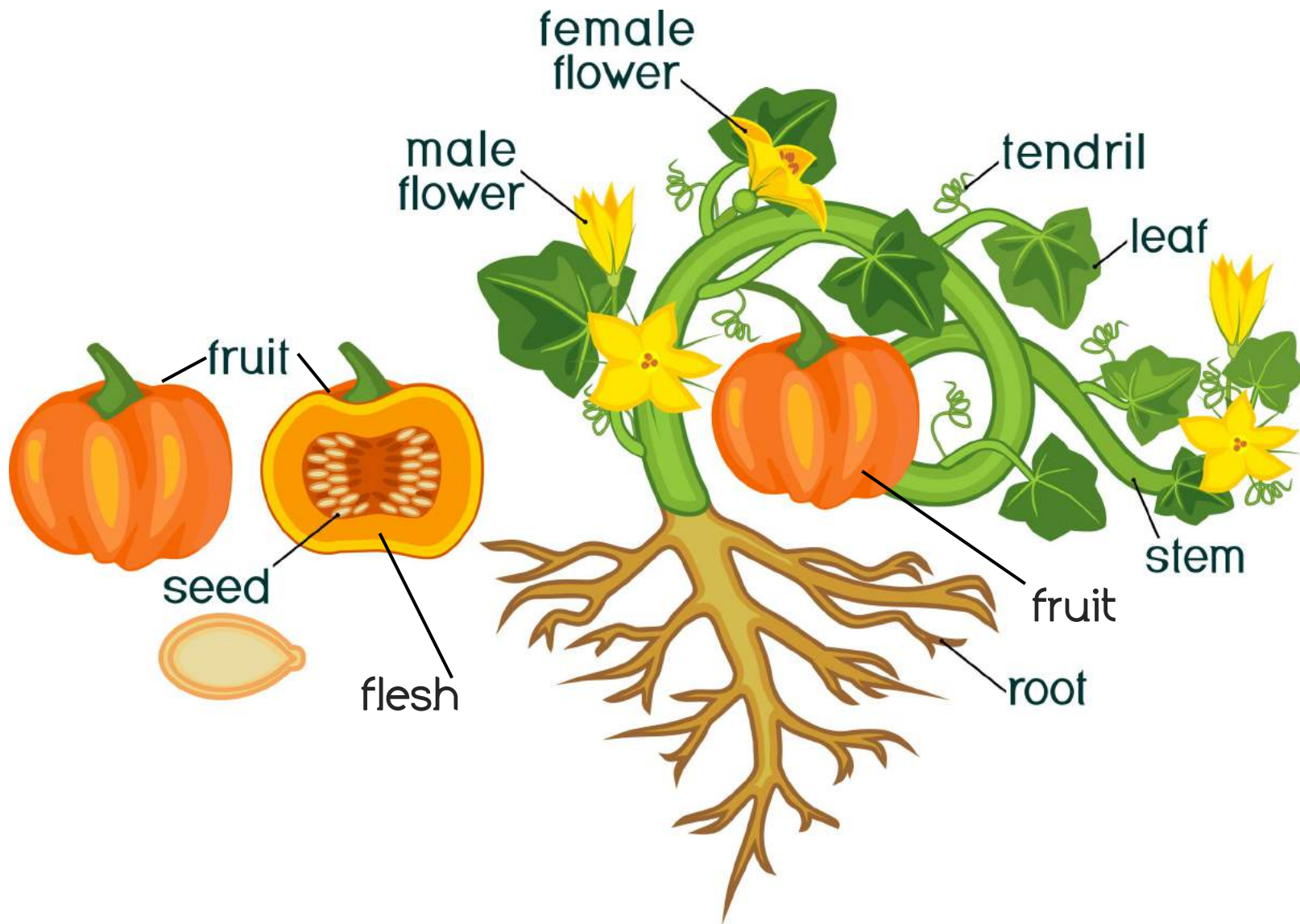
What is it?



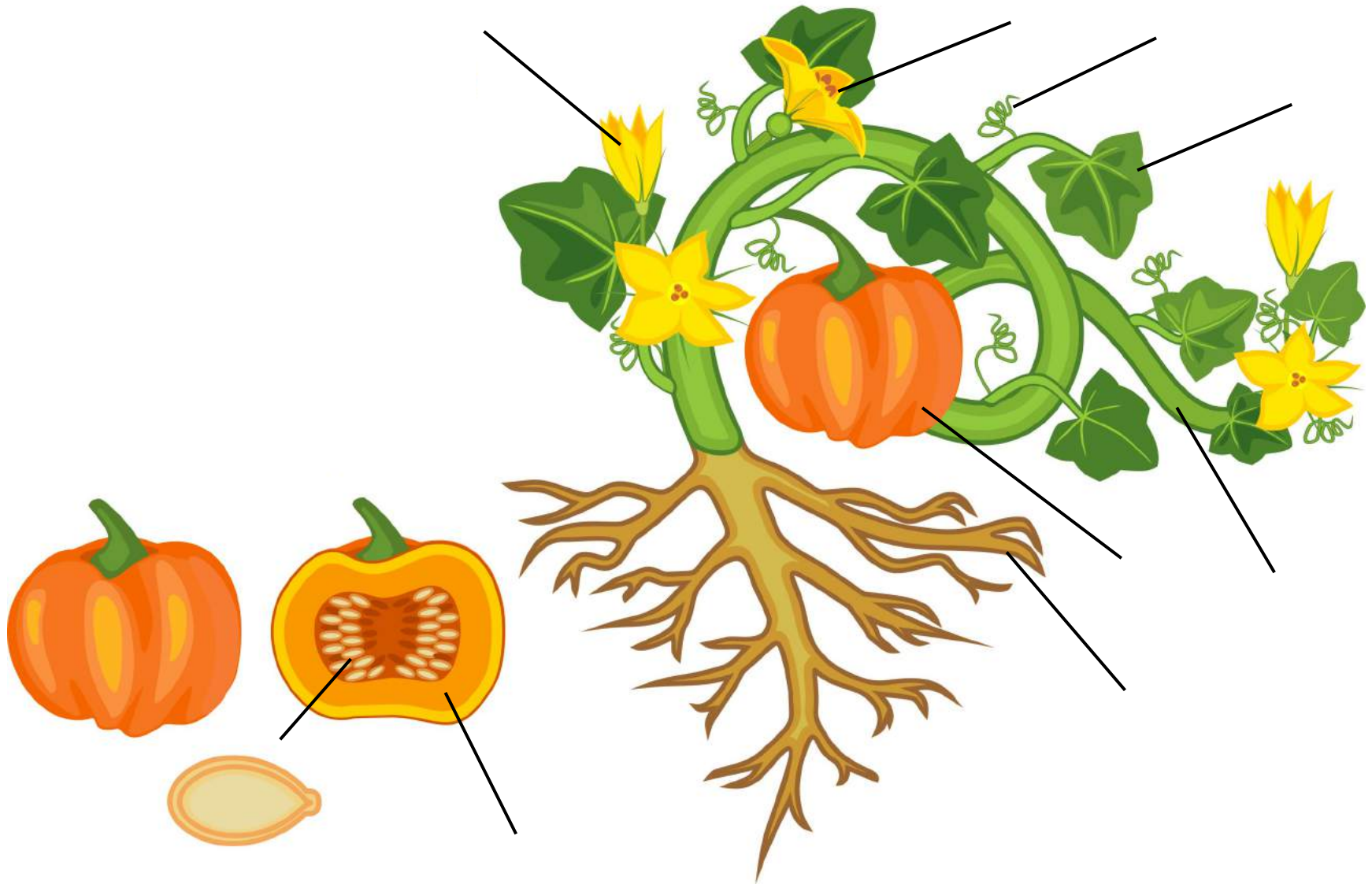
Hidden within each apple inside it's core is a tiny little

\_\_\_\_\_ that can be planted to start the process all over again.

# PARTS OF A PUMPKIN



# PARTS OF A PUMPKIN



# COLOR THE PUMPKIN



---

## CUT, SORT & LABEL

seed

male flower

female flower

root

leaf

flesh

stem

tendrils

fruit

# PUMPKIN STEM CHALLENGES

Add these pumpkin STEM challenge cards to a simple engineering kit filled with easy to find supplies. Encourage the kids to get creative! Fun individual or group activity.

## DESIGN & BUILD A PUMPKIN

Design and build a pumpkin to go along with the book, *The Legend of Spookley the Square Pumpkin* by Joe Trivino



**Possible Supplies:**  
Styrofoam cubes, foams, fabric, needle & thread, glue, tape, paper, googly eyes, markers

## DESIGN & BUILD A FENCE

Design and build a fence to hold five little pumpkins to go along with a favorite fall book, *5 Little Pumpkins* (several versions available).



**Possible Supplies:**  
Wood slats, popsicle sticks, rubber bands, rope, toothpicks, twigs, glue, tape.

## DESIGN & BUILD A TOWER

Design and build a tower out of index cards or cups that can hold a mini pumpkin on top without falling over. The tower must be at least two feet tall.



**Possible Supplies:**  
index cards, mini pumpkin, cups, tape, glue

LittleBinsforLittleHands.com

## PUMPKIN STEM CHALLENGE SUPPLY LIST

Acrylic paint	Golf tees	Scissors
Aluminum foil	Googly eyes	Screws
Baggies	Headphones	Screwdriver
Bicycle tubing	Knobs	Shoe boxes
Bushel baskets	LEGO® bricks	Shredded paper
Candy pumpkins	Magnets	Skewers
Cardboard	Measuring cups	Springs
Casters	Metal tubing	Stapler
Chicken wire	Mini pumpkins	Straws
Clothes pins	Needle and thread	Sticks
Coffee filters	Nuts and bolts	Styrofoam balls
Cotton balls	Paint brushes	Styrofoam cubes
Cotton swabs	Paper	Tape
Craft paper	Paper cups	Tape measure
Craft sticks	Paper clips	Timers
Files	Paper tubing	Tin can
Glue	Pencil	Toilet paper rolls
Index cards	Pipe cleaners	Tongue depressors
Index cards	Plastic cups	Toothpicks
Index cards	Plastic spoons	Toy apples
Index cards	Plastic pumpkins	Twine
Index cards	Plastic wrap	Twist ties
Index cards	Popsicle sticks	Washi Tape
Index cards	Pumpkins	Water
Index cards	Raffia	Wire
Index cards	Ribbon	Wooden planks
Index cards	Rope	Yarn
Index cards	Rubber Bands	Zip ties

# PUMPKIN STEM CHALLENGE SUPPLY LIST

- |                |                   |                    |
|----------------|-------------------|--------------------|
| Acrylic paint  | Golf tees         | Scissors           |
| Aluminum foil  | Google eyes       | Screws             |
| Baggies        | Headphones        | Screwdriver        |
| Bicycle tubing | Knobs             | Shoe boxes         |
| Bushel baskets | LEGO® bricks      | Shredded paper     |
| Candy pumpkins | Magnets           | Skewers            |
| Cardboard      | Measuring cups    | Springs            |
| Casters        | Metal tubing      | Stapler            |
| Chicken wire   | Mini pumpkins     | Straws             |
| Clothes pins   | Needle and thread | Sticks             |
| Coffee filters | Nuts and bolts    | Styrofoam balls    |
| Cotton balls   | Paint brushes     | Styrofoam cubes    |
| Cotton swabs   | Paper             | Tape               |
| Craft paper    | Paper cups        | Tape measure       |
| Craft sticks   | Paper clips       | Timers             |
| Doilies        | Paper tubing      | Tin can            |
| Dryer tubing   | Pencil            | Toilet paper rolls |
| Duct tape      | Pipe cleaners     | Tongue depressors  |
| Fabric         | Plastic cups      | Toothpicks         |
| Felt           | Plastic spoons    | Toy apples         |
| Flat marbles   | Plastic pumpkins  | Twine              |
| Foamies        | Plastic wrap      | Twist ties         |
| Foam board     | Popsicle sticks   | Washi Tape         |
| Food coloring  | Pumpkins          | Water              |
| Funnel         | Raffia            | Wire               |
| Gears          | Ribbon            | Wooden planks      |
| Glow stars     | Rope              | Yarn               |
| Glue           | Rubber Bands      | Zip ties           |



## DESIGN & BUILD A PUMPKIN

Design and build a pumpkin to go along with the book; *The Legend of Spookley the Square Pumpkin* by Joe Troiano.

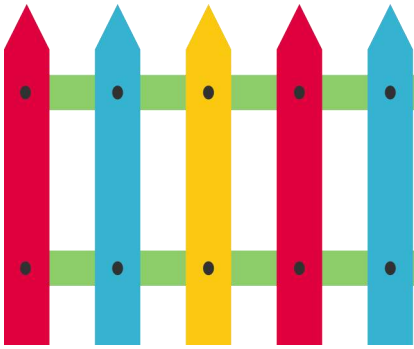


### Possible Supplies:

Styrofoam cubes, foamies, fabric, needle & thread, glue, tape, paper, googly eyes, markers

## DESIGN & BUILD A FENCE

Design and build a fence to hold five little pumpkins to go along with a favorite fall book, *5 Little Pumpkins* (several versions available).

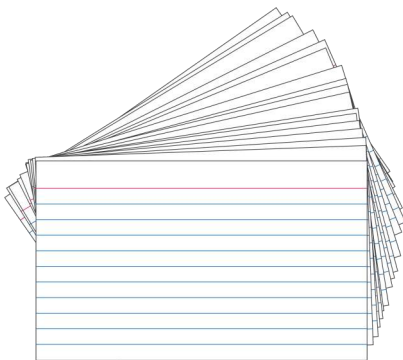


### Possible Supplies:

Wood slats, popsicle sticks, rubber bands, rope, toothpicks, twigs, glue, tape,

## DESIGN & BUILD A TOWER

Design and build a tower out of index cards or cups that can hold a mini pumpkin on top without falling over. The tower must be at least two feet tall.



### Possible Supplies:

index cards, mini pumpkin, cups, tape, glue





# DESIGN & BUILD A SIMPLE MACHINE

Design and build a simple machine to lift a pumpkin off the ground 12 inches or more.



## Possible Supplies:

Rope, pulley, gears, LEGO bricks, K'Nex, wood slats, springs, screws, hammer and nails

# BUILD A TOOTHPICK STRUCTURE

Test your skills and build a structure out of toothpicks and candy pumpkins.

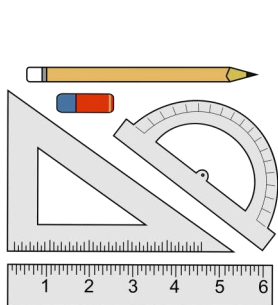


## Possible Supplies:

Toothpicks, candy pumpkins

# DESIGN & BUILD A CATAPULT

Build a catapult to chuck a pumpkin! Launch small plastic pumpkins. Use a variety of items to design a sturdy pumpkin chucking catapult!



## Possible Supplies:

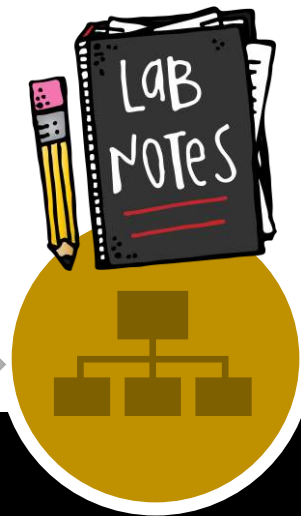
craft sticks, rubber bands, shoe boxes, plastic spoons, paper towel tubes, and more.

## Observe/Ask



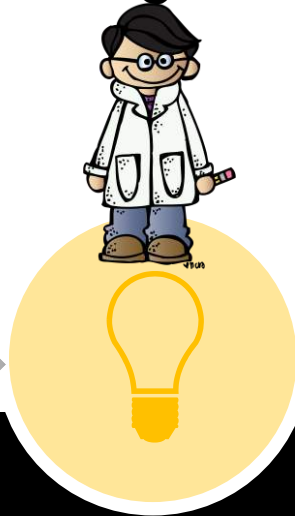
- What is the problem?
- What have others done to solve the problem?
- What are the constraints or limitations/guidelines?
- Who can help me solve this problem?

## Collect



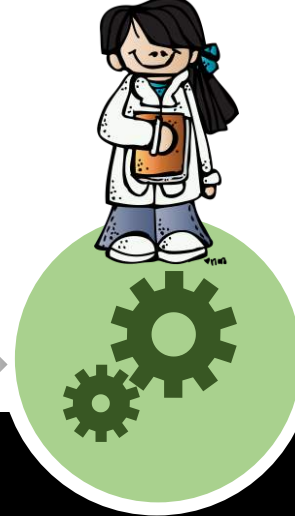
- What information will I need to solve this problem?
- What resources do I have/need to solve this problem?

## Imagine



- How can I solve the problem?
- Have I found an "out of the box" solution?
- Do I have more than one solution?

## Plan



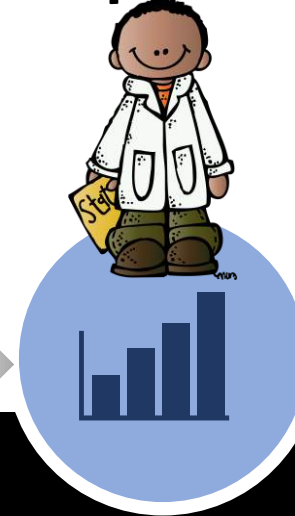
- What materials do I have/need?
- What steps will I take to solve the problem?
- What could go wrong?

## Create



- I will test my plan!
- I will take notes of the process/ my observations!
- I will draw/take pictures as I work for reference later!

## Improve



- I will reflect on my design.
- What changes can I make to improve my plan/solution?
- What does my data tell me about my first attempt?
- I will create another plan and retest!