

CANDY EDITION

sci-fri



6 HANDS-ON science/STEAM
LESSONS & ACTIVITIES

by: hope king and amy lemons

SCI-FRI

These six candy-themed Science Experiments and STEAM Activities can be done during a Fun Friday or throughout the week during your science block.

We have structured the lessons to where it will work for both! Pick whether you want your students to have the booklet, Sci-Fri printable, or individual graphic organizers and get ready to have some science fun with your students!

C	Candy Cars
A	All the Bubbles
N	Nautical Nightmare
D	Don't Get Trapped
Y	Yummy Gummy
!	The Great Candy Drop!

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This unit can be used across many grade levels. With the younger grades, this is all about exposure. If your students don't understand everything about the concept behind the experiment, that's okay!

It's all about allowing your students to explore science. With older students, they will dig deeper into the concept and skill. We have provided three different response sheets based on how deep you wish to go with your students.

all experiments
on one sheet

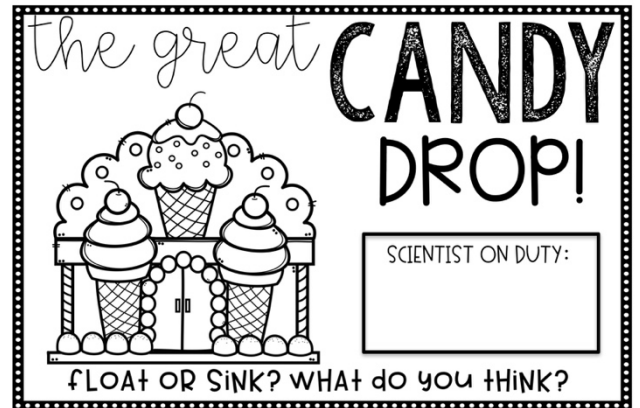
Graphic
organizers



Science
Booklets

SCI-fri

- If booklet is labeled SIMPLE SCIENCE, it is the easier version for younger students.
- If the booklet is labeled FOR THE SCIENTIST, it is the more complex version for older students.
- Even if you don't have the students use the booklets, the information inside can be projected or read aloud to students.



DID YOU KNOW?

SIMPLE SCIENCE

Everything that surrounds you is made of matter. Your tennis shoes are made of matter. The swings on the playground are made of matter. And so are you. A lot of things tell about matter. One thing is if it sinks or floats.

Have you ever stepped into your bathtub and noticed that the water rises? When something is put in water, it pushes some of the water away. Some things push away a lot of water and some things push away a little bit of water. If the object pushes away enough water, it floats. If the object does not, it will sink.

It can be hard to predict if something will float or sink. A cargo ship is huge and it weighs a lot. It looks like it will sink, but it actually floats.

DID YOU KNOW?

FOR THE SCIENTIST

Have you ever wondered why things sink and why some float? Many people will simply say that large objects sink while smaller objects float. As we learn more about this big (and strange) world of science, we find that this actually isn't the case at all.

There are many more reasons and explanations behind the mystery of sinking and floating. Whether an object sinks or floats actually depends on its density. Density is how tightly packed together the material on the inside of an object is. For example, if you just sprinkled sand into a pail, you would fit a certain amount. But if you packed that sand down you would find that you could fit so much more, thus giving the amount of sand in the pail a higher density. Why? Because those sand "molecules" are more packed together than before.

Objects that are jam packed together have a higher density and objects that are loosely packed together aren't as dense. If an object's density is greater than the water, it will sink. If the object's density is less than the water, the object will float.

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CANDY EDITION

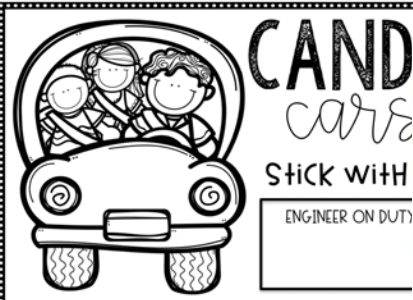
	draw it:	explain it:
CANDY CARS:		The Taffy Taffy, Starburst and Airhead were easy to draw and stick together.
ALL THE BUBBLES:		The Nerds in the Coke had the greatest reaction. All bottles inflated the same.
NAUTICAL NIGHTMARE:		My heart held 18 S'mores before sinking!

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CANDY EDITION

	draw it:	explain it:
DON'T GET TRAPPED:		The Nerds worked the best to make the car work and not get trapped.
JUMMY GUMMY:		The Nerds worked the best to make the car work and not get trapped.
SCICY CANDY DROP!		The Nerds worked the best to make the car work and not get trapped.

CANDY cars

The setup



CANDY cars
STICK WITH IT!
ENGINEER ON DUTY!

CANDY CARS

focus: • Using trial and error
• What makes candy sticky?

MATERIALS: • Several pieces of chewy candy (examples: Starburst, Tootsie Rolls, Laffy Taffy, Airheads, caramels)
• Small round hard candies (examples: Smarties, Sprinkles)

MINILESSON	EXPERIMENT	REFLECTION
During today's lesson, the students will be automotive engineers. They will use the process of trial and error to test the stickiness of candy. Explain that some candy may be perfect for your design and some candy may not work. You have to figure it out!	The students will complete the experiment by following the steps outlined in the procedures: 1. Use your muscles to knead the candy until it is nice and flexible. 2. Design your car using your candy. During the experiment, students can collect data and information on their responses (stickiness) in their booklet! Then, either read or allow students to read (and discuss) the "Tell Me Why!" section of the booklet! Allow students to discuss the information and relate it to today's activity.	Explain to students that as scientists, it is always important to reflect on what went well and what we could improve on. Things don't always go exactly as we plan. That's why trial and error is a very important concept to master. Sometimes you just have to "stick with it!" The students will reflect on how they used trial and error during the design process of their car.

Name _____
CANDY cars

Name _____
CANDY cars

MATERIALS: _____

plan/DESIGN: _____

STEPS: _____

RESULTS: _____

IMPROVEMENTS: _____

DID YOU KNOW

Do you like getting cavities? If you want to keep your teeth here you may want to listen up! Do you eat a lot of sticky candy? It can be very bad for your teeth.

When sticky candy gets stuck in your teeth, it feeds all of the bacteria that can cause lots of cavities. The longer the candy stays in your teeth, the more cavities it will cause. This is why your dentist will tell you to stay away from sweets like sticky candies.

Just remember - if you do eat sticky candy, always have a toothbrush on hand. It's important to brush your teeth after you eat sticky candy to stay on your teeth!

DID YOU KNOW? Do you like getting cavities? If you want to keep your teeth healthy, you may want to listen up! Do you eat a lot of sticky candy? The longer the candy stays in your teeth, the more cavities it will cause. This is why your dentist will tell you to stay away from sweets like sticky candies. Just remember - if you do eat sticky candy, always have a toothbrush on hand. It's important to brush your teeth after you eat sticky candy to stay on your teeth!

The setup

Name _____
CANDY cars

MATERIALS: Sticky candy, Smarties

plan/DESIGN: _____

STEPS: - Use fingers to roll out and form the sticky candy. Make the design you want.
- Put pieces together to make car.
- Add round candy for wheels.

RESULTS: The Starbursts and Laffy Taffy worked best.

IMPROVEMENTS: I need to add hard candy as support so it doesn't cave in.




all the BUBBLES

TRACKING data

The set

In this experiment, you are going to explore matter in the form balloons inflate?

MATERIALS:



ALL THE bubbles
EXPLORING GASES!

SCIENTIST ON DUTY:

DID YOU KNOW

Did you know that **matter** is all around you? Millions and millions of tiny objects we call **molecules** fit together to form larger things like cars, an airplane. Matter is the air that we breathe and the water that we drink anything that takes up space and has **mass**. It can be found in three states, liquid, and gas.

Solids and liquids are easy to see, but a gas can be hard to spot. That's most of the time, gases are invisible. Instead, we look for evidence that **present**. Two main ways that we can spot a gas is to look for bubbles or being created.

Whenever you drink a soda, you are drinking gas too. Soda has carbon which is what gives it that famous fizz.

ALL THE BUBBLES

focus:	<ul style="list-style-type: none"> Matter Gas Observations 	
MATERIALS:	<ul style="list-style-type: none"> 3 individual bottles of coke Nerds, Pop Rocks, Skittles Balloons Trash bag 	
MINILESSON	EXPERIMENT	REFLECTION
<p>During today's lesson, the students will be observing reactions when you mix candy into carbonated soda.</p> <p>Use the "Did You Know?" section as a read aloud or as a nonfiction reading passage for your students.</p> <p>Discuss what matter is and how it can be identified (it's three states - solid, liquid, and gas).</p> <p>Explain that today, the students will be observing reactions to see if a gas is created.</p>	<p>The students will complete the experiment by following the steps outlined in the procedures.</p> <ol style="list-style-type: none"> 1. Gather your materials and set up three pop... 2. Then, the students will use the... 3. For each balloon inflated, count... 4. Green up! Working alone or in pairs... 5. The result of the reaction (do not empty candy yet). 6. Can you tell what kind of bubbles... 7. Measure, record, repeat. <p>During this experiment, students can collect data and information on their response sheets or in their booklet.</p> <p>Then either read aloud students to read (and discuss) the "Did You Know?" section of the booklet. Allow students to discuss the information and relate it to today's activity.</p>	<p>Ask students if they think that all candy would have the same reaction? What are the properties of the candies used that caused these bubbles and reactions to occur?</p> <p>The students will reflect on other types of candies that may or may not cause the same reaction when combined with the carbonation of the soda.</p>

Name _____

all the bubbles!



WHAT HAPPENED:



The setup

MATERIALS:

3 individual bottles of coke

Nerds, Pop Rocks, Skittles

Balloons

Trash bag

ALL THE... bubbles!
EXPLORING GASES!
SCIENTIST ON DUTY: Hope

all the bubbles!
Nerds
Pop Rocks

All 3 balloons inflated. The Nerds had the greatest reaction. The balloon with the Pop Rocks was the least inflated.



NAUTICAL nightmare


TRACKING data

My DESIGN: _____ WHAT would I CHANGE next time AND why? _____

NAUTICAL nightmare

don't SINK the BOAT!

ENGINEER ON DUTY: _____



DID YOU KNOW?

FOR THE SCIENTIST

Have you ever taken a bath? Or swam in the ocean? Maybe you've noticed that there are some real good bath or pool toys that would make something a good bath or pool toy? That's right! It would not float! Buoyancy is how well something floats or sinks. If something is able to float, we would say that buoyant! Boats, ships, kayaks, and rafts are all have something in common. They are all used as transport on seas and rivers because they float. So what makes something float or sink?

To understand this, we need to learn about density. Density is the amount of "stuff" or mass that can fit inside of it in relationship to its size. For example, a bowling ball is smaller than a basketball. How would you think a bowling ball will sink and a basketball will float. You see, it's not about the size but rather about the amount of "stuff" (matter) inside. A bowling ball has more "stuff" inside of it because a basketball is filled with air. Since the bowling ball is more dense than the water it is placed into, it will sink. The basketball is less dense than the water and will float.

In a nutshell, if something is heavier than the water it will replace, it will sink. If it is lighter than the water it will replace, it will float. Even though a cruise ship is large in size, it is very hollow and is lighter than the water it is placed into causing it to float.




NAUTICAL NIGHTMARE

- FOCUS:**
- Floating and sinking
 - Buoyancy
- MATERIALS:**
- Aluminum foil
 - Smarties
 - Container of Water

MINILESSON	EXPERIMENT	REFLECTION
<p>During today's lesson, the students will be preparing a boat to test its buoyancy.</p> <p>Use the "Did You Know?" section as a read aloud or as a notification reading passage for your students.</p> <p>Simple Science (For Early Elementary)</p> <p>For the Scientist (For Upper Elementary)</p> <p>Explain that today, the students will see who can design a boat that will hold the most amount of Smarties while floating.</p>	<p>The students will complete the experiment by following the steps outlined in the procedures:</p> <ol style="list-style-type: none"> 1. Use your aluminum foil to build your boat. (Note: You may have fun with your future design adding your own to get your ship in the water and make any adjustments.) 2. Place your boat into a container of water. Add your Smarties one by one to see how many Smarties it takes to sink your ship. 3. Make your observations. <p>During the experiment, students can collect data and information on their personal sheets or in their books.</p> <p>Then allow students to compare their "Did You Know?" sections to the books where they learned their facts for their knowledge of the concept of sinking and floating.</p>	<p>Allow the students to share things that made their boat successful or unsuccessful. As scientists, it's important to reflect on designs and always find ways to improve what we have already done.</p> <p>Then the students will complete the reflection if they could have one more piece of material for their boat, what would it be and why? How would this contribute to the buoyancy of their boat?</p>

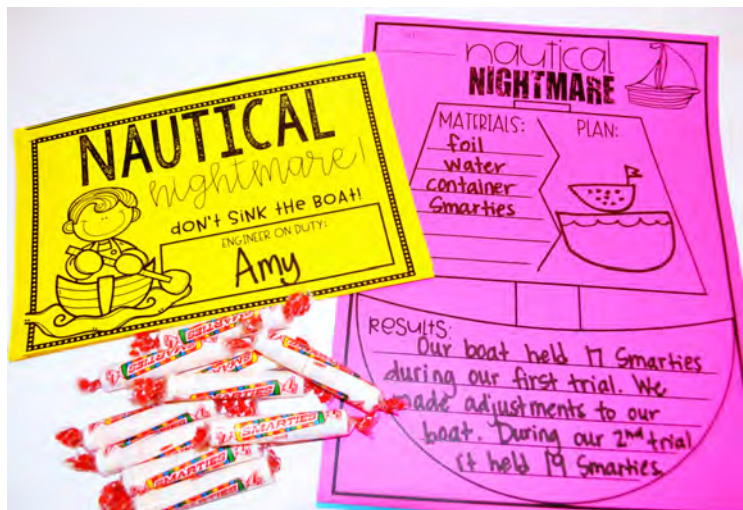
Name _____

nautical NIGHTMARE



MATERIALS: _____ PLAN: _____

RESULTS: _____



NAUTICAL nightmare

don't SINK the BOAT!

ENGINEER ON DUTY: **Amy**

nautical NIGHTMARE

MATERIALS: Foil, Water, container, Smarties

PLAN: _____

RESULTS: Our boat held 17 Smarties during our first trial. We made adjustments to our boat. During our 2nd trial it held 19 Smarties.



DON'T GET trapped

TRACKING data the setup

Put it to the test!
 Find three people to try out your maze. Then have them write one sentence to review your product.

REVIEW 1	
REVIEW 2	
REVIEW 3	

you are going to c...
 so that people v...
 if to work desig...
 the engineer to make...
 you waiting for?

don't get trapped

- focus:** • Planning Designs
 • Product Testing & Making Modifications
- MATERIALS:** • Shovelam plate (2)
 • Duct tape
 • Gummy candy
 • Gummy worms, gummy Lifesavers, and small gumballs

MINUTE LESSON

During today's lesson, the students will be designing a candy maze.

EXPERIMENT

The students will complete the experiment by following the steps outlined in the procedures.

REFLECTION

Allow the students to analyze the reviews of their products or well their friends were able to complete their maze. Would their results be different with an adult audience and why?

Name _____

too EASY	just RIGHT	too DIFFICULT

explain: _____

SCIENTIFIC

DON'T GET TRAPPED!
 THE A "MAZE" ING CANDY RACE
 ENGINEER ON DUTY

DID YOU KNOW?

Testing! Testing! Is this thing on? That's right! It's all about the product during today's maze challenge.

Think about it. Would you want to purchase a game that you could never win or a puzzle you could never solve? But if the game is too easy, is it really any fun? That's why it's important for products to be "just right."

When a producer creates a product, they always have product testers. If it's a game for kids, they will hire tons of kids to test it out. Then they keep making adjustments until their products, they know that their game will be loved by all and many kids will beg their parents to make the purchase. Would you like to be a product tester?

With 1 gumball I was able to make it in 1 turn. I added 3 gumballs and it was more difficult.

too EASY	just RIGHT	too DIFFICULT
✓		



YUMMY gummy

The setup TRACKING data

Can you make a gummy bear grow or shrink? In liquid what?

- MATERIALS:**
- Four small cups
 - Gummy bears
 - Liquid vinegar, water, Sprite
 - Salt
 - Small plate

- OH NO! HAVING AHEAD - DIRECTIONS:**
- Day One:
1. Fill each cup halfway with your liquid (one cup with vinegar)
 2. In one of your cups with water, add 1 teaspoon of salt and
 3. Drop one gummy bear in each cup.
 4. Allow the gummy bears to sit overnight.

Day Two:

1. Carefully dump out your liquid and CAREFULLY pour your
2. Make your observations.

THINK ABOUT IT: When you place salt in water, it dissolves. Do you think

Draw a picture of each gummy bear

GUMMY BEAR	SOAKED IN WATER	SOAKED IN SALT WATER	S

YUMMY GUMMY

focus:	<ul style="list-style-type: none"> • expanding, shrinking, absorbing • osmosis (upper elementary)
MATERIALS:	<ul style="list-style-type: none"> • Four small cups • Gummy bears • Liquid vinegar, water, Sprite • Salt • Small plate

MINILESSON	EXPERIMENT	REFLECTION
<p>Mini Lesson Explain the difference between the two different types of osmosis.</p> <p>During today's lesson, the students will be observing what happens when gummy bears are submerged in different liquids.</p> <p>Use the "Did You Know?" section as a read aloud or as a read-along reading assignment for your students.</p> <p>Details:</p> <p>Simple Science (Expanding and Shrinking) (Upper Elementary)</p> <p>For the Scientist: Osmosis (Upper Elementary)</p> <p>For students that they will be observing their bears to see what happens to</p>	<p>The students will complete the experiment by following the steps outlined in the procedures.</p> <p>Materials include: four small cups and water, vinegar, one with (salt and two with water), one of each bear (one water, one vinegar, one salt and one with water).</p> <ol style="list-style-type: none"> 1. Drop one gummy bear in each cup. 2. Allow the gummy bears to sit overnight. <p>During the experiment, students can collect data and information on their response sheets or in their notebook.</p>	<p>Explain to students that the gelatin composition (make up) of the gummy bear is a big factor in what allows the gummies to expand or shrink. What would happen if we changed the material and placed a Shickers in the cups.</p> <p>Students will complete the response activity by answering the posed question.</p>

Name _____

YUMMY gummy

PRODUCTION:

Gummy bear BEFORE:

SOAKED IN WATER:

SOAKED IN VINEGAR:

SOAKED IN SPRITE:

SOAKED IN SALT WATER:

RESULTS:

YUMMY GUMMY

THE GROWING GUMMY BEARS

SCIENTIST ON DUTY:

DID YOU KNOW?

SIMPLE SCIENCE

Today, you will be observing the changes to gummy bears once they've been soaked in different liquids. You will want to know if they are expanding gummy bears or shrinking gummy bears. Let's take a closer look at these words:

Expand: Expand is a fancy way to say that something is growing in size or becoming larger. As you become older, your body will expand and grow.

Shrink: Shrink is a fancy way to say that something is becoming smaller in size. As you eat a candy bar, it begins to shrink.

Can you think of an example of a time when you saw something expand?

Can you think of an example of a time when you saw something shrink?



