
That's
BANANAS
A Comics Food History
of Banana Bread

That's BANANAS: An Introdction

I **LOVE** food...
and I spend a lot of time thinking about **FOOD**...

Who grows it?

How is it grown?

Where does it come from?

If you take a second to think about the swirlingly complex people, places, and systems that intersect to bring your favorite food to your plate, you'll realize that so much of the food we eat is **COMPLICATED**, **IMPRESSIVE**, and a little bit **BIZARRE**.

In this adventure, we explore the history and travels of the ingredients in one of my all-time-favorite-foods: **banana bread**.

From sugar to flour to eggs to our hero, the **BANANA**, this collection of comics will take you on a wild journey from farm to fork.

Why comics?

Effectively communicating science (or anything really) can be a diffcult task.

You learn a lot during the research phase, and then you have to figure out **how** share what you've learned with an audience.

Comics forces you to break down that information into digestible (ha) parts...

...and to consider what you show and what you tell.

Oh, and it's pretty fun.

We hope next time you sit down to eat your favorite food, you'll take a second to marvel at all of the coordination, collaboration, and hard work behind each meal.

We also hope you'll be kind to the bruised bananas. They've traveled far to find you, and deserve to be enjoyed, whether as a tasty snack or as the star your very own banana bread adventure!

Dr. Emily Burchfield

Maris Wicks

EXISTENTIAL CRISIS

THE BANANA: A HISTORY

1 CUP

WOW

BANANA BREAD

2-3 very ripe bananas, peeled
(about 1 1/2 cups mashed)

1/3 cup butter (76 g)

1/2 teaspoon baking soda

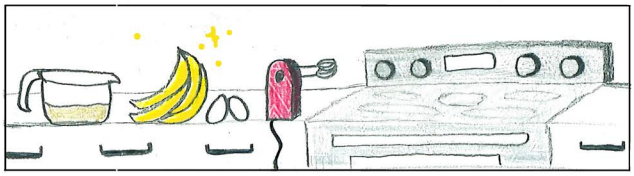
1/2 teaspoon salt

3/4 cup sugar (150 g)

1 large egg, beaten

1 teaspoon vanilla extract

1 1/2 cups all-purpose flour (205 g)



1. Preheat oven to 350°F (175°C)
Butter an 8x4 inch loaf pan

2. In a mixing bowl, mash the bananas
and add the butter.

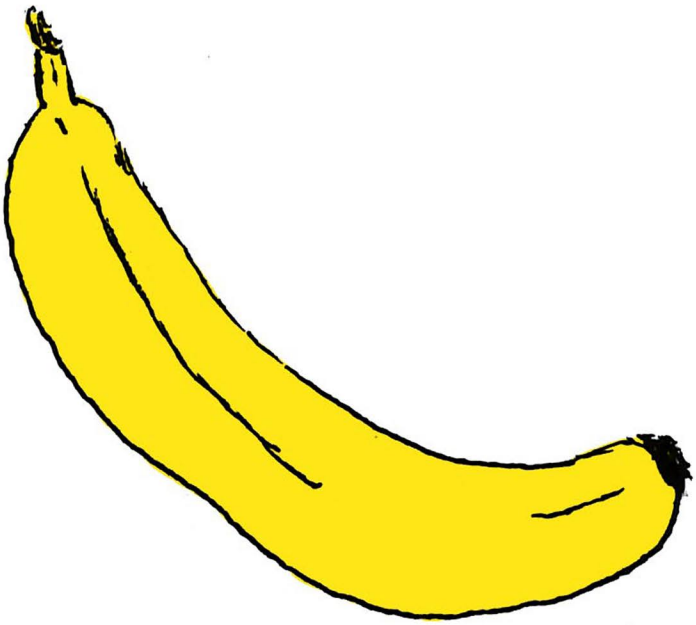
3. Mix in the remaining ingredients: baking soda
and salt; sugar, egg and vanilla; then the flour.

4. Pour batter into prepared loaf pan.

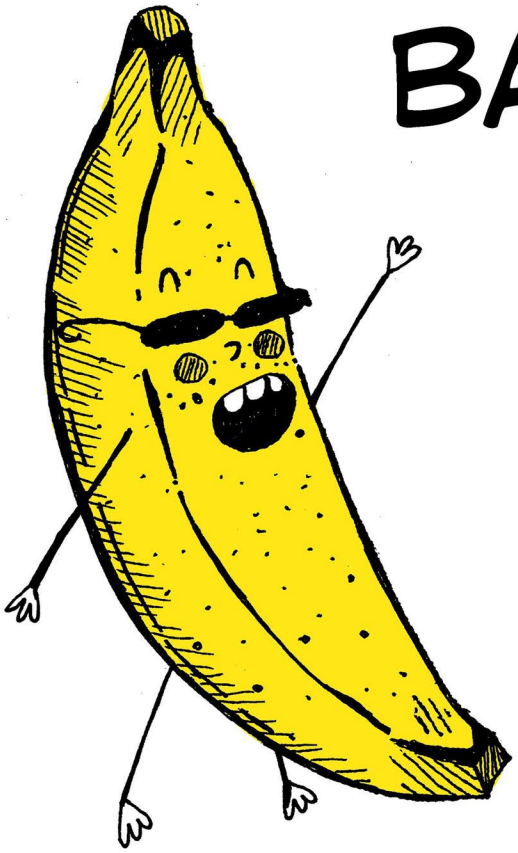
5. Bake! 55 to 65 minutes, or until a toothpick
inserted into the center comes out clean.

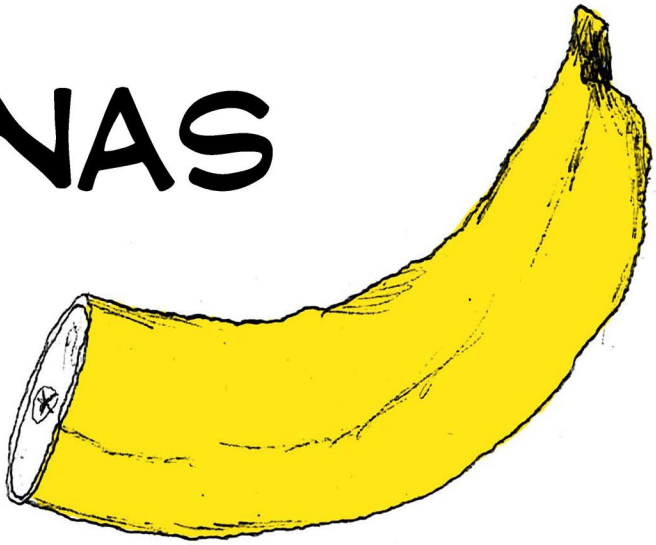
6. Remove from oven and let cool for
10 minutes. Take the bread out of the pan
and let cool until room temp.

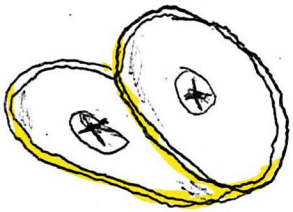
Wrapped bread will keep at room temp
for 4 days. Freezes well too!



BANANAS

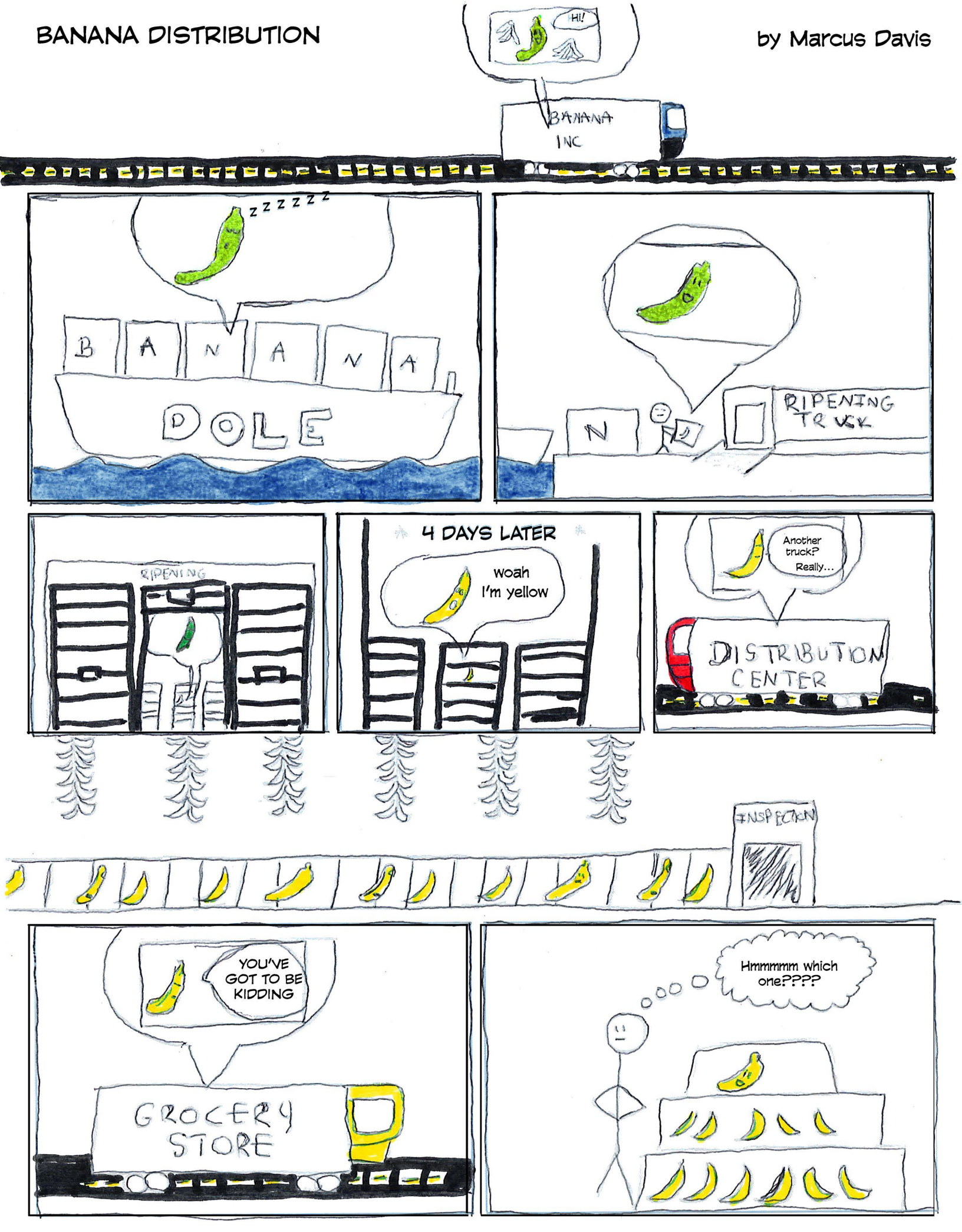






BANANA DISTRIBUTION

by Marcus Davis

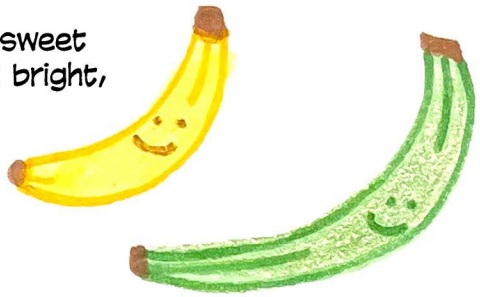


BANANAS IN LIFE

by Hallie Garcia

Although we're different,
we're one in the same:

I'm sweet
and bright,



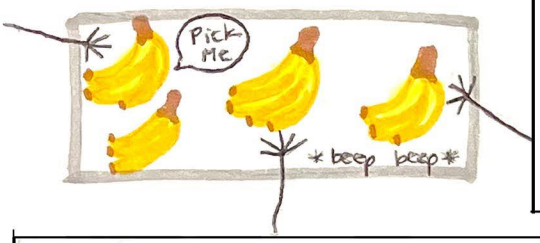
my cousin is the plantain.

We sit in the gorcery ailse side-by-side,

they stay green longer;
they like to take pride

I shine yellow, golden,
eager to go

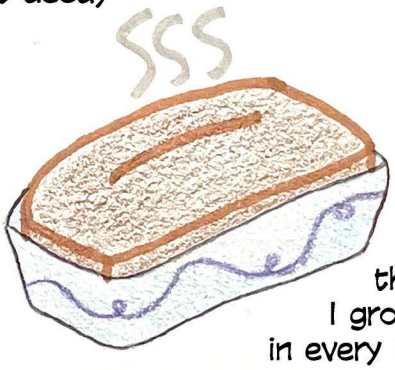
the color of taxis
lined up in a row



I'm soft and soothing
for bellyache days,

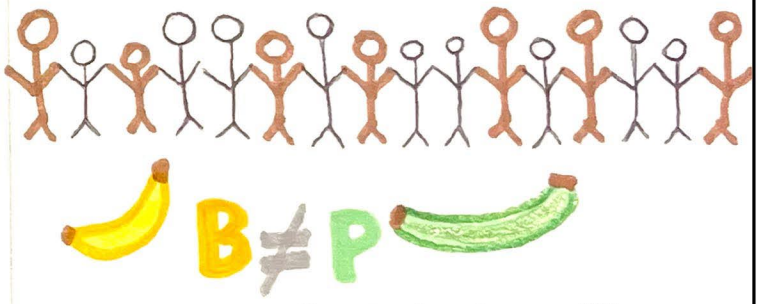
but leave me too long
and I brown in a haze.

When I'm mushy and spotted,
don't call it decay



that's when
I grow sweeter
in every bake tray.

For generations, we've fed families wide



So why treat our differences
like something to divide?

Banana or plantain,
we're yum either way:

Fried, baked,
crisped, or mashed,
we're equals, I'd say!

And even my peel still
has wisdom to lend,

soak it for plants,
it'll help them ascend.

My tale ends gently
inside of your belly,
just don't overdo it,
things might get...

...smelly!

HISTORY OF THE BANANA

by River Somerville

It aint easy being a banana I tell ya - I come from a long line of traveling seeds, and dirty deeds.

Why's that, you ask?

Well, let's go back to where it al started...

≈10,000 years ago

In 8000 BCE, I was found in S.E. Asia where I was first cultivated around Kuk, New Guinea.

One Chinese historian described my varieties, like the ones you see here.

turn of the 15th century

See me here in India, where I am thriving in trade with countries like Kenya. Soon the Spanish and Portugese will take me to the new world!

bananas

OUCH

It wasn't that easy, though. Countless hands toiled and perished to make me what I am today. Have you ever heard of a *BANANA REPUBLIC*?

Noooo, not that one!

BR

Banana Republic?

This is a term used to describe countries whose governments were taken over by produce monopolies like the United Fruit Company (now Chiquita/Dole).

Bananas

UNITED FRUIT CO.

Dole

Chiquita

This made their economies reliant on growing single crops, like bananas (me!) just to survive.

They were often owned by Americans like Minor Cooper Keith, who during the Roosevelt era, overtook the Costa Rican economy.

Many people were forced into slave-like conditions to harvest the bananas we love today.

BIG MIKE

CAVENDISH

I've had many names and many diseases.

PANAMA DISEASE (FUNGUS)

PANAMA

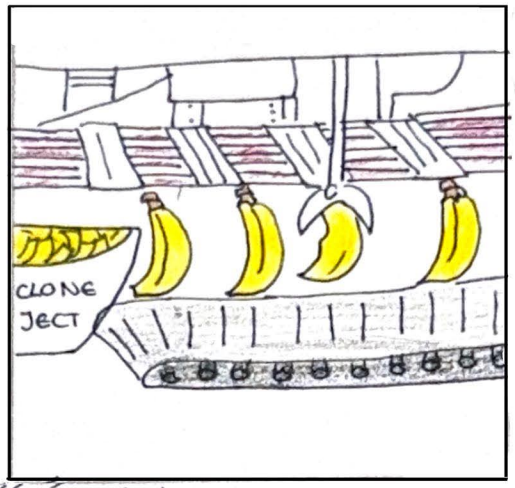
HELP!

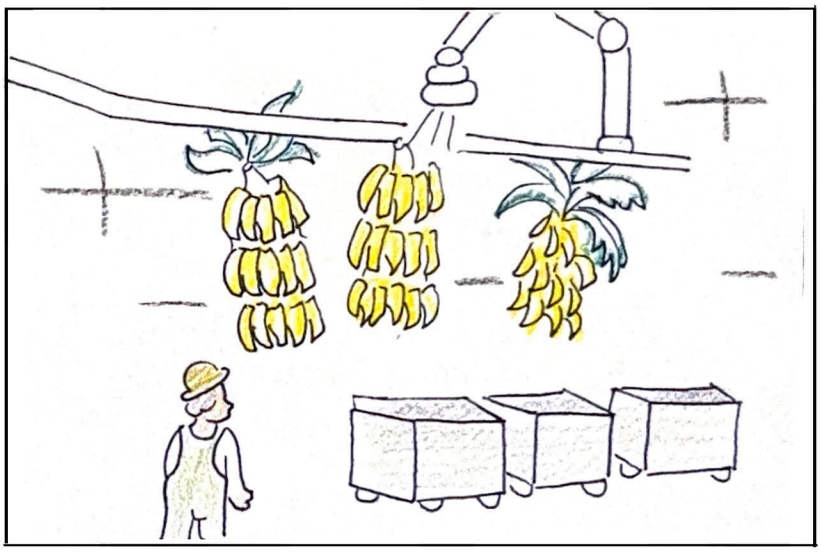
Nonetheless, I wouldn't be here without colonialism and cheap labor!

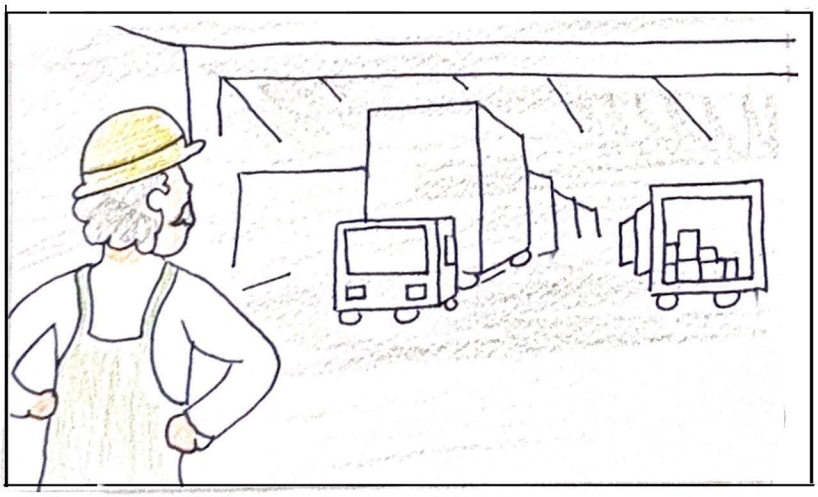
Put some respect in my name!

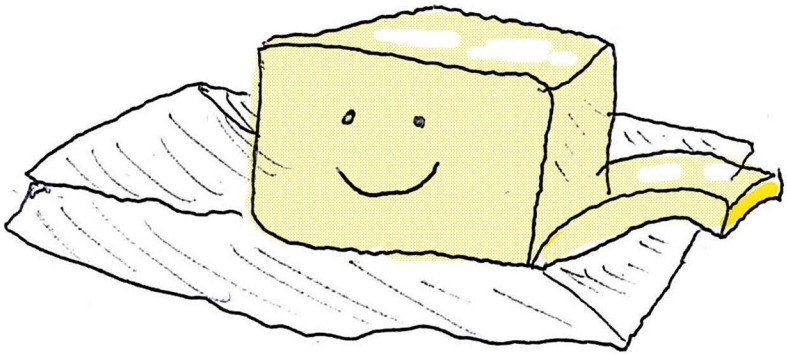
BANANA PRODUCTION

by Carolina Viniegra

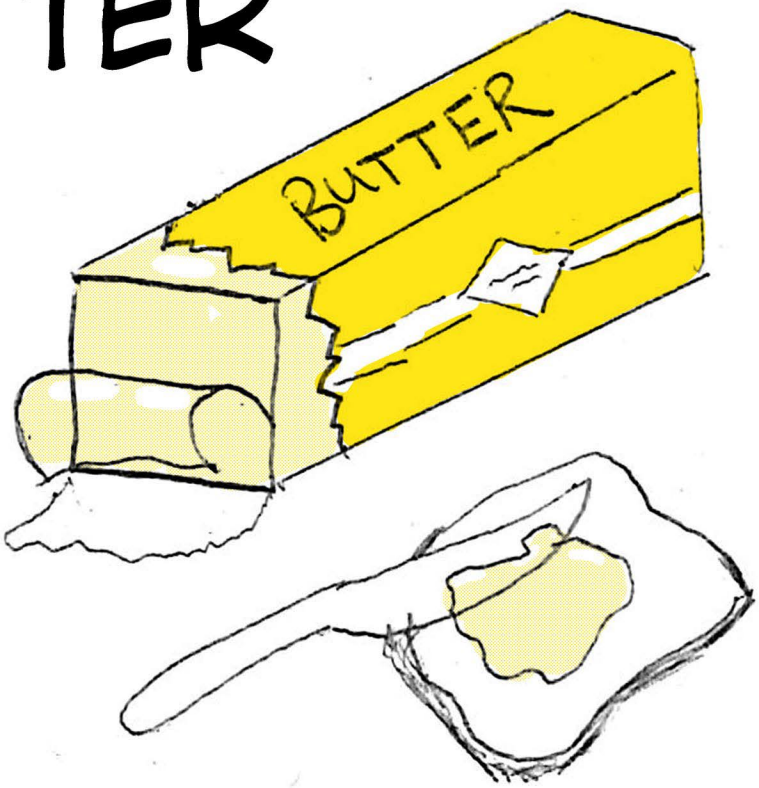






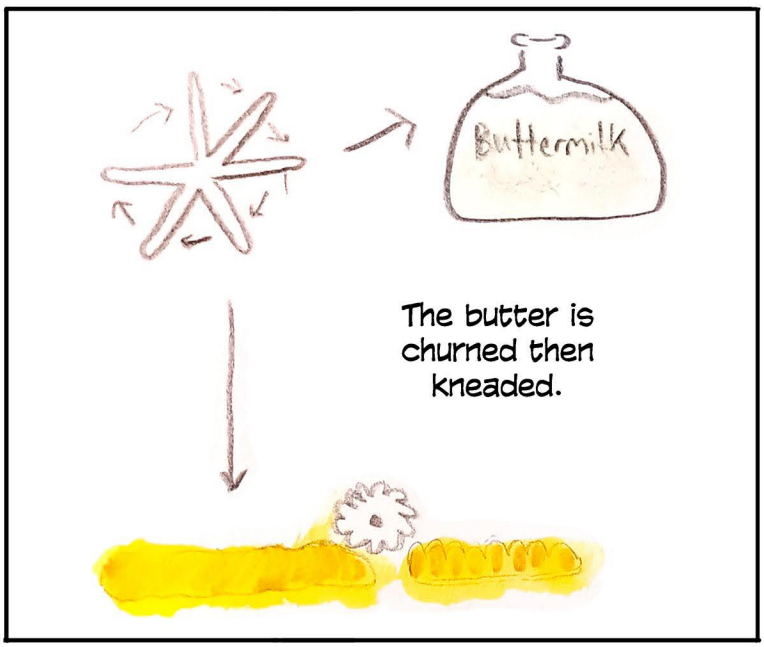


BUTTER



BUTTER

by Nia Atcherson

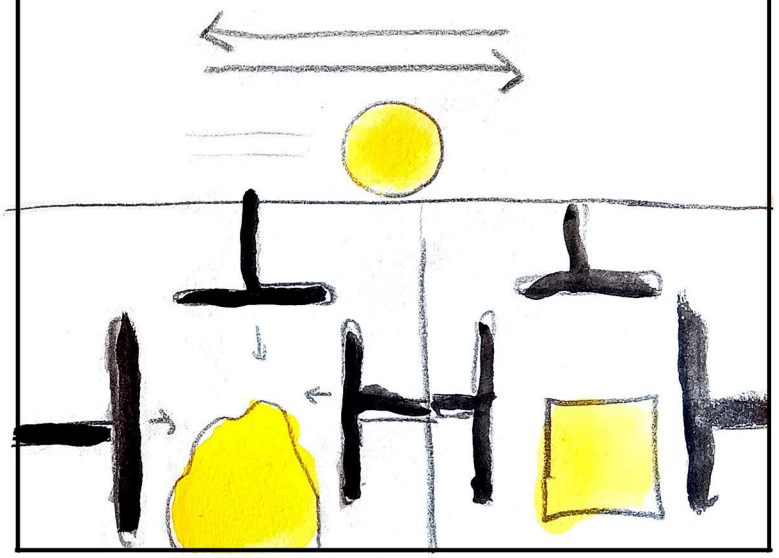


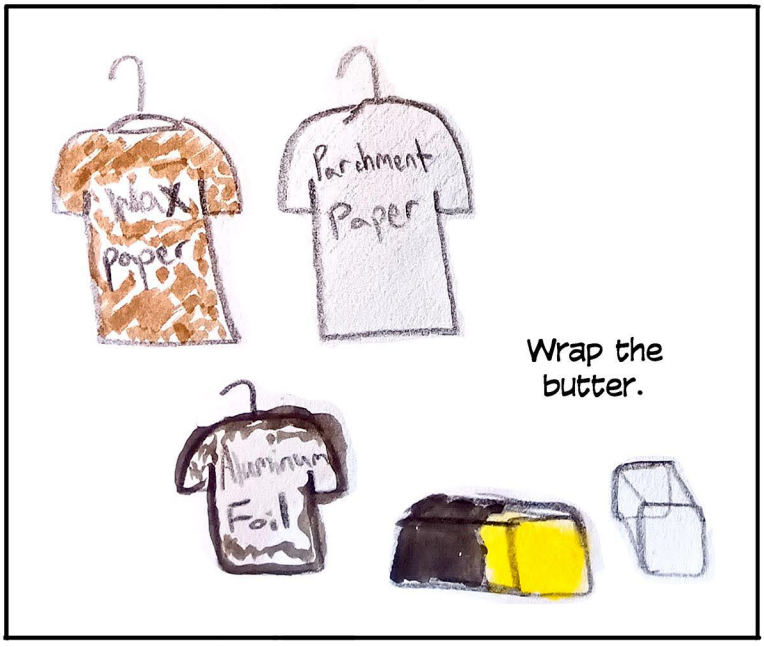
The butter is churned then kneaded.

The buter is then salted for flavor and presentation.

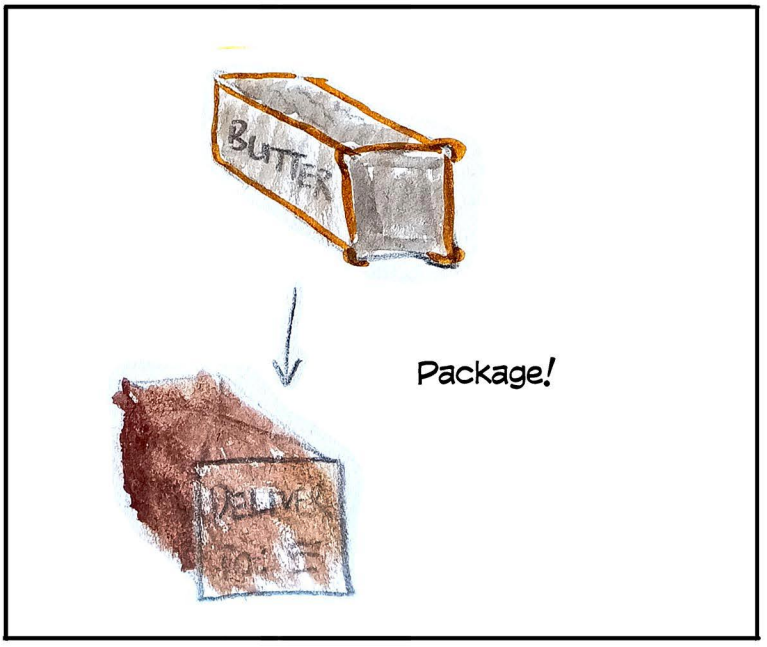
Flavorings are added.

The butter is shaped.





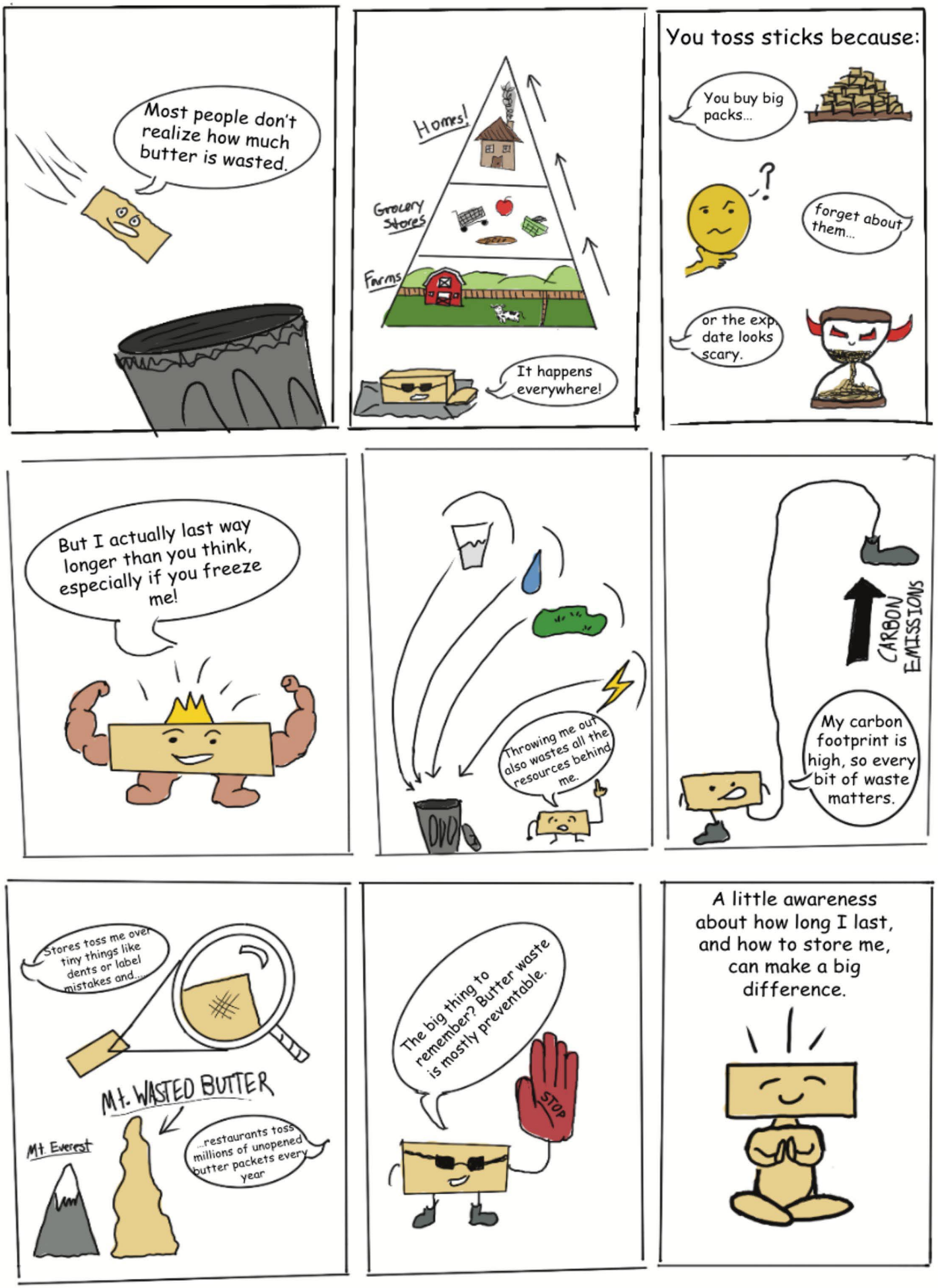
Wrap the butter.



Package!

BUTTER

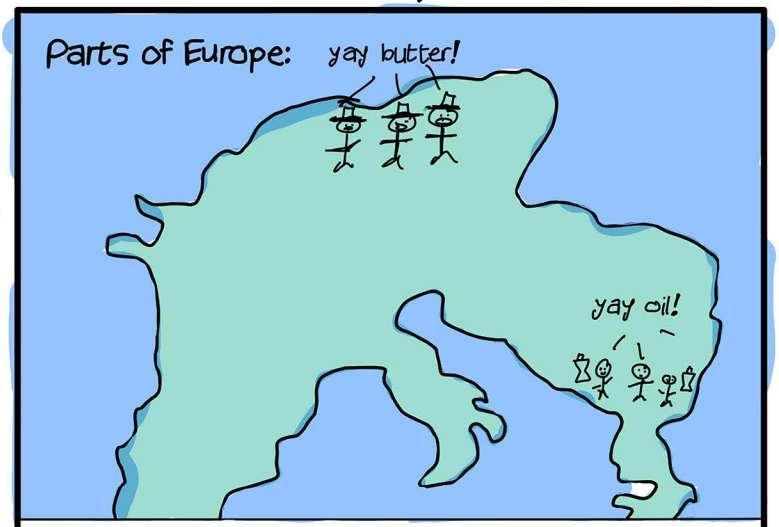
by Sawyer Dolgins



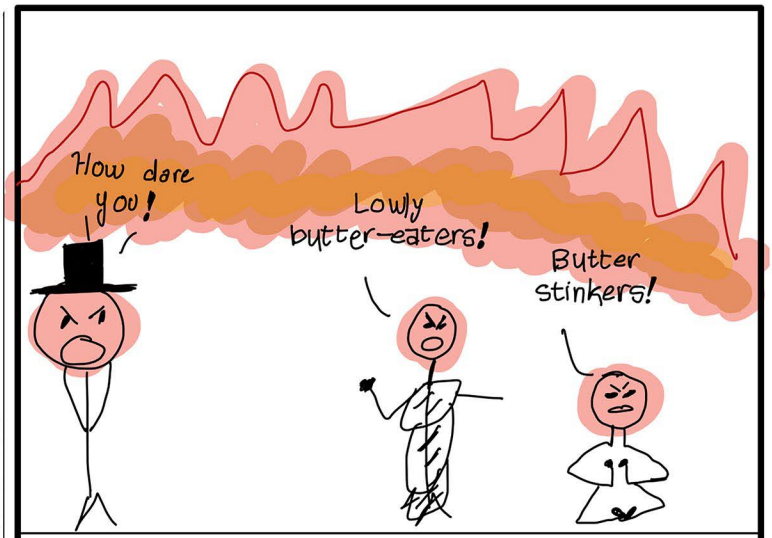
BUTTER

by Makenna Persaud

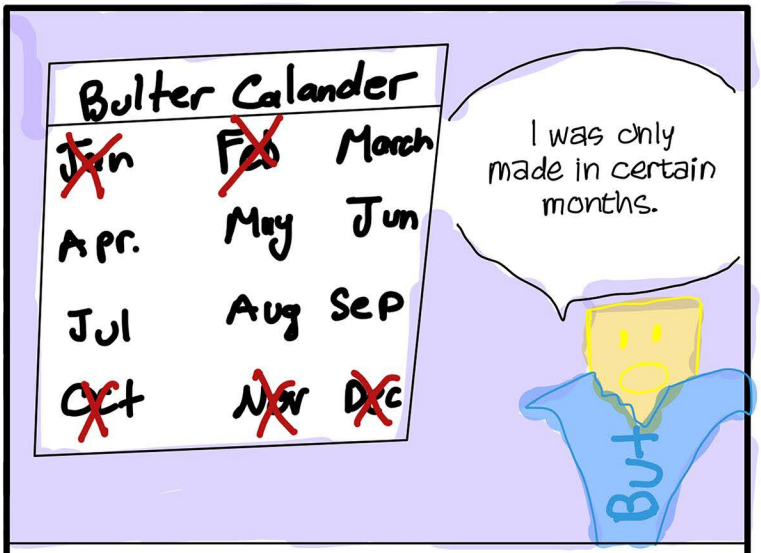
Butter was discovered by nomadic people in 6,500 BCE. They would put milk sacks attached to their pack animals and have that be how milk was churned into butter



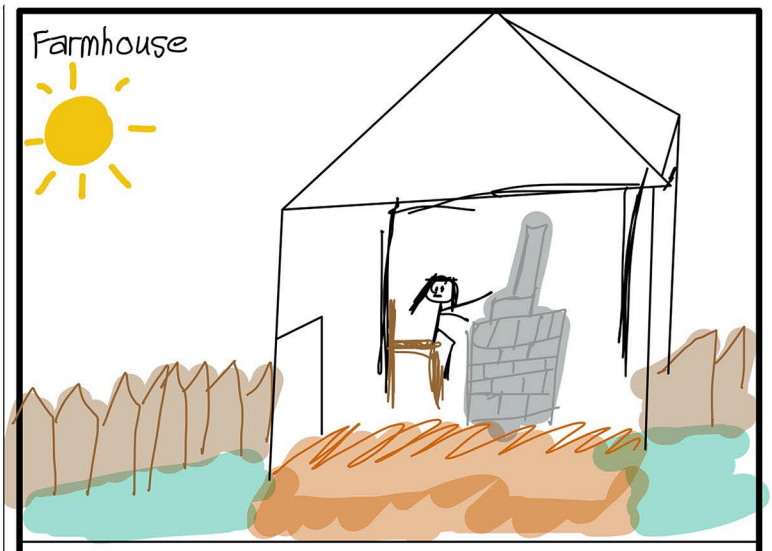
Butter was later adopted by people in parts of northern Europe. This contrasted peoples who lived further south in places like the Mediterranean, who used different ingredients like oils. This created cultural divisions between the North and South.



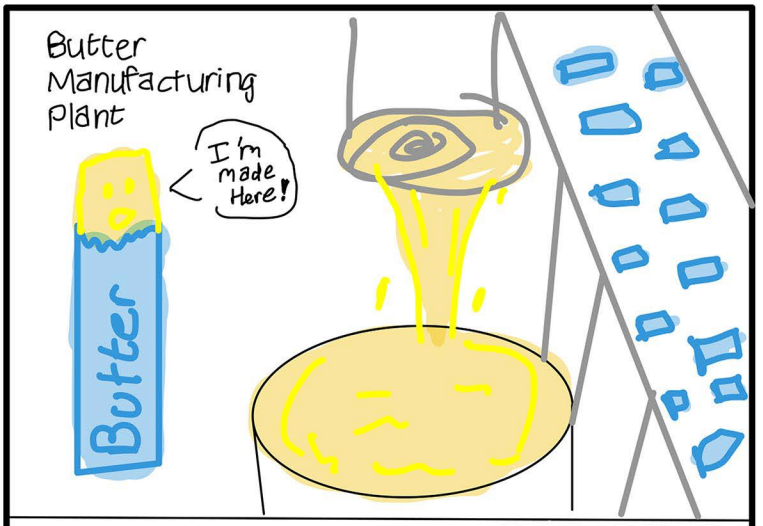
Fun fact The ancient Greeks referred to those in the north of Europe as lowly 'butter eaters', while Japanese Buddhists rebuked them as 'butter stinkers' for their dependence on dairy.



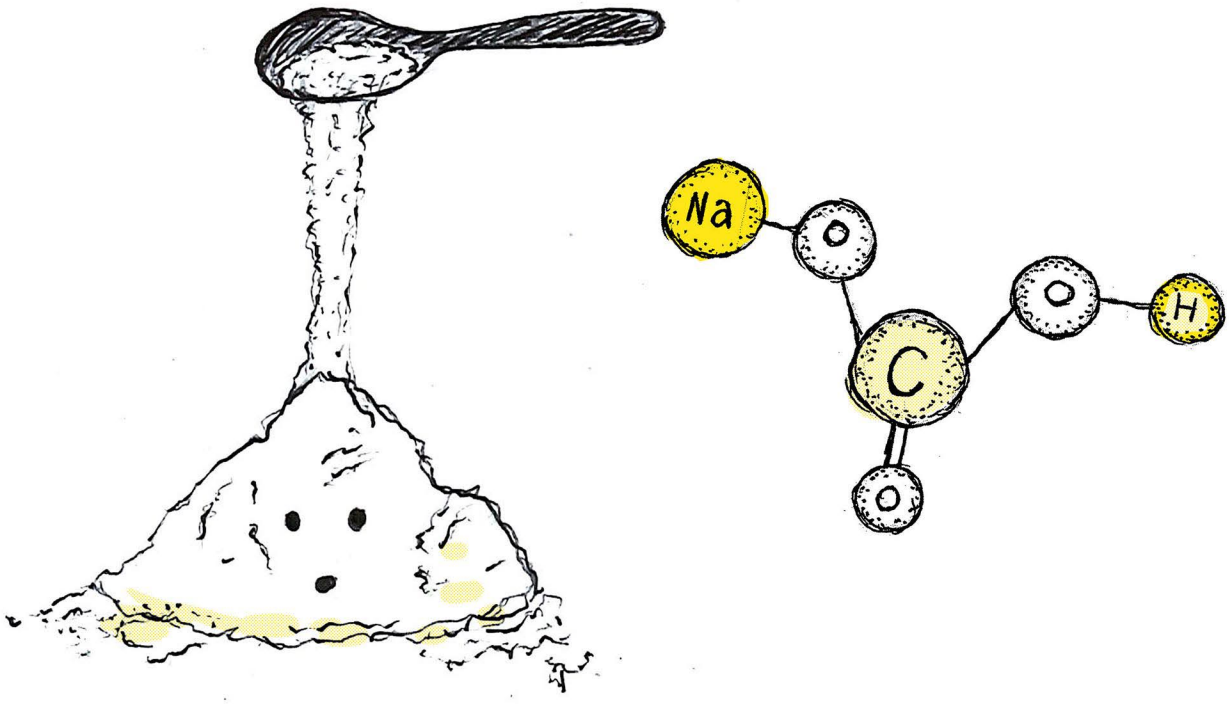
Butter started in only a seasonal capacity, but there were technological advances that allowed butter to be made all year round!



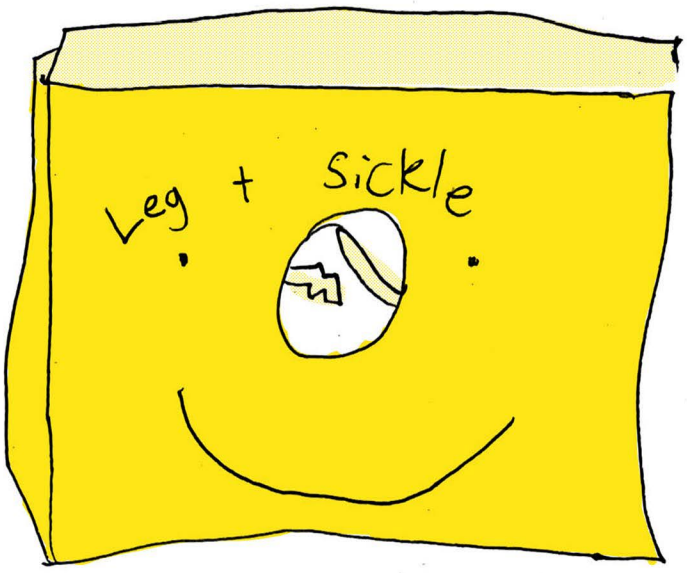
It started off being made manually in a farmhouse, but now it is made in large scale butter manufacturers



The process starts off with the milk, which goes from pasteurizing, culturing, and then tempering. Then the milk is churned and turned into butter You can then salt and work and package the butter

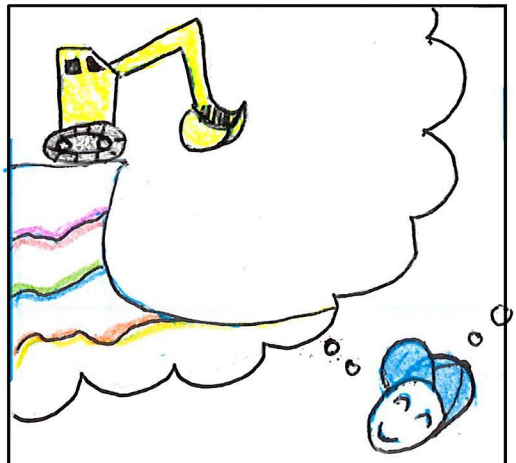


BAKING SODA



DISTRIBUTION OF BAKING SODA

by Stella Rae Kinard



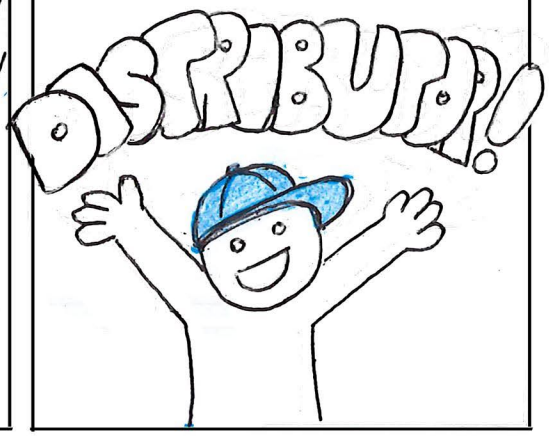
If our friend Sody—
I call him bicarb for short—
comes from trona deposits
and nalicolite in the ground...

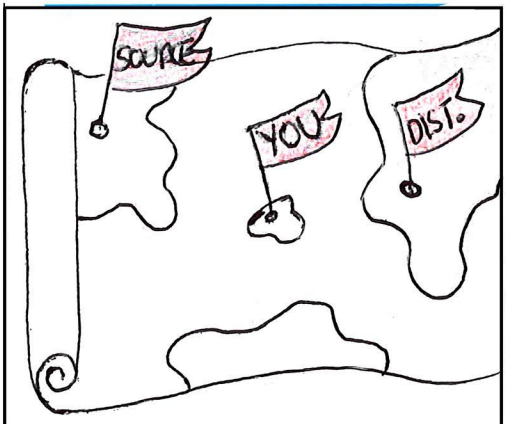
...or the chemical process
in a big fancy lab...

How does it get to
the people who use it?

Well that is
where I come in.

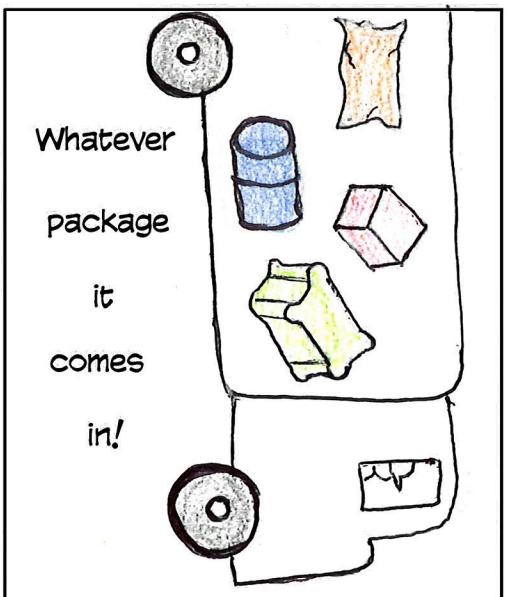
I am what you call a



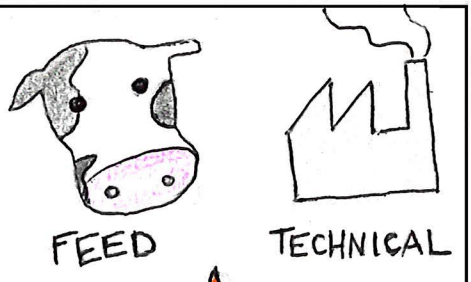


No matter how far across
the globe you are, there's
a distributor for you...even
if it's further from them
than you are.

We collect from all over!
Wyoming, Colorado,
California, Turkey, China,
India to name a few...

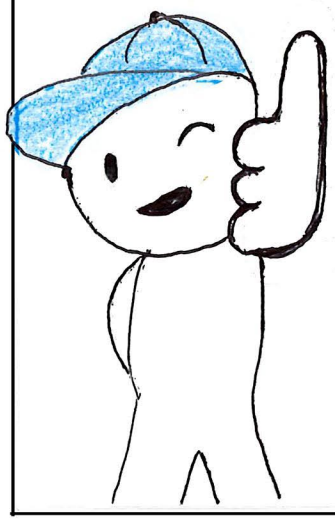


Whatever
package
it
comes
in!



Whatever purpose
it's headed toward!

WE are here to deliver!



And keep
you from
getting
straight
to the
source.

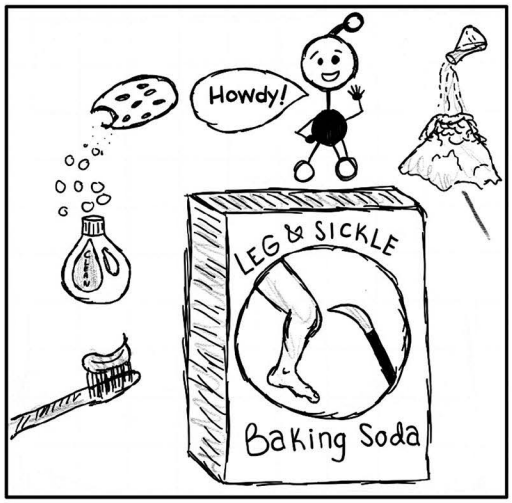
DING! DONG!

Oh look, Trony!

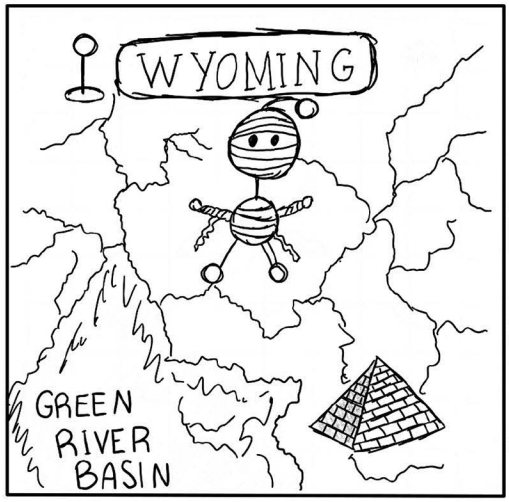
Yours
has
arrived!

HISTORY OF BAKING SODA

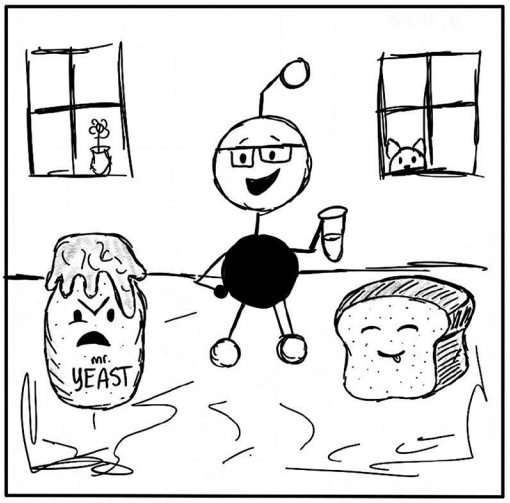
by Michelina Schach



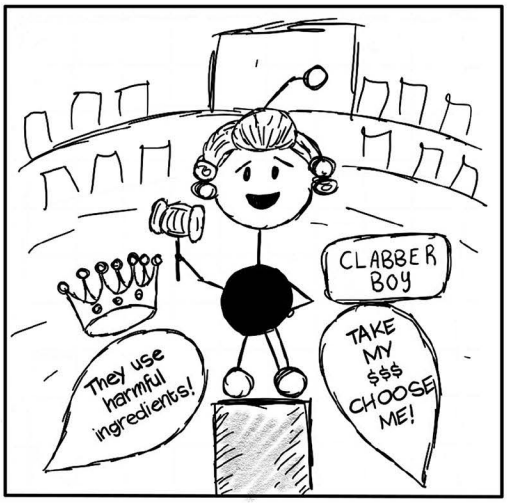
Howdy, the name's Sody. I'm in your toothpaste, detergent and desserts, but do you really *know* me?



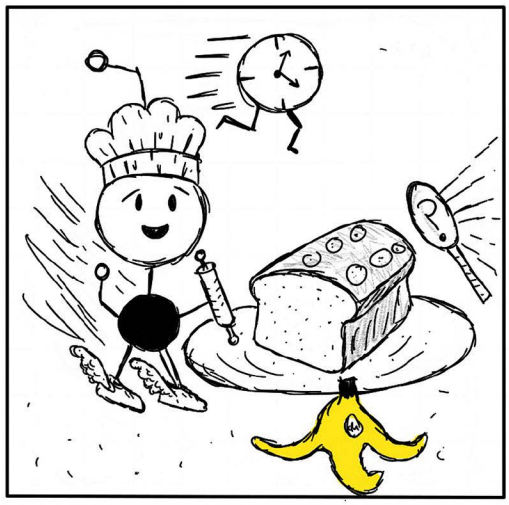
I've been around. I helped Egyptians with mummification! Then, I took a long nap in a lake in Wyoming.



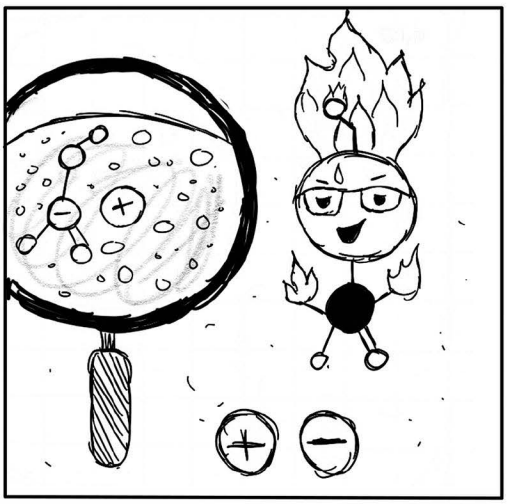
In the 1800s, scientists woke me up. They wanted to bake with something less moody that yeast. I'm quick and easy.



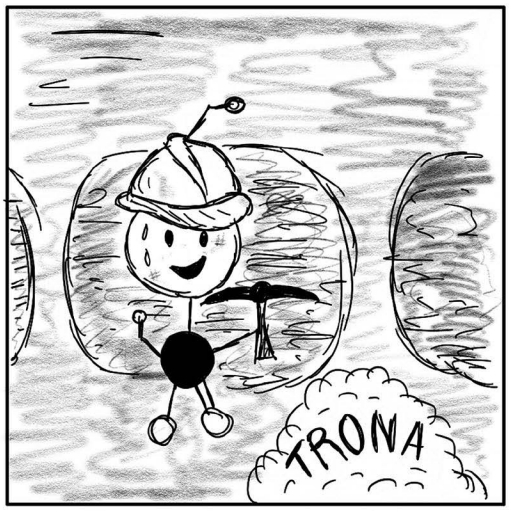
My discovery sparked the "Baking Powder Wars" where companies used health fears and bribed politicians to win!



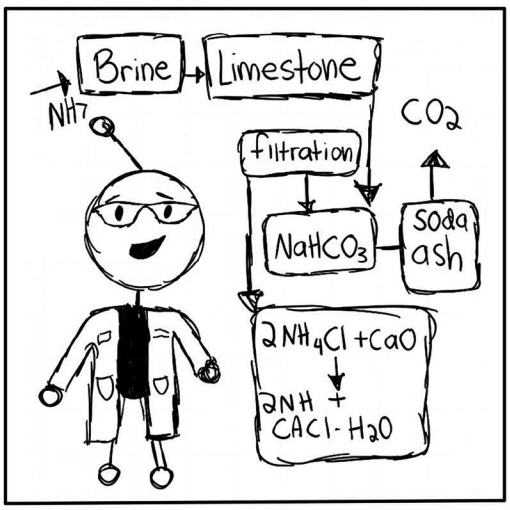
Why the fight? Because I revolutionized baking! And everyone wanted to claim my success.



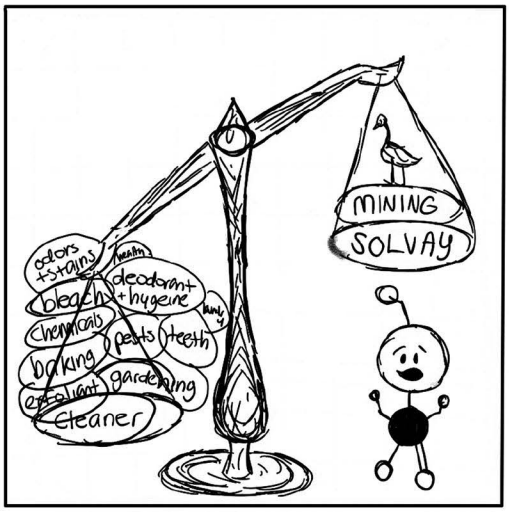
I'll tell you my secret: I duke it out with acids in the your batter, and we release CO_2 bubbles to make your bread light and airy!



I'm mostly derived from a mineral called trona mined in those ancient Wyoming lake beds.



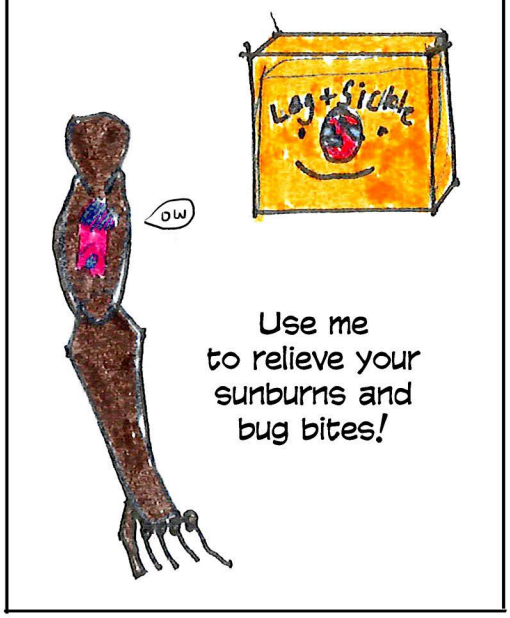
Or, I'm manufactured synthetically using the Solvay process which reacts salt, limestone, and ammonia.

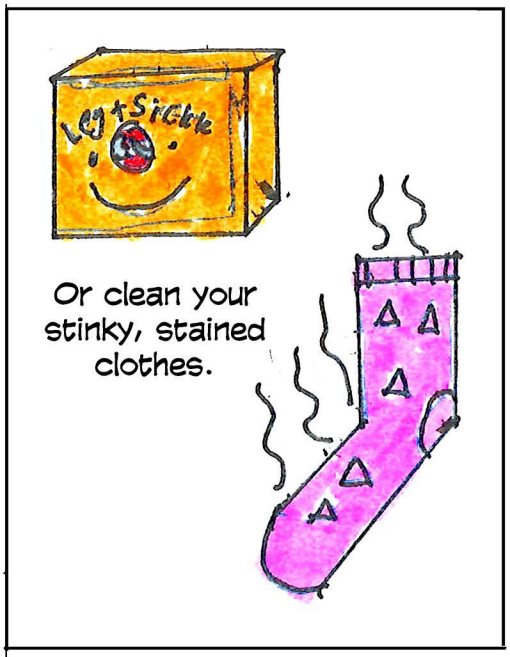


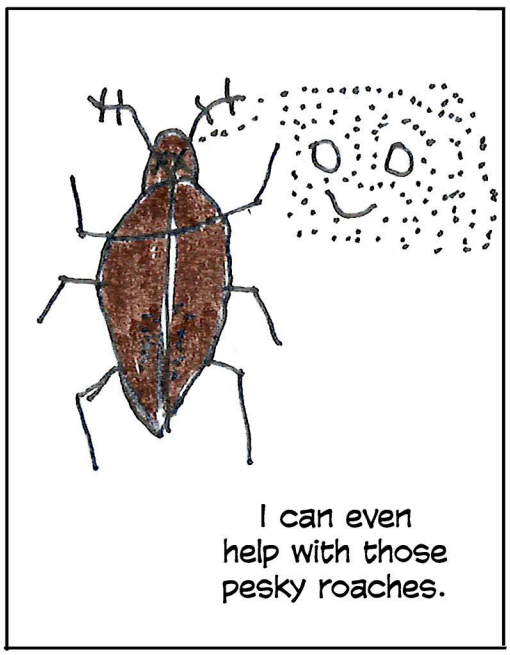
I know I'm not perfect. But compared to the hundreds of harsh chemicals I can replace, my eco-footprint is pretty low!

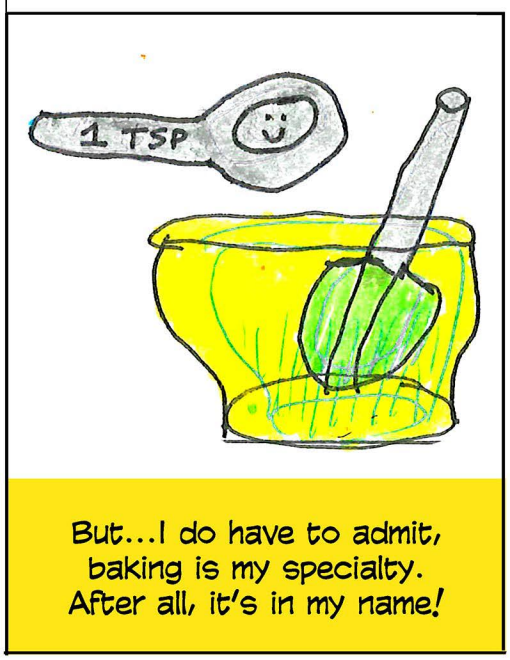
BAKING SODA

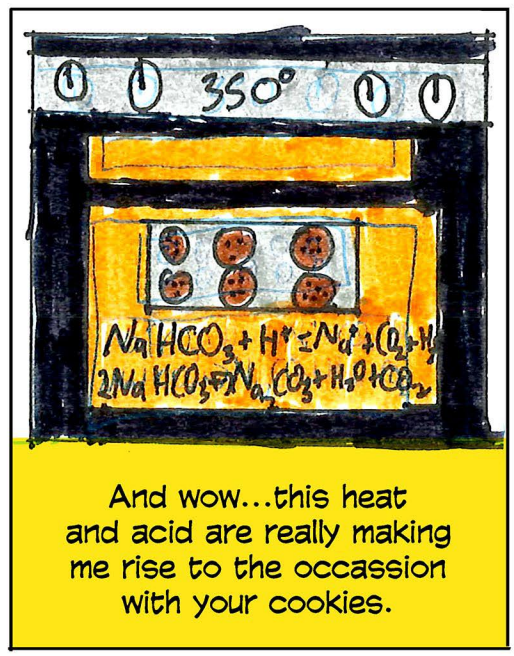
by Deven Shah

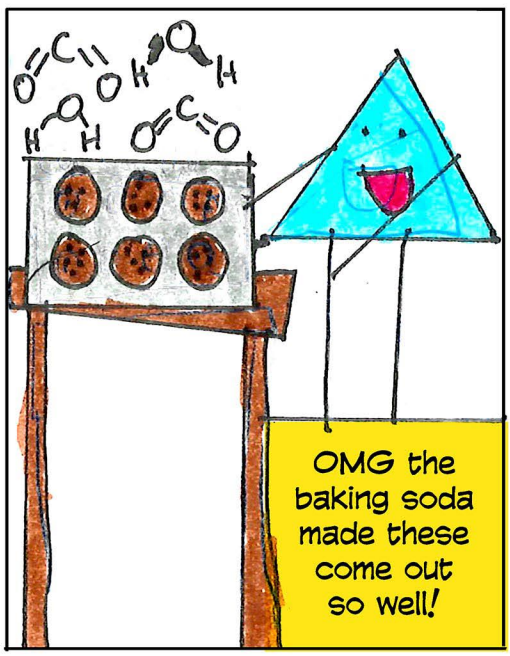




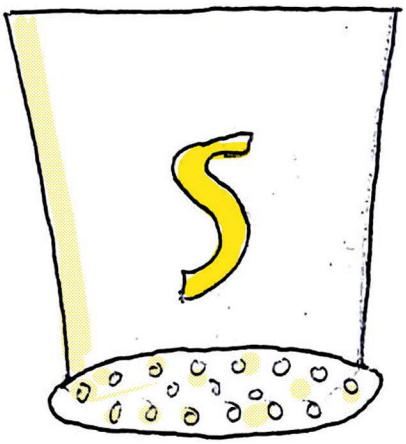


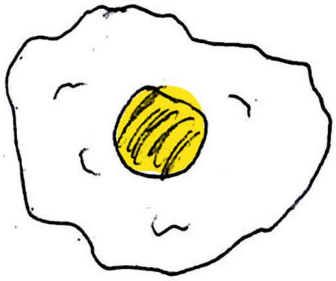






SALT



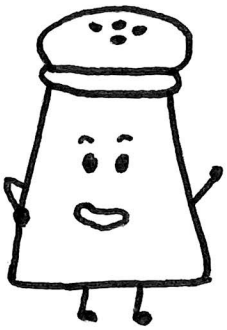


SALT

by Joanna Gould

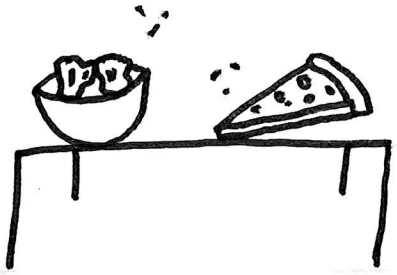
Everyone thinks
they know me:

Tiny, white, addicting.
But I'm more than a sprinkle.
I'm culture, comfort, and
controversy all in one.



How some people
use me says a lot about
who they are.

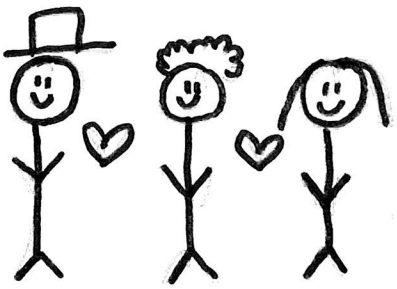
Some cultures cook with
me from the start, others
add me at the table.



I bring people together, from
Sunday dinners to snack runs.

I make food taste
like memory, like home.

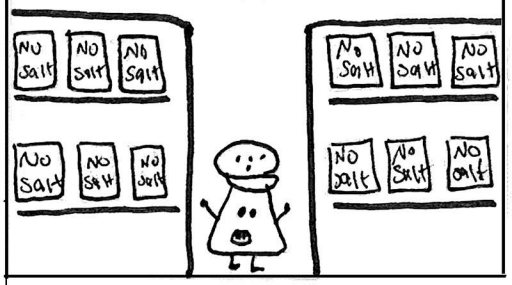
You can't measure
that in milligrams.



Lately, I've got an
identity crisis.

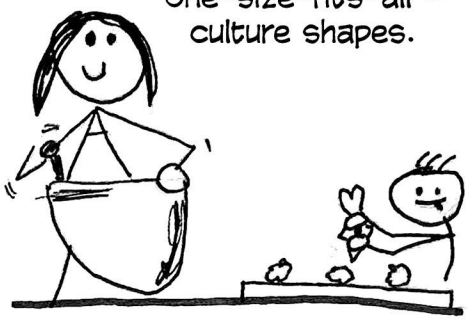
Everyone's telling folks
to cut me out, but they're
missing the point.

The problem isn't me,
it's the processed foods
I'm trapped in.



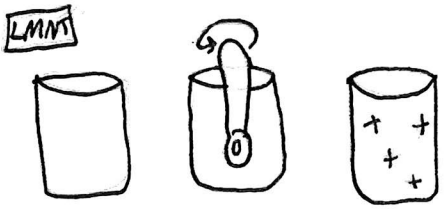
Some groups
use me more in cooking,
others try to reduce me
on doctor's advice.

Health isn't a
one-size-fits-all -
culture shapes.



Doctors warn about
blood pressure, but athletes
and brands like LMNT say
I'm a hydration hero.

Truth is, it depends -
lifestyle, genetics, even
how much you sweat.



Most of my mischeif comes
from hidden sodium in soups,
breads, and sauces.

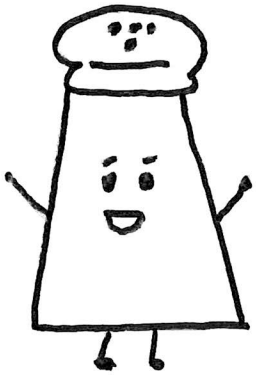
Cooking at home or
using herbs and citrus keeps
flavor without overload.

In some places,
I still mean friendship, purity,
or protection. Whether you
sprinkle me in soup or offer
me at a ceremony.

I'm part of how
humans share care.

I'm not the enemy!
I'm the BALANCE!

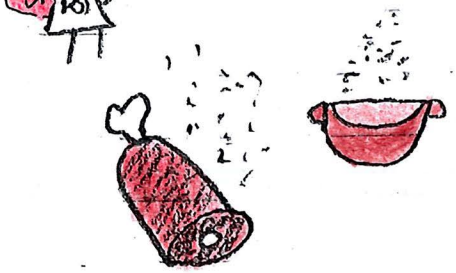
A story of taste, culture,
and connection that keeps
life from going bland.



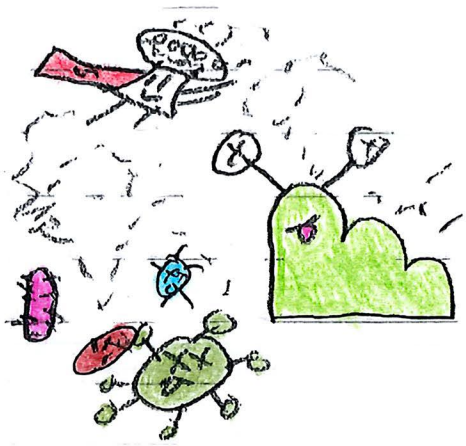
SALT

by Jason Huang

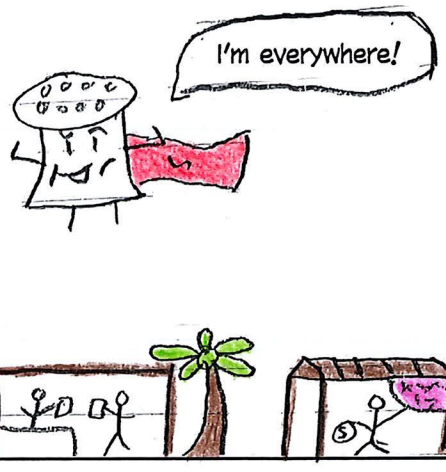
Hello! I'm salt! I've been used since prehistoric times to season and preserve food..



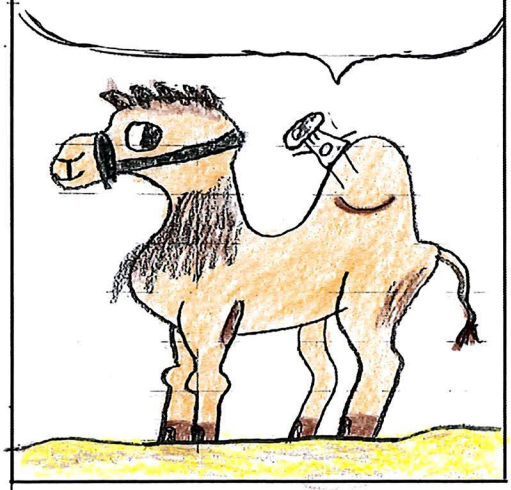
I was also used to kill bacteria and get rid of pests like slugs.



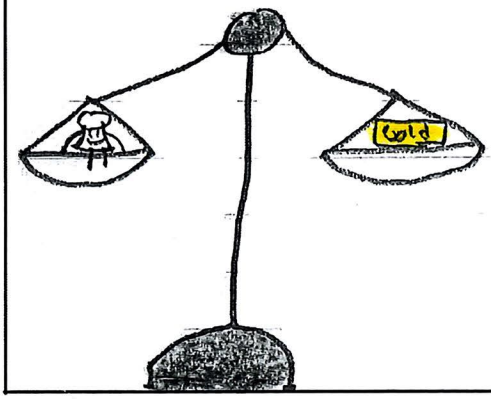
Due to my importance, the salt trade boomed in places as Northern Africa.



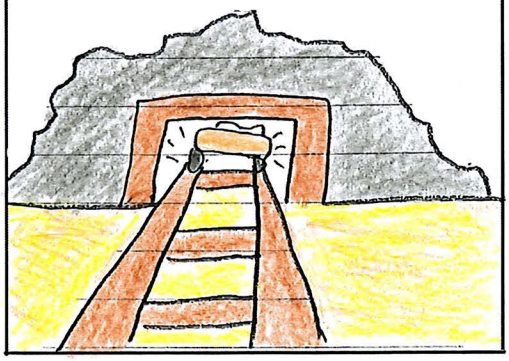
Caravans of camels carried me from the mines to salt-sparse regions.



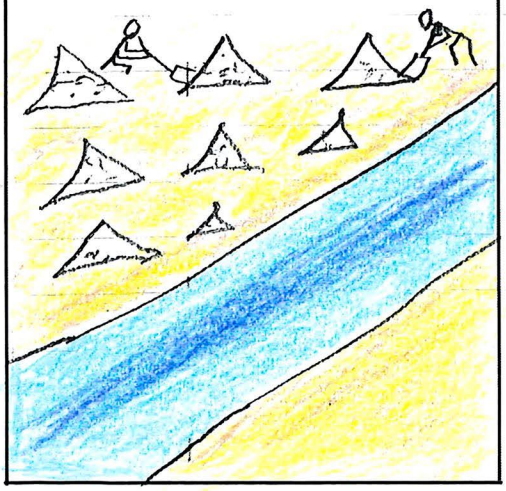
Salt was so valuable it was even traded pound-for-pound with gold!



Mansa Musa (the alleged richest man of all time!) gained some of his wealth from mining and trading salt.

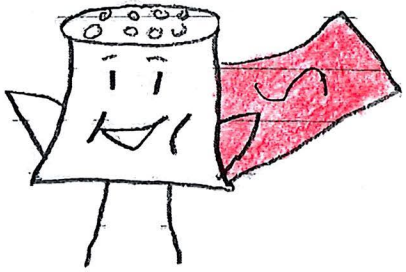


Salt became a point of revolution later in India.



When the British made gathering salt illegal for Indians, Ghandi led a march to the coast to harvest salt.

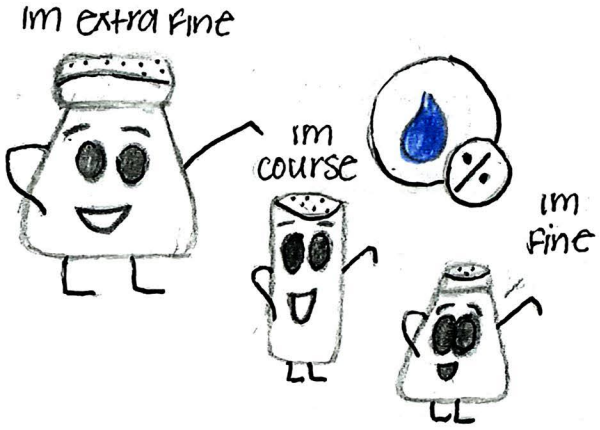
Due to its value and universal use, salt has been crucila not just for cooking, but for power and success of many groups throuhout history.



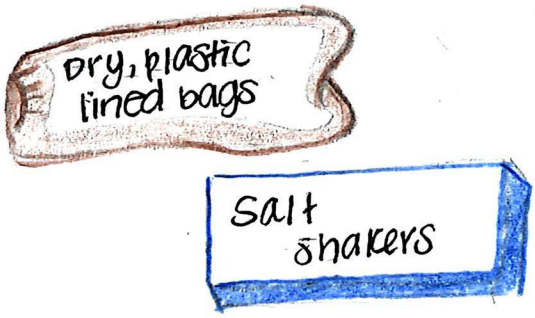
SALT

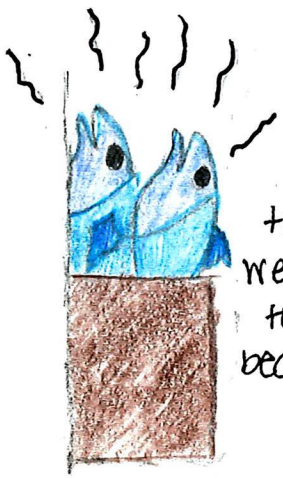
by Kathryn Minor

Hi! We are your three main table salts. Humidity is our enemy!!



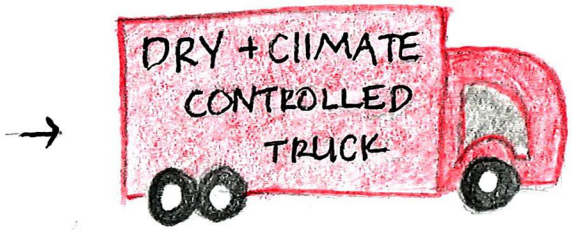
If we dont travel a certain way the air may reach us and cause us to clump, cake up or harden!



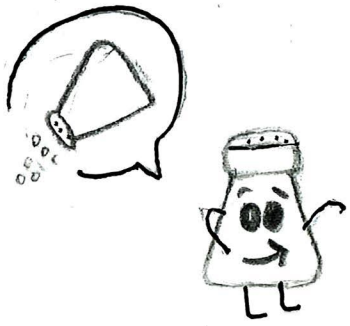


When traveling we cant be next to smelly odors because we absorb them!

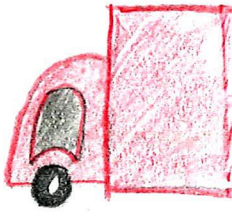
For short trips to distribution centers and stores, we must travel properly or we'll die!!

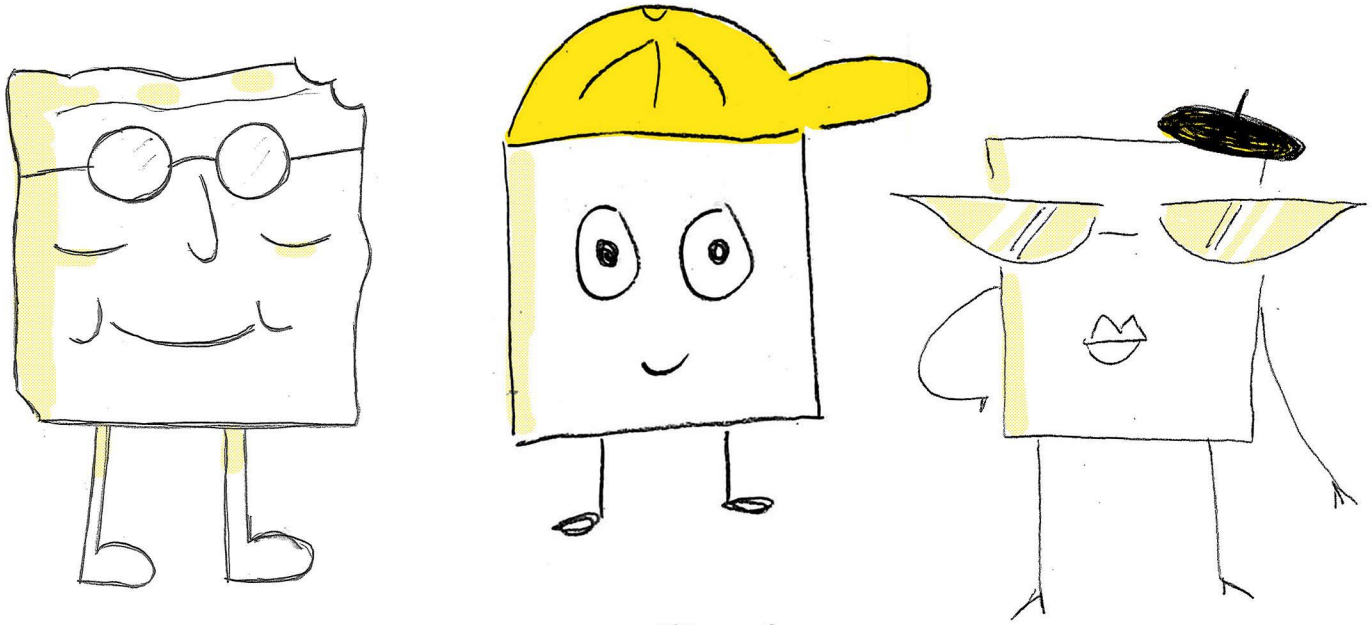


Even though I lost a bit of weight, due to water release in transport, I am still loose and sprinkle ready!!



We have arrived, can't wait to be stored somewhere dry and cool. See you soon!





SUGAR

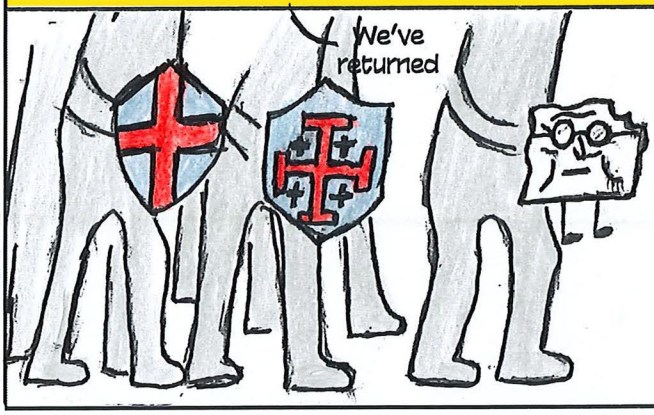
SUGAR: HISTORY AND CONSUMPTION

by Jadyn Hill

I'm Polysaccharide, you can call me Poly sugar cane.

I began as a tall grass that was domesticated in New Guinea.

8000 BCE: During the Crusades, Europeans were introduced to sugar and brought small amount back to Western Europe.



It was considered a luxury good

Sugar masked the taste of meds, relieved coughs and indigestion.

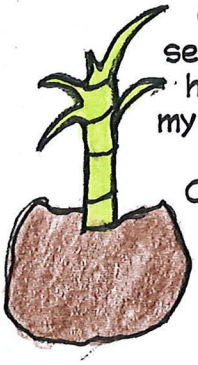
I was used in early medicines

The elite used sugar to show wealth, using statues made of sugar.

Allowed fruit to be eaten in winter-

-importantly, it was used to preserve food.

1493 B.C.



On Columbus' second trip, he brought my seedlings to the Caribbean.

The Caribbean's tropical environment was perfectly suited to grow sugarcane!

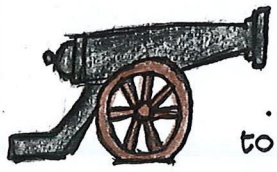
My successful growth sadly promoted the transatlantic slave trade.

Plantations were established in Haiti, Barbados, and Jamaica, exporting to Asia and Europe.

In colonial America, the British imposed laws barring production and raising taxes for import:

An effort to pay for the Seven Years War.

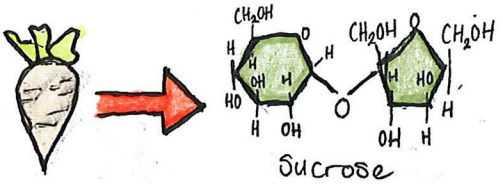
The 1764 Sugar Act played a major roll in the American Revolution...



...Eventually leading to U.S. independence.

Along with tea, they really liked me.

In the mid 1700s, Europeans discovered sugar beets can be processed to the sucrose compound:



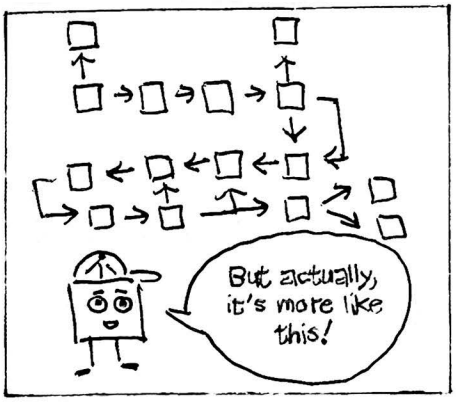
This plant grows better in West Europe's cool, temperate climate.

SUGAR: PRODUCTION AND PROCESSING

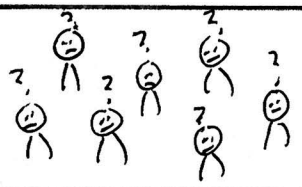
by Mila Kocic

If you've ever stopped to wonder how we extract sugar from plants, you've probably imagined something like this:

1 → 2 → 3



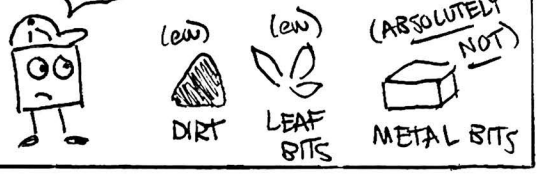
...



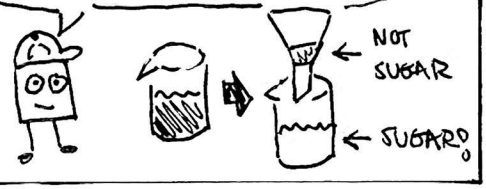
The first step is to cut up the beets or sugarcane into smaller pieces...

Next, the plant material is pressed in a mill to extract a low-concentration sugar solution called "juice".

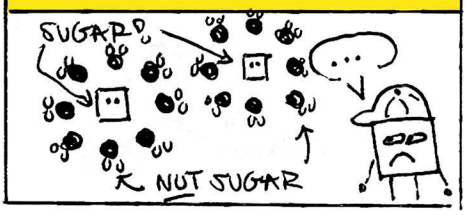
Since juice comes from plants, which live in the ground, there are things in there we don't want to eat...

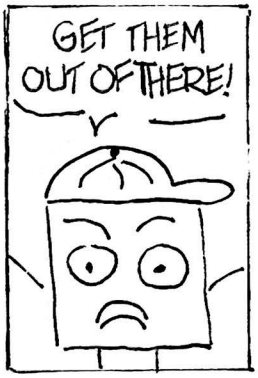


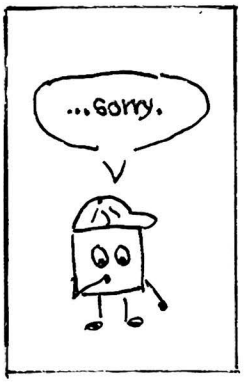
So the juice is mixed with chemicals which react with these impurities and remove them from the solution.



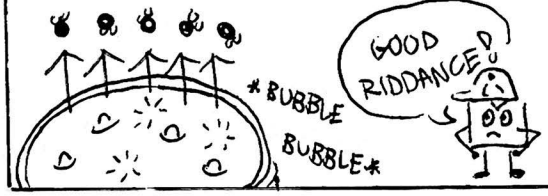
But wait - juice is sugar dissolved in water. How do we get the sugar OUT of the water?



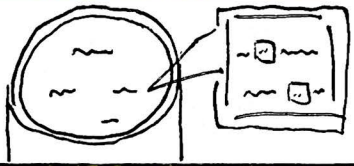




If you heat sugar juice at very high temperatures, it starts to boil, and the water evaporates.

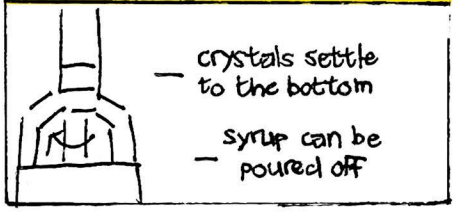


What's left is a mixture of sugar crystals and a thick, concentrated syrup.

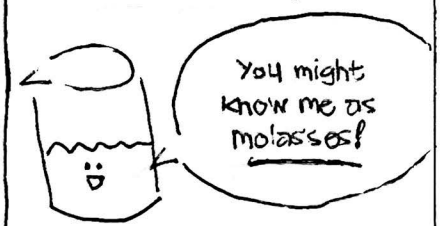


This mixture is called massecuite.

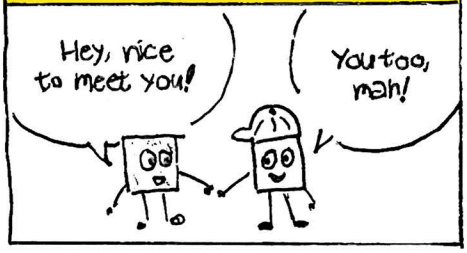
To separate the syrup from the crystals, massecuite is spun very quickly in a machine called a centrifuge.



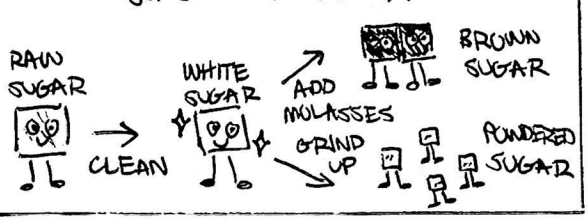
The remaining syrup can be reboiled to extract even more sugar.



Finally, the crystals are washed, dried and stored! This product is called "raw" sugar.



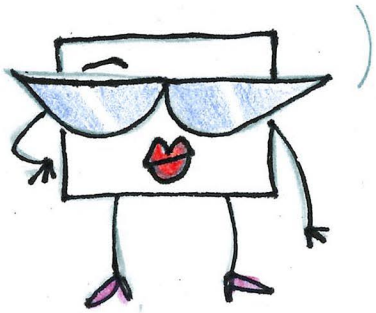
But the adventure's not over yet - raw sugar is shipped all over the globe to be transformed into the sugars we know and love.



SUGAR DISTRIBUTION

by Emily Burchfield

Thanks for the history lesson
but I think it's time to focus
on TODAY please



I travel the globe

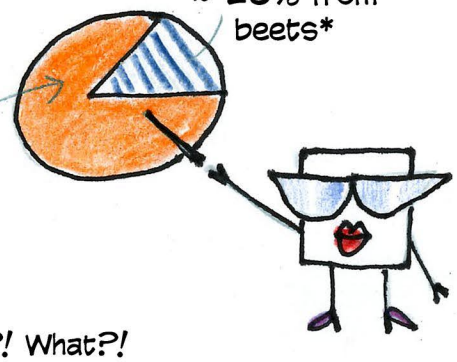
making sure the sugar you love
moves from FARM to your FORK

(or spoon if you're eating ice cream
or jello or...you get it...)

The sugar you eat comes
from two sources:

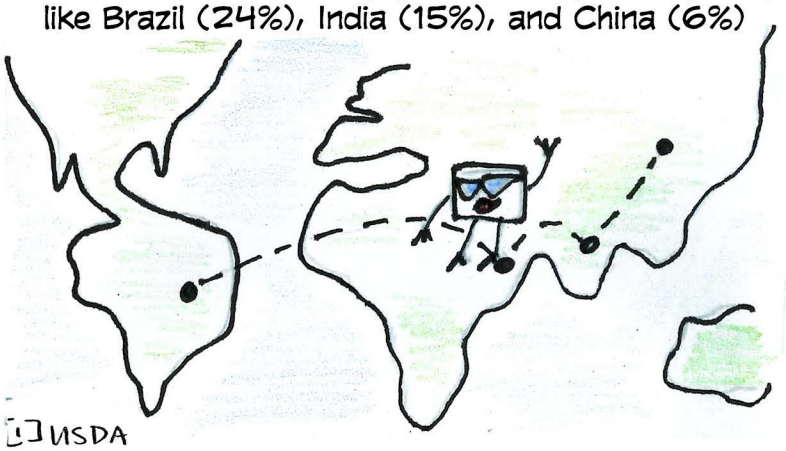
≈ 20% from
beets*

80% from
sugarcane



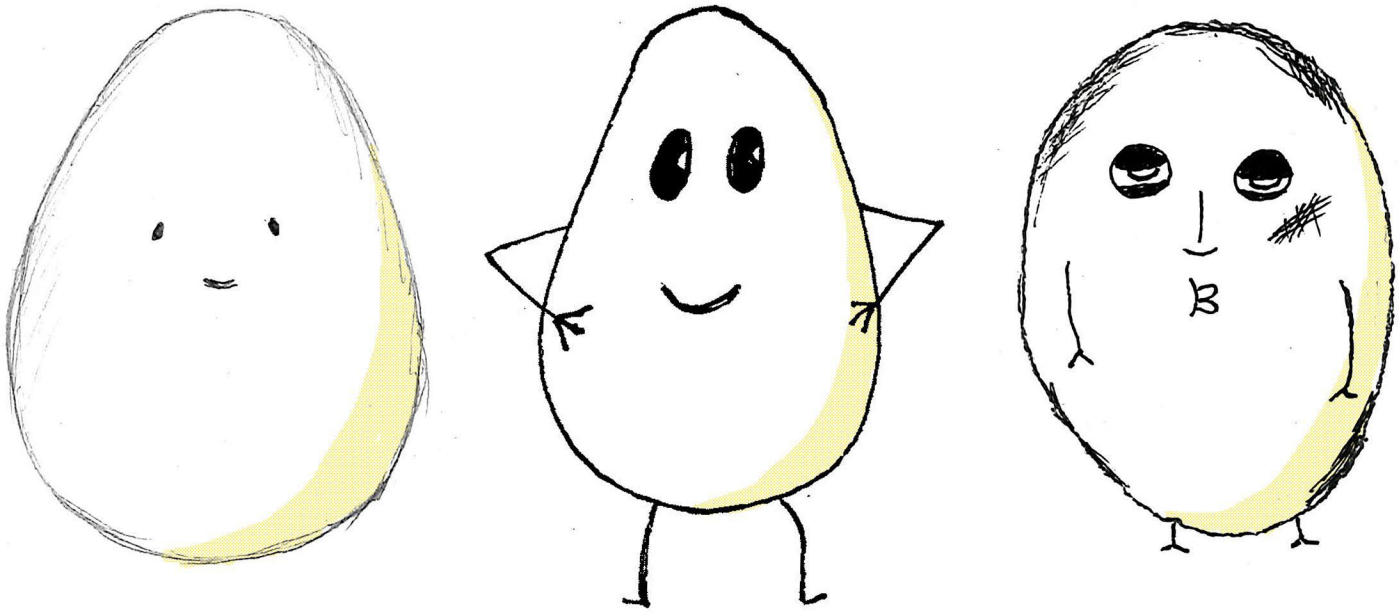
* Eww gross?! What?!
* I know, I know, I'll explain

SUGARCANE is mostly grown in tropical regions
like Brazil (24%), India (15%), and China (6%)



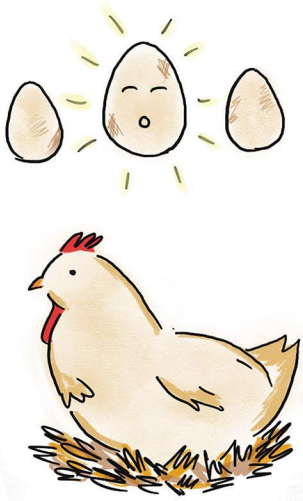
BEETS (or sugar beets) are mostly grown in the EU, US, and Russia
becuase they prefer colder climates than sugarcane.

EGGS

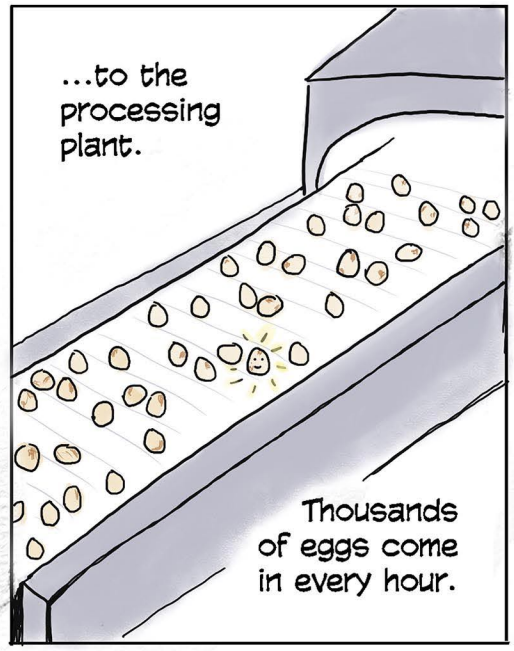


PRODUCTION OF THE EGG

by Tiffany Chen



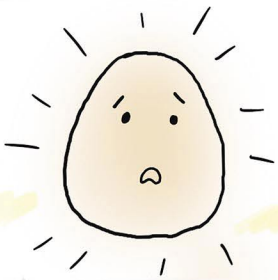
From the barn...



Wash tunnel is the first step.

Washing the egg has a trade off:

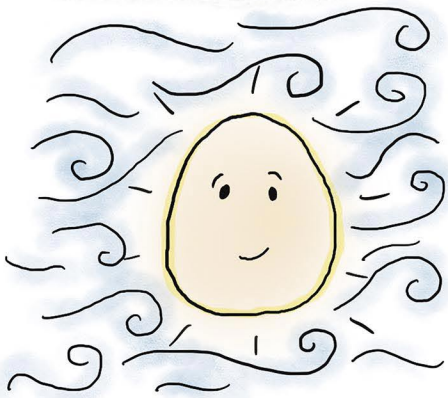
I'm clean but...



I lost my coat

The natural outer protective layer is gone.

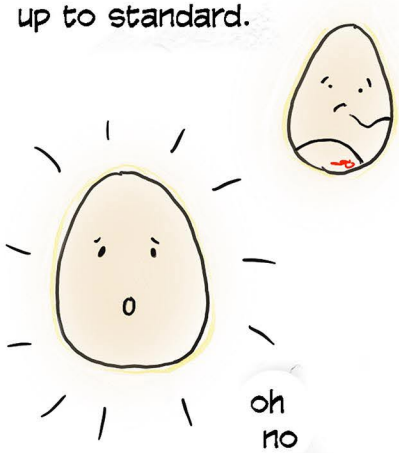
Hot air dries the egg...



...and sometimes oils to protect.

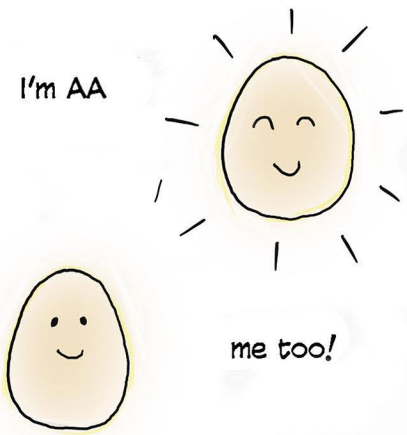
Candling helps us see hidden cracks.

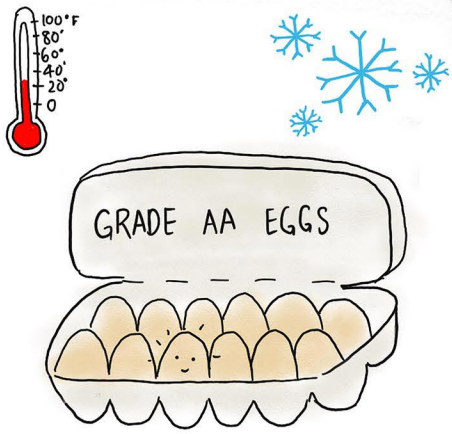
You are not up to standard.



oh no

Eggs are graded on sizing, air cell, color, and blood spots.



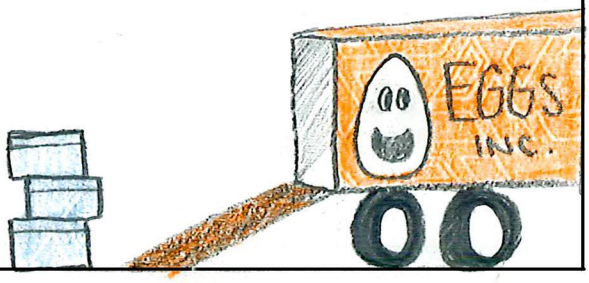


These washed eggs must stay below 45°F.

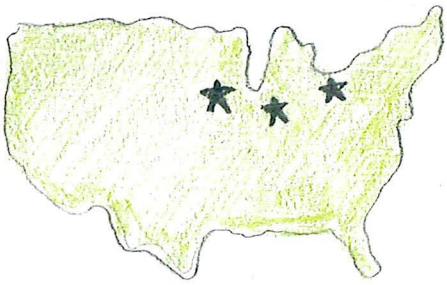
EGG DISTRIBUTION AND CONSUMPTION

by Regan Elliott

After being processed, eggs are sent off on refrigerated trucks!

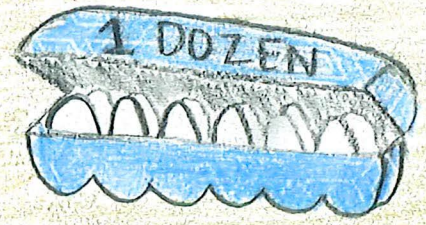


Eggs are produced across the US, but the 3 main sources are IA, OH, and IN.



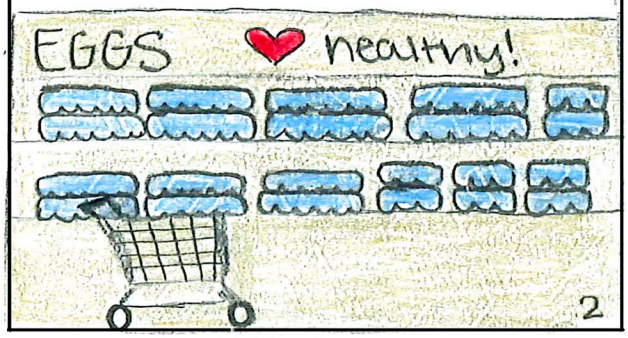
1

Upon arrival at the grocery store, workers go through eggs, throw out broken eggs and ensure cartons are whole.



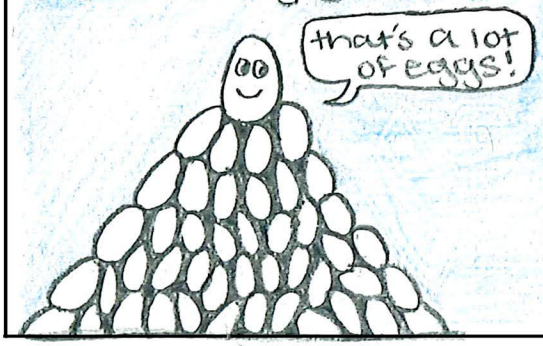
Egg consumption in the US is increasing!

This is because the government dropped its concerns of high cholesterol in eggs.



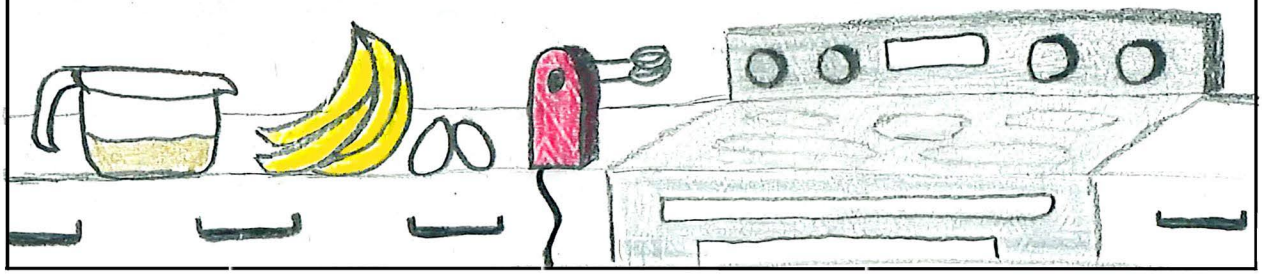
2

Between 260-280 eggs per person are consumed in the US every year.



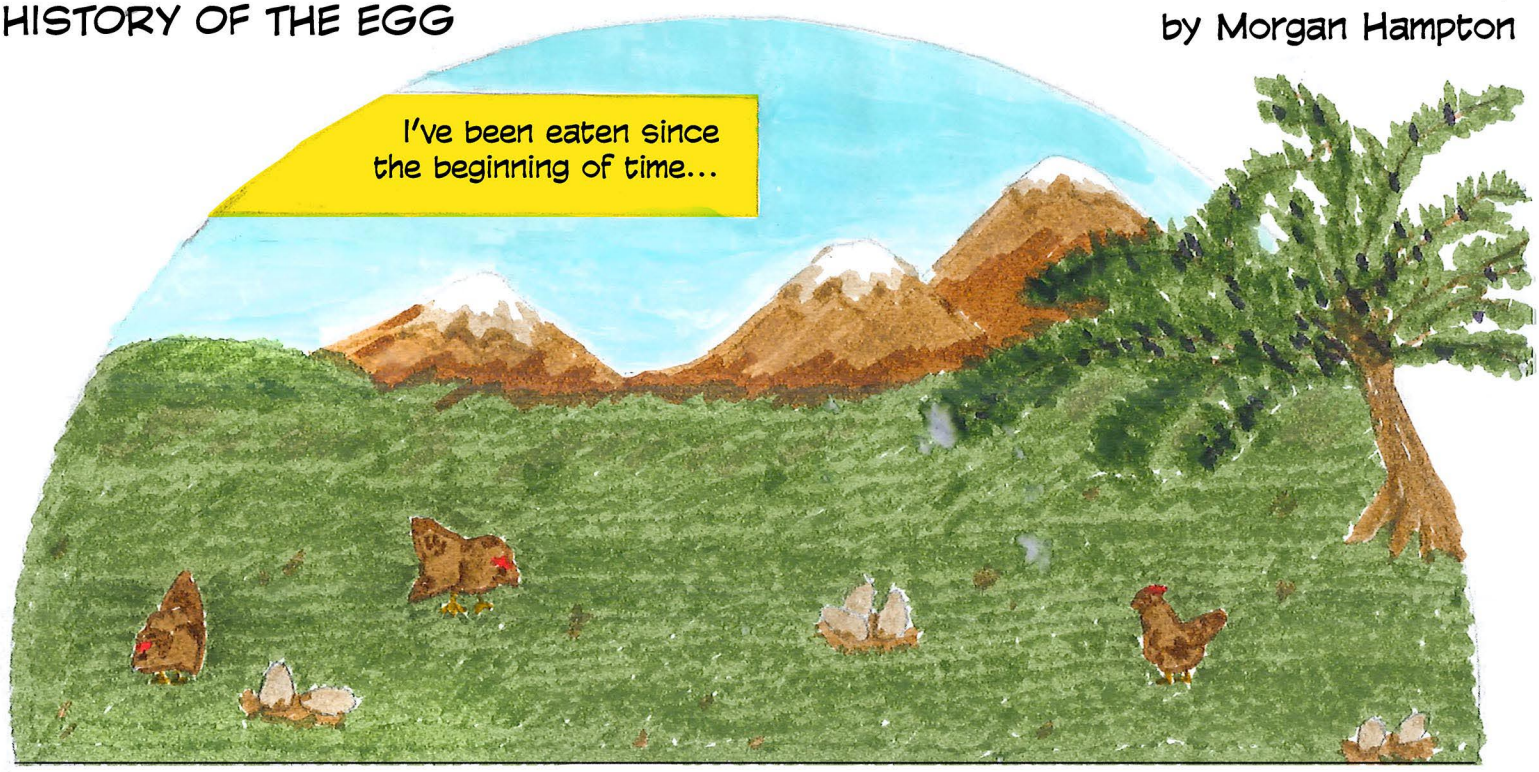
3

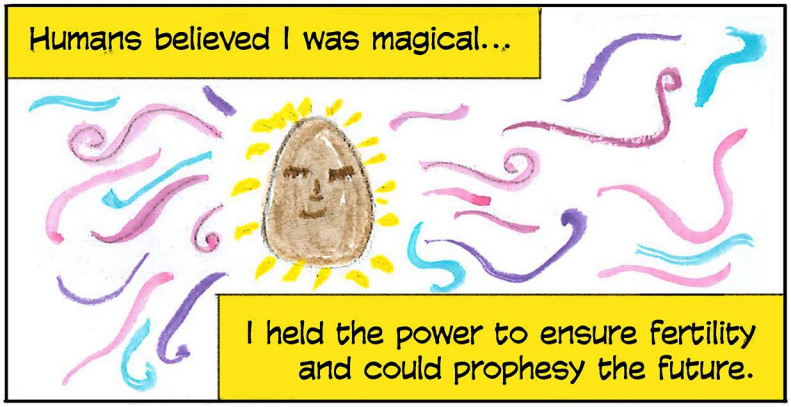
Eggs are consumed by themselves, or added in recipes to create delicious meals and treats such as banana bread!

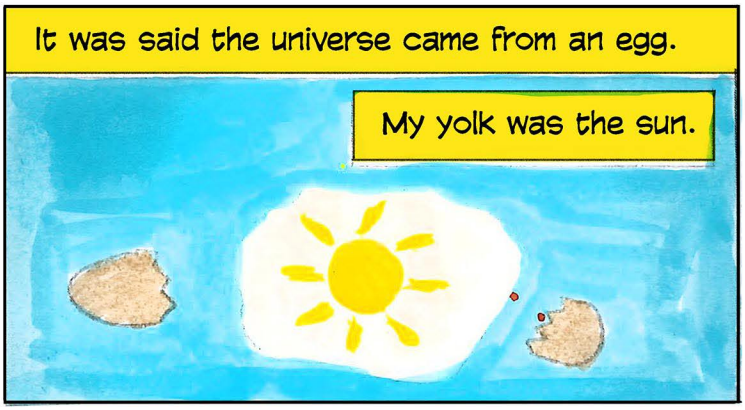


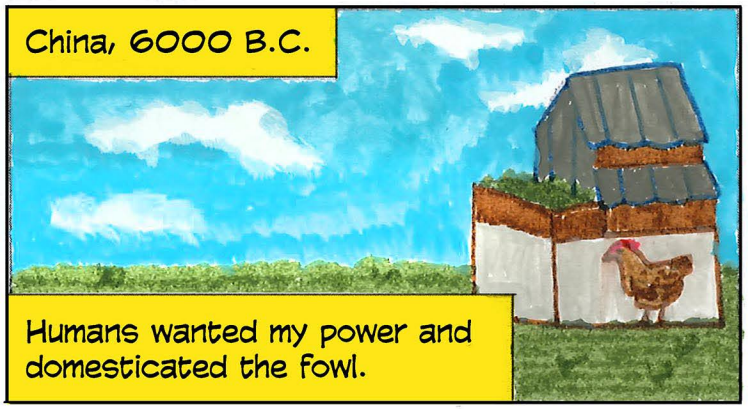
HISTORY OF THE EGG

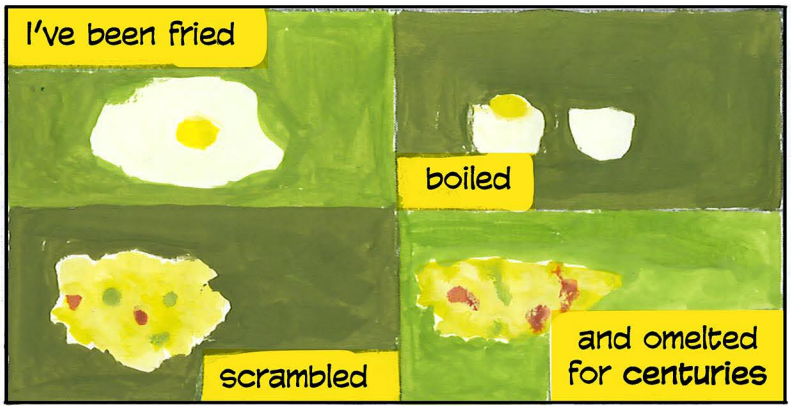
by Morgan Hampton

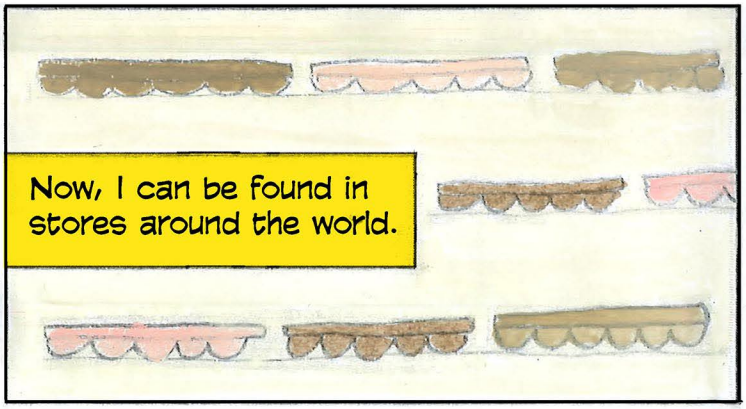












VANILLA

VANILLA USE

by Lydia Bearss

ERAWHN

Hi!
I'm vanilla extract!

I live with my cousin. Don't tell him, but he was created in a lab, unlike me!

YUMMY
VANILLA EXTRACT
MADAGASCAR
8oz

Most vanilla extract is NOT from vanilla pods.

Hi!

SIMPLE
Vanilla extract
*NATURAL

99.75% of vanilla flavor in vanilla extract is SYNTHETIC!

The FDA doesn't have good guidelines to differentiate synthetic vanilla!

Pure Madagascar Vanilla extract
* NATURAL!
8oz

Finally someone is buying me!

YUMMY
VANILLA EXTRACT
MADAGASCAR
8oz

Some Ayurvedic practitioners use vanilla for calming effect on nervous system, promoting mental wellbeing.

*2 VANILLA: (avatam)

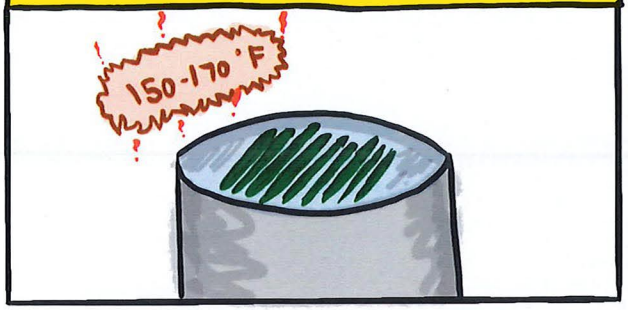
Vanilla is the most popular flavor in both food and confectionary industries.

*3

VANILLA

by Claire DePiero

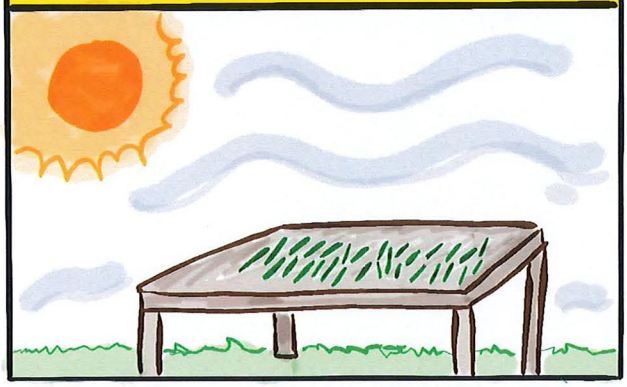
Phase 1: Vanilla pods must be "dipped" in hot water to prevent further growth. This initiates enzyme release, starting vanillin production.



Phase 2: Sweating: Beans are wrapped inside dark, air-tight containers.

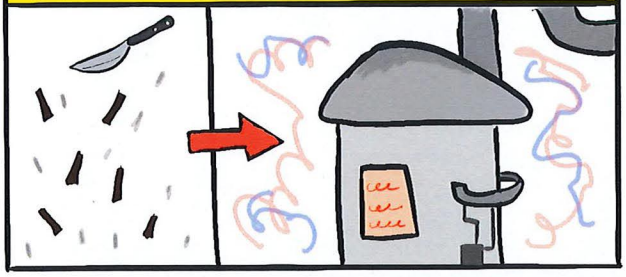
Heat and steam build-up trigger more enzymes to convert more starches to vanillin!

Phase 3: Drying: Set pods out to dry in open air for 3-4 weeks.

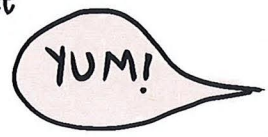


Phase 4: pods are put into boxes and wrapped with wax paper. Held here for a month to enhance aroma.

Processing into extract requires beans to be chopped up and placed into a mildly heated perculator that contains a blend of alcohol and water.



After several days, the flavor complexity is complete and extract can be bottled.



Extract must be bottled in dark glass to prevent light that could alter flavor compound.

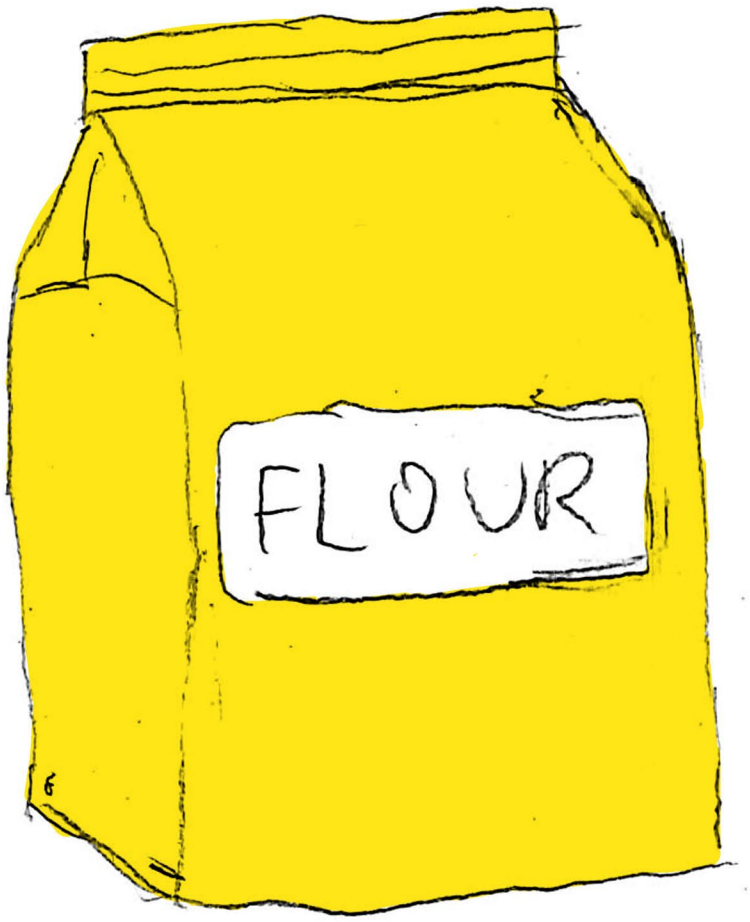
Now...the extract is ready to be exported to grocery stores globally!

This extract will be around $40 for 8 fl oz, as it is labor-intensive and "pure".

Meet Vanilla

by Thomas Garcia

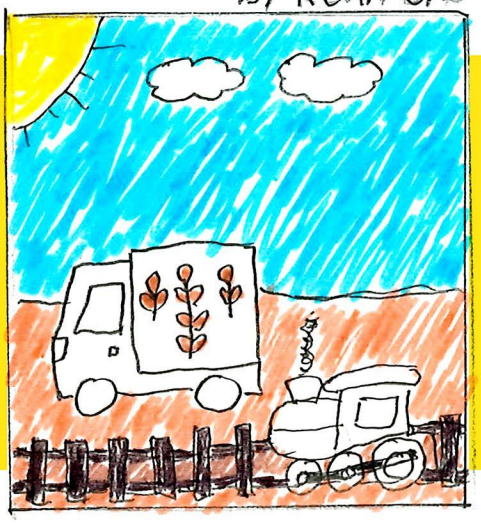
FLOUR



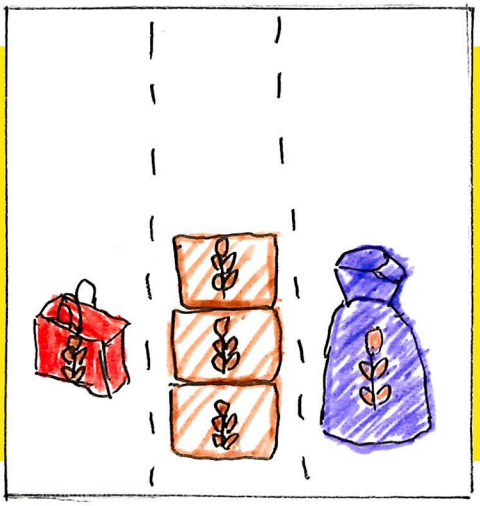
FLOUR DISTRIBUTION

by Kevin Cho

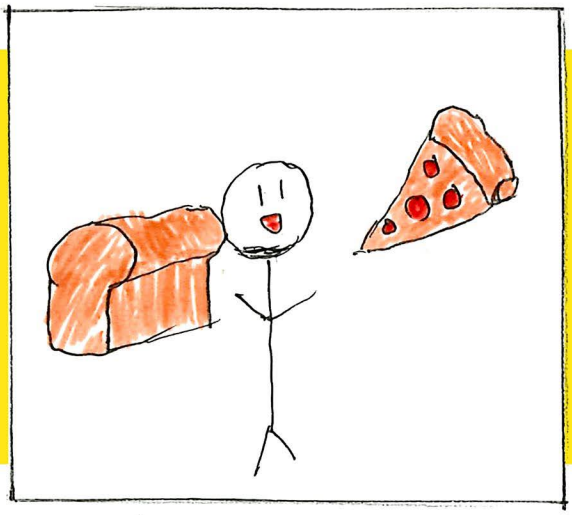
After flour is produced in wheat fields, it is moved from farms into massive storage silos.



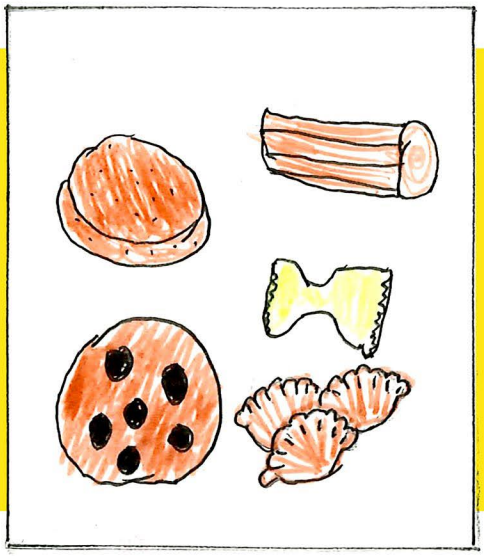
Most flour travels by rail and truck, often crossing multiple states before being milled or packaged.



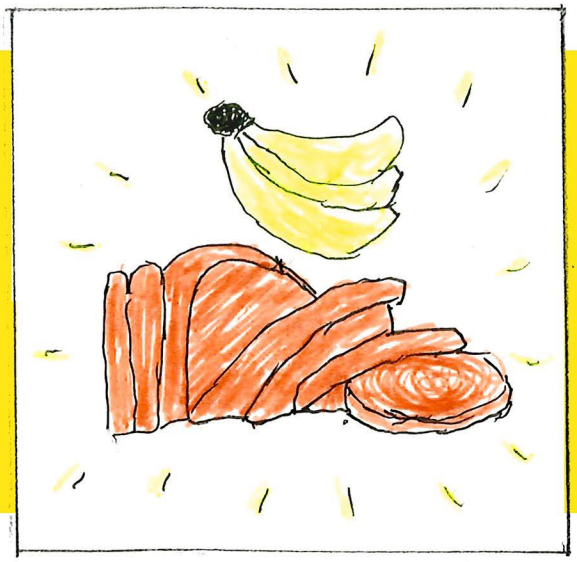
After milling, flour splits into either retail bags, bulk loads, or big sacks.



People eat many flour-based foods, including bread, pizza, etc.!



It's not just in the U.S. Flour is used/consumed across the whole world.

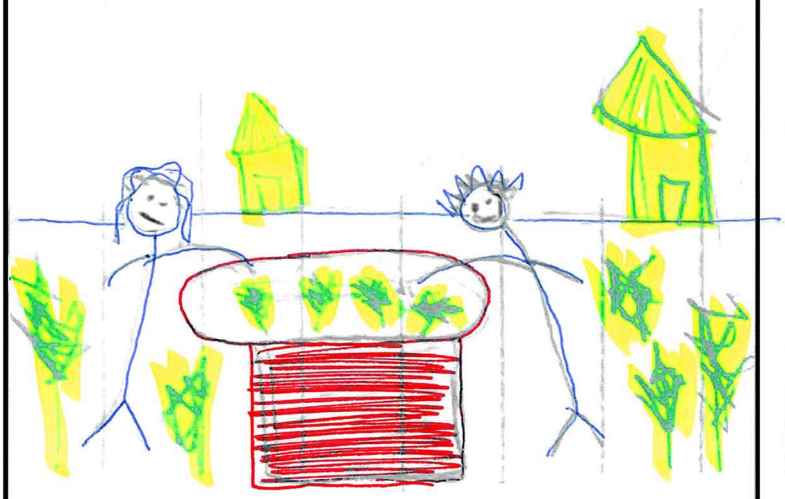


Banana bread! The result of all the interconnecting parts!

FLOUR HISTORY

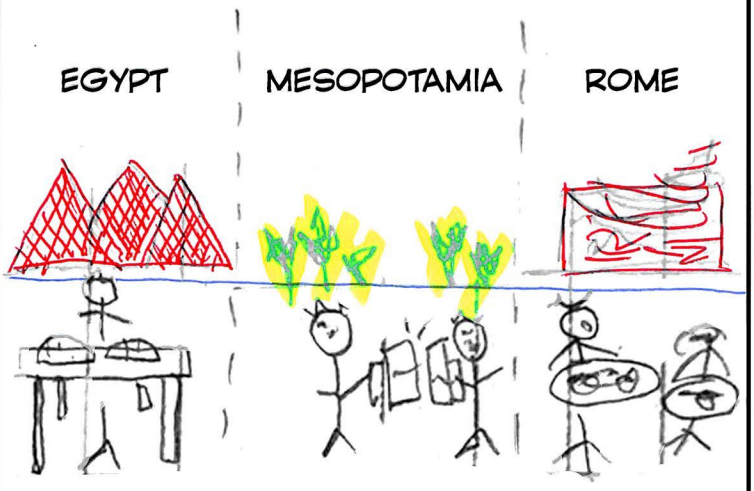
by Ellarose Digasbarro

EARLY AGRICULTURE



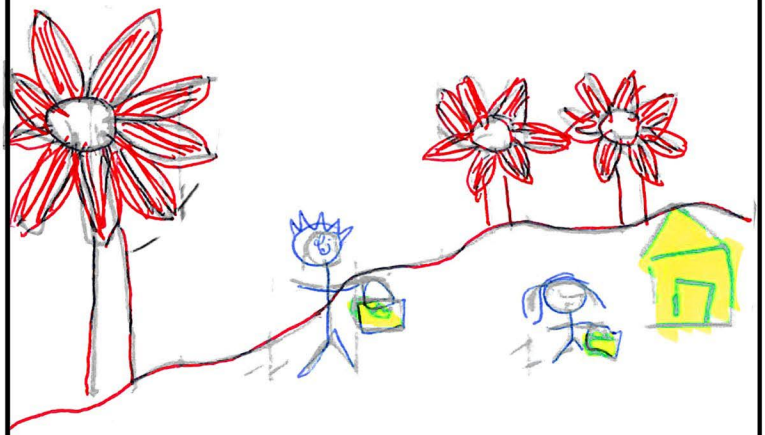
10,000 years ago, humans grind first grains into flour.

ANCIENT CIVILIZATIONS



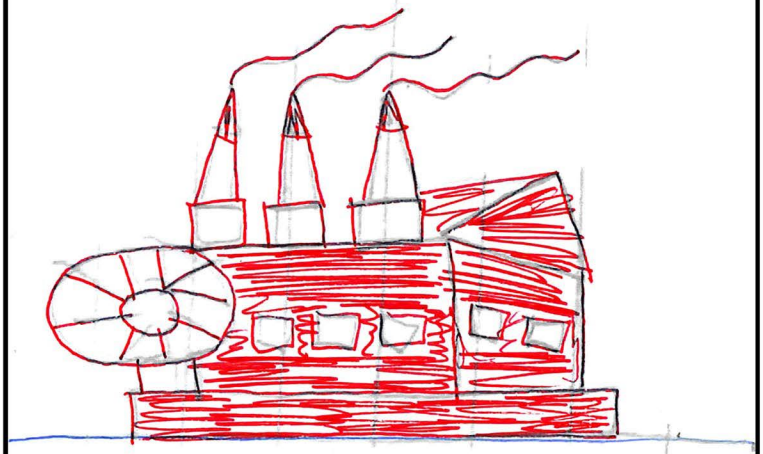
Ancient cultures turn flour into bread, beer, and early pasta.

MIDDLE AGES



Water and windmills boost flour production across Europe.

INDUSTRIAL REVOLUTION



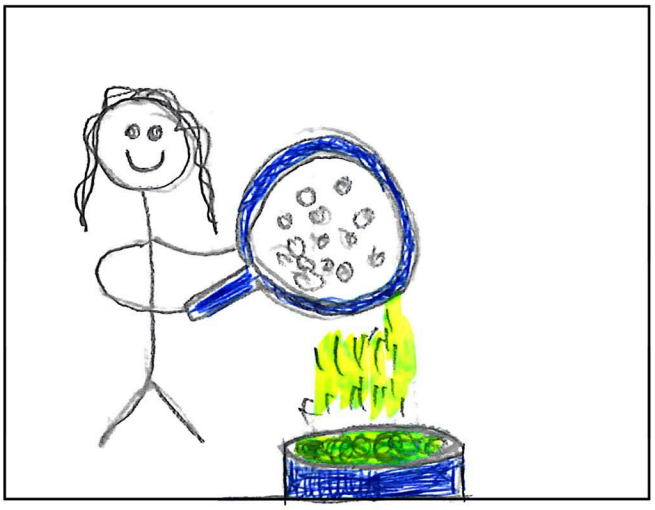
Steam mills produce finer, faster, global flour.

MODERN DAY PRODUCTION

FLOUR PROCESSING

by Ellarose Digasbarro

STEP ONE

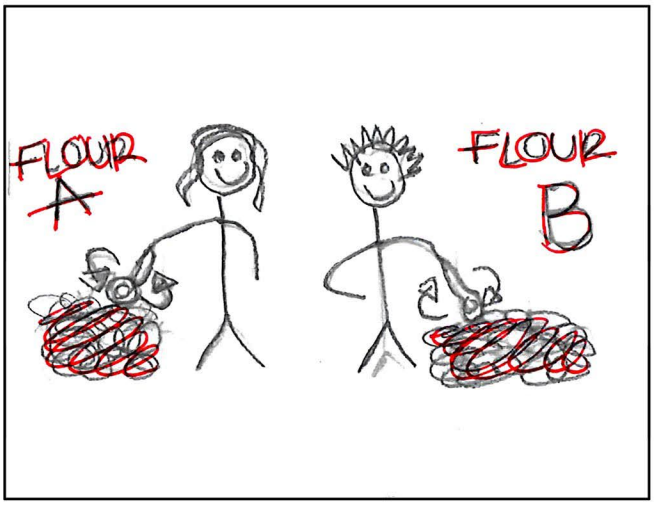


All dirt and junk is removed from the wheat.

STEP TWO

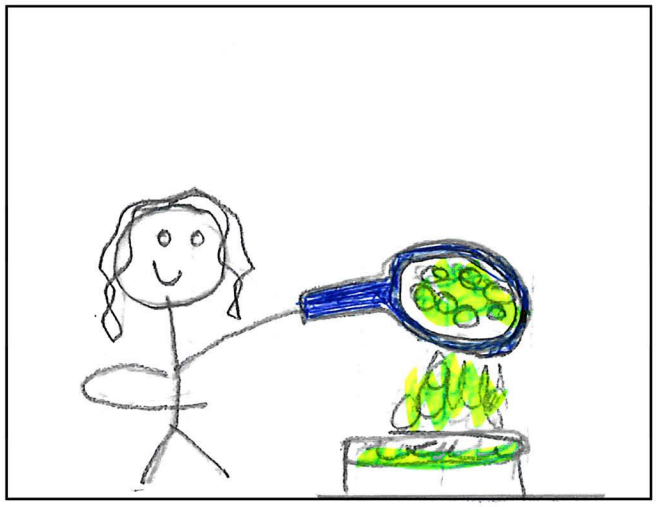
Water is added so the wheat softens and is easier to grind.

STEP THREE



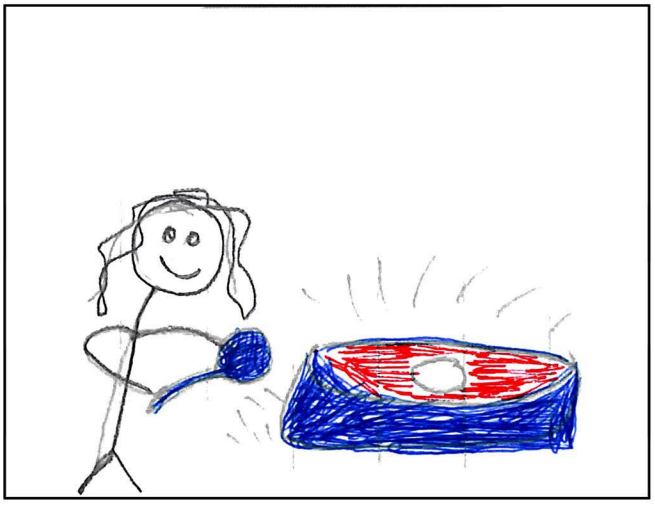
Different wheat types are mixed together to get the right blend of flour.

STEP FOUR



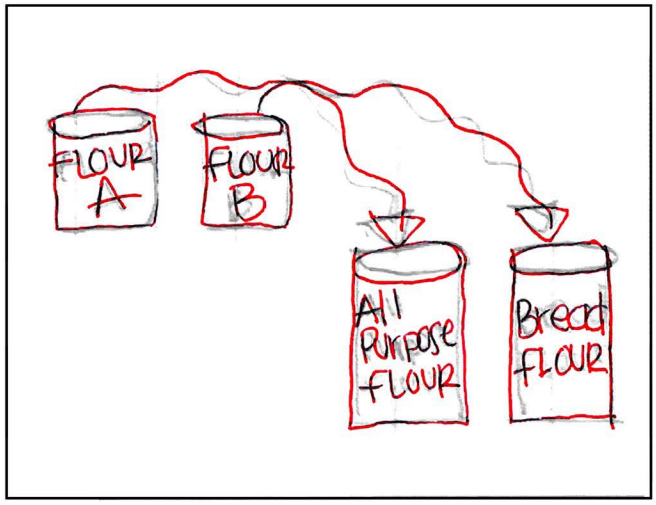
The crushed wheat is shaken so the small bits and big bits are separated.

STEP FIVE



The wheat pieces are grinded into a powder.

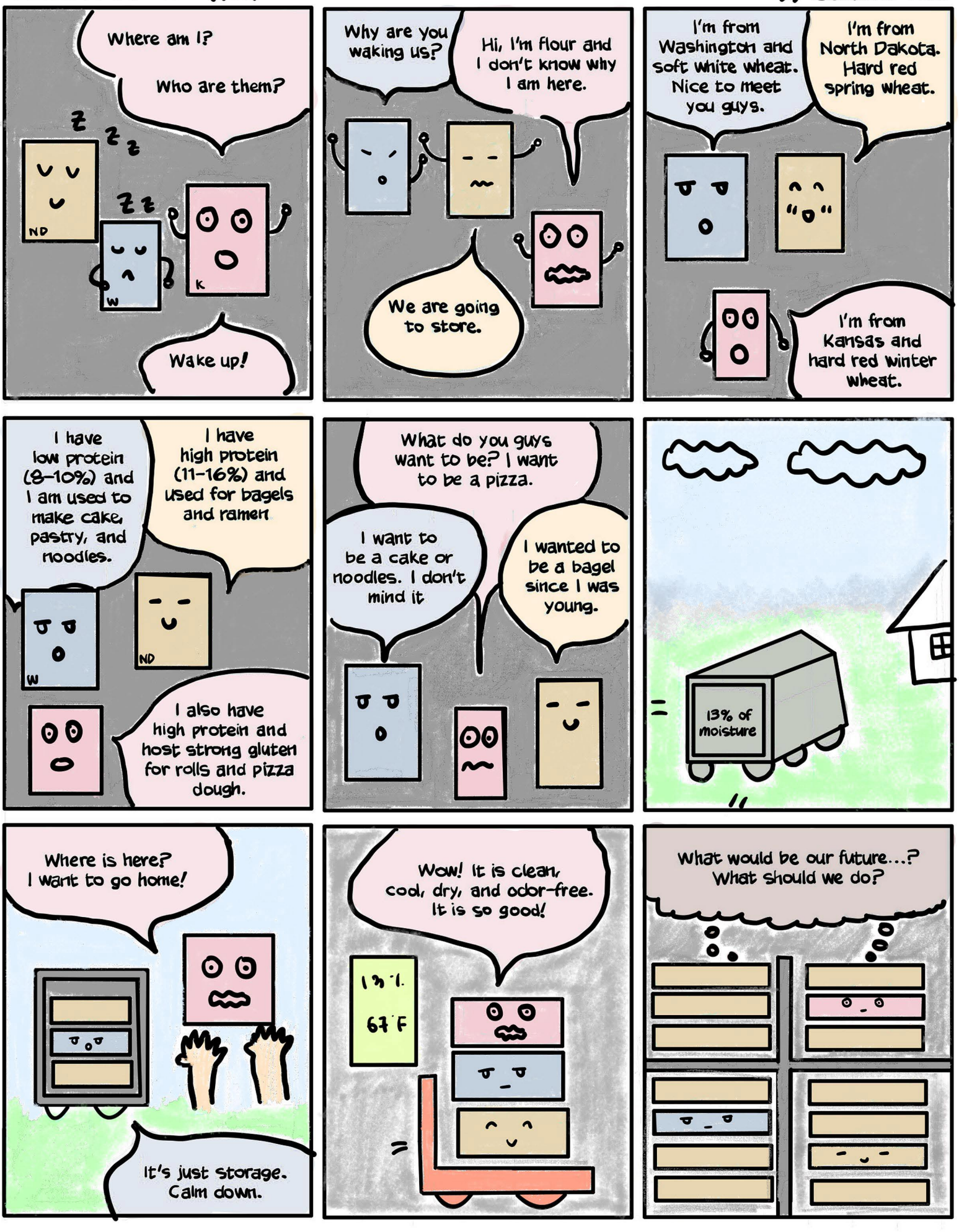
STEP SIX



Different flours are mixed to get the perfect product.

FLOUR ROAD TRIP

by Jennifer Kim



Acknowledgements

Thanks to the Emory University PERS grant program for believing in this idea and funding this project. Thanks to the 25 brave Emory undergraduates enrolled in the Fall 2025 Sustainable Food Systems class who were down to experiment with this weird assignment...and in the process created beautiful works of art. And thanks always to Jack and Henry for laughing at lots of bad banana jokes.

Student List

Nia Atcherson, Lydia Bearss, Tiffany Chen, Kevin Cho, Marus Davis, Claire DePiero, Ella Rose Di Gasbarro, Sawyer Dolgins, Regan Elliott, Hallie Garcia-Sanabria, Thomas Garcia, Joanna Gould, Morgan Hampton, Jaydn Hill, Jason Huang, Jennifer Kim, Stella Rae Kinard, Mila Kocic, Kathyrn Minor, Makenna Persaud, Michelina Schach, Deven Shah, River Somerville, and Carolina Viniegra Luevano.