Michigan LEARNING CHANNEL
A PUBLIC MEDIA PARTNERSHIP

SUMMER!

FUN ACTIVITY BOOK

PBS KIDS

UPPER ELEMENTARY

On TV. Online. Statewide. VISIT MichiganLearning.org

How to Use This Book

We've curated activities that inspire learning all summer long.
Fight the summer slide with math and writing refreshers, then explore your world with scavenger hunts and science experiments the whole family can try.
Use the guides below to make the most of this summer!

1 Use Grade Levels

This book spans multiple grade levels. Choose a few lessons each week and try new ones as needed. Try tougher lessons later in the summer or next year.

2 Follow Weekly Themes

This book is designed to use for 8 weeks of summer. We suggest spreading it out over a few days each week and finding a time that works for your family.

3 Extend the Learning

Scan the QR codes in this book to watch videos with extra instructions and examples. Find all of our summer videos at MichiganLearning.org/summer

And Don't Forget!

Share Your Thoughts

Scan this QR code to take a short survey about our Summer of Fun program to let us know what you like about our books and what you'd like to see in the future.
Or VISIT MichiganLearning.org/SummerSurvey

Weeks and Themes

Each week has a set of lessons, additional programs, activities, and field trips based on the weekly theme.

Week 1: Animals
Explore the animal kingdom for ferocious fun!

Week 2: Across America
From coast to coast, explore what it means to be American

Week 3: Sports and Games
Get serious about fun pastimes, from soccer to Sodoku.

Week 4: Engineering
Tinker, design, build, rebuild, and find engineering everywhere.

Week 5: Our Stories
From legends to our everyday lives, stories shape who we are.

Week 6: Great Lakes
Dive in and explore the lakes that make Michigan special.

Week 7: Around the World
Experience food, art, music, and cultures from around the globe.

Week 8: Space
Meet astronauts and virtually visit the planets and stars.

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Learn more about the Michigan Learning Channel at
Facebook Live at fb.me/michlearning
www.michiganlearning.org/summer

Follow @MichLearning on social media to find out more.

Local Events

The Michigan Learning Channel has Engagement Coordinators across the state that serve as your local connection to everything happening at our channel and at your local PBS station.

Scan the QR code or visit MichiganLearning.org/Coordinators to learn more about our Engagement Coordinators and see their local event schedules by region, or contact them directly using their information below.

Michigan Learning Channel Engagement Coordinators by Region

WNMU
WNMU-TV
Channel 13.4
Emily Roussin
eroussin@nmu.edu

WCMU
Alpena
Channel 6.4
Renee Mahon
mahon2rm@cmich.edu

WGVU
Grand Rapids
Channel 35.6
Rachel Cain
cainra@gvsu.edu

WDCQ
Delta College Public Media
Channel 19.5
Lauren Saj
laurensaj@delta.edu

WKAR
WKAR Public Media
Channel 23.5
Robin Pizzo
robin@wkar.org

WTVS
Detroit Public TV
Channel 56.5
Shernita Rodgers
srodgers@dptv.org

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Where to Find the Michigan Learning Channel

Find your favorite shows anywhere you go!

From the QR Codes:
Scan any of the QR codes in this book to see the accompanying video right on your device.

On Demand:
Video lessons and activities at MichiganLearning.org

Click your grade level for this week's selected lessons
Or, use "Find a Lesson" to search by grade, subject, and educational standard

On the App:
Find shows on the free PBS app

The PBS App is available for mobile devices, Roku, Apple TV, and on many Smart TVs.

Search for Read Write Roar, Math Mights, Extra Credit, DIY Science Time, Wimee's Words, InPACT at Home, Simple Gift Series, and more great programs.

On the Livestream:
Watch the 24/7 livestream at MichiganLearning.org/live-tv

On TV:
Find us on broadcast television with an antenna

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Michigan LEARNING CHANNEL
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Learn Anywhere!

On Air. Online. On Demand.

Serving students statewide through your local PBS station, the Michigan Learning Channel has everything kids need to build their brains and engage in learning key concepts to succeed in school!

Preschool

Read, sing, and play with your little one.

Wimee's Words
Join Wimee, the fun, lovable robot that inspires kids to learn through creativity.

Simple Gift Series
Make music, find something new, and read with Betty the Bookworm.

POP Check
Mindful practice tools to Pause, Own what we are feeling, and Practice relaxing.

Kindergarten to 3rd Grade

Keep kids learning with fun lessons taught by Michigan teachers.

Read, Write, Roar
Kids build literacy skills with engaging ELA lessons.

Math Mights
Build number sense and learn strategies for solving math problems.

InPACT
Get moving with this home-based physical activity program.

4th to 6th Grade

Short, engaging videos and hands-on lessons keep tweens engaged.

Extra Credit
Creative writing, math, fitness, career exploration, and more!

Curious Crew
Dr. Rob Stephensen and inquisitive kids take a hands-on apprach to scientific exploration.

Story Pirates
Bite-sized literary lessons with comedians, authors, and teachers.

VISIT us online to view all shows, learn about events, and download activities!

www.michiganlearning.org

Follow @michlearning to find out more.

Michigan LEARNING CHANNEL
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WEEKDAY SUMMER SCHEDULE

TIME	GRADE	WHAT'S ON
6:00AM - 8:30AM	Pre-K	Wimee's Words, Simple Gifts Series, Signing Time, PBS Kids Shows
		Let's Learn
8:30AM	Kindergarten	Read, Write, ROAR!, Math Mights and more
10AM	1st Grade	
11AM	2nd Grade	
12PM	3rd Grade	
1:00PM - 1:30PM	4th - 5th Grade	Story Pirates, Infinite Art Hunt, and More
1:30PM - 3PM	Pre-K	Read, Write, ROAR! Preschool, Wimee's Words, Simple Gift Series, Signing Time
3PM - 6PM	6th - 12th Grade	Extra Credit, DIY Science Time, Story Pirates, and More
6PM - 8PM	Pre-K	The Nap Time Show, Let's Learn, Reading Buddies
8PM - 5AM	PBS Special Programming	The Career Center, Great Lakes Now, and More

Details at MichiganLearning.org/schedule

rev 03/23

WATCH on the Michigan Learning Channel.
Episodes are available on-demand or stream the channel at **MichiganLearning.org/summer**

Visit MichiganLearning.org and follow @MichLearning on social media to find out more.

App Learning Goals

MULTIPLE LEARNING GOALS GRADES PK-2

Free learning games with your favorite PBS KIDS characters anytime, anywhere!

Thousands of free videos from PBS KIDS, the #1 educational media brand for kids.

App	Grade	Learning Goals
Daniel Tiger for Parents (for parents & caregivers)	PK-K	Emotions, Self-Awareness & Relationships
Jet's Bot Builder	K-2	Science & Engineering
Molly of Denali	K-2	Literacy
Nature Cat's Great Outdoors	K-2	Science
PBS KIDS ScratchJr	K-2	Critical Thinking & Coding
PBS Parents Play & Learn	PK-K	Literacy & Math
Photo Stuff with Ruff	K-2	Science
Play and Learn Engineering (for parents & caregivers)	PK-K	Science & Engineering
Play and Learn Science (for parents & caregivers)	PK-K	Science
Ready Jet Go! Space Explorer	K-2	Science
Ready Jet Go! Space Scouts	K-2	Science & Engineering
The Cat in the Hat Builds That!	PK-K	Science & Engineering
The Cat in the Hat Invents	PK-K	Science & Engineering

FREE APPS
at pbskids.org/apps

Week 1: Animals

Explore the animal kingdom for ferocious fun! Our featured careers this week are biologist, zookeeper, and veterinarian. Scan the QR code or visit MichiganLearning.org/Week-1-Animals to explore all of our videos this week.

Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

Watch Curious About Careers	60 mins. of activity	Read for 20 minutes	Make a bird feeder	Watch DIY Science Time
Read for 20 minutes	Watch Story Pirates	Look for birds	Try "Environmental Science Issues"	60 mins. of activity
60 mins. of activity	Watch Math Park	HAVE FUN! (Free Space)	Go for a walk or hike	Read for 20 minutes
Watch Cartoon Academy	Spot a squirrel	Go for a walk or hike	Watch InPACT at Home	Research a featured career
Watch InPACT at Home	Read for 20 minutes	Watch Live From the Opera House	60 mins. of activity	Write a story about an animal

Make a Bird Feeder

What You Need:

- Pinecone, paper towel holder or piece of bread
- Peanut butter or honey
- Your choice of the following:
  - Raisins
  - Cranberries
  - Plain popped popcorn
  - Sunflower seeds
  - Shelled plain peanuts
  - Mixed birdseed
- Safety scissors
- Wire, dental floss or cotton string

What to Do:

1. Select a bird feeder base: Pinecones are a popular foundation for a bird feeder, but you may also use an empty paper towel roll or a stale piece of bread.

2. String it up: Run a wire, dental floss or cotton string through your bird feeder. Secure the two ends together to make a loop.

3. Make it sticky: Coat the base with peanut butter. If you know someone who has peanut allergies, use honey instead.

4. Add some goodies: Roll the feeder in raisins, cranberries, unsalted and unbuttered popcorn, sunflower seeds, shelled plain peanuts or mixed birdseed.

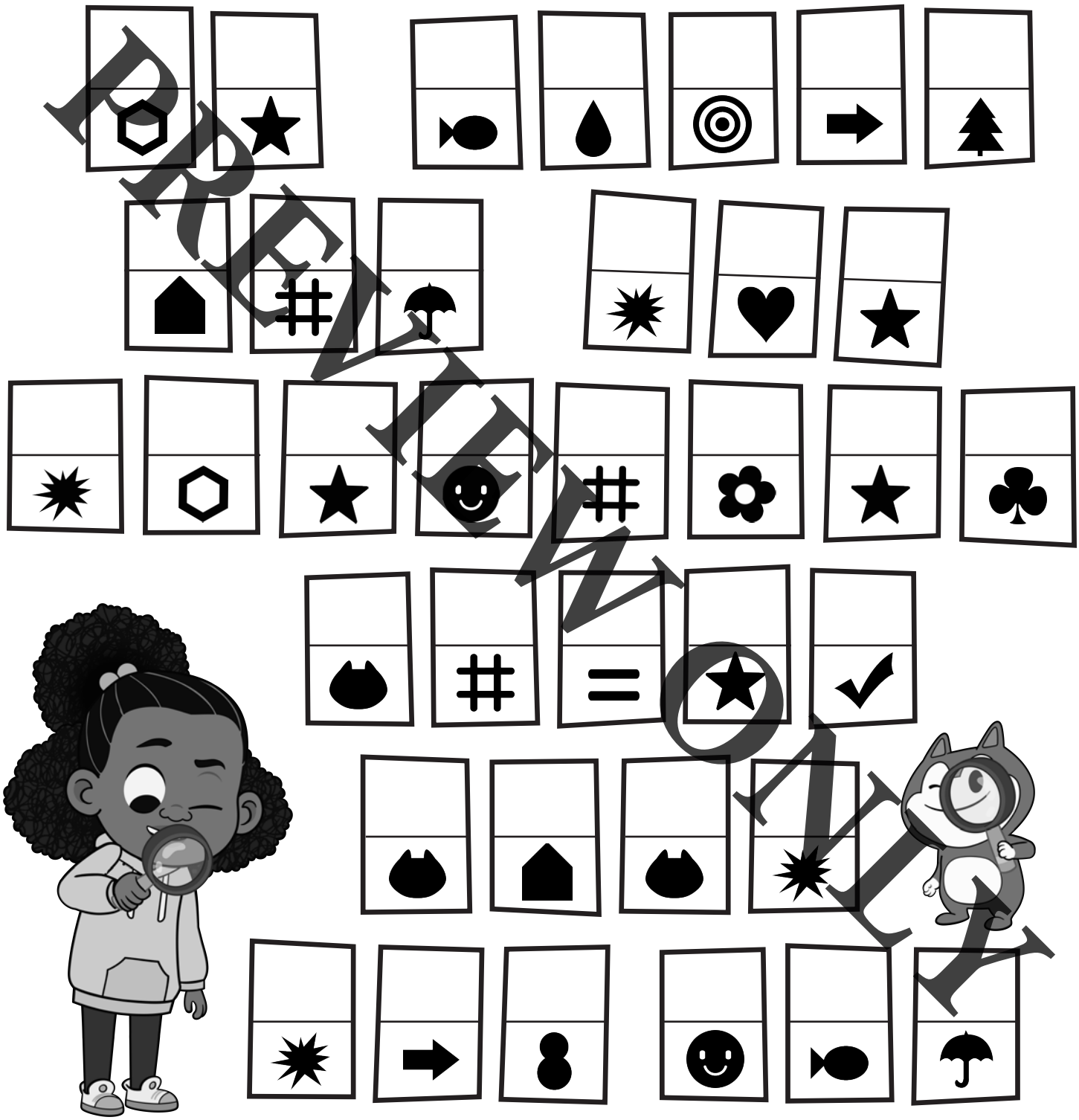
5. Hang it up: Place your bird feeder on a hook or on a tree branch outside your window. Discover which birds are popular in your neighborhood, research what they like to eat, and make a bird feeder for them.

6. Keep a wildlife journal: Record what kind of birds and other animals come to visit your feeder!

Find more games and activities at pbskids.org/naturecat

Secret Message Symbols

Use the code on the next page to reveal a secret message.
Match the symbols and letters to find out what it says!



Find more games and activities at pbskids.org/lyla

LYLA IN THE LOOP IS PRODUCED BY: Mighty Picnic, Pipeline Studios

MAJOR FUNDING PROVIDED BY:

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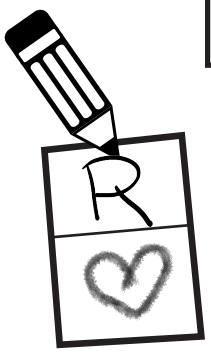
Secret Message Symbols

THE SECRET CODE

A	B	C	D	E	F	G	H	I	J
									

K	L	M	N	O	P	Q	R	S	T
									

U	V	W	X	Y	Z	!	?	,	.
									



EXAMPLE

Use the symbol code to write your own secret message below.
Give it to someone else to see if they can decode your message into words!

Find more games and activities at pbskids.org/lyla

LYLA IN THE LOOP IS PRODUCED BY:

MIGHTY PICNIC Pipeline Studios

MAJOR FUNDING PROVIDED BY:

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POINT OF VIEW WRITING: OTTERLY AMAZING

READ, Write, ROAR!

ACTIVITY GUIDE

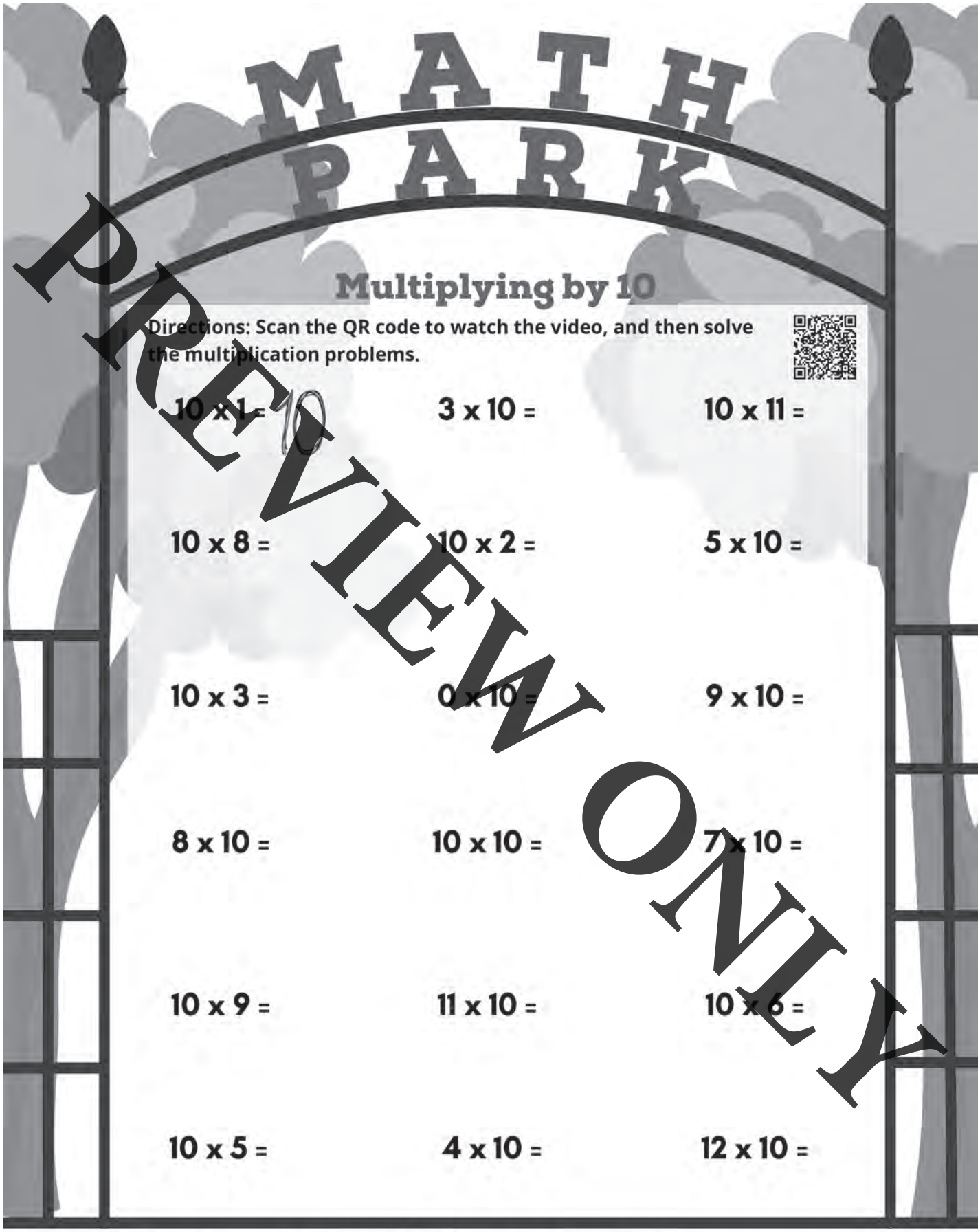
SCAN TO WATCH LESSON

EPISODE 108: RIVERS AND LAKES

Choose an animal and write a narrative from that animal's first-person point of view. It could be a wild animal or even a pet.

- What animal will you choose?
- What facts might you need to gather? Where will you look?

TIP: First-person narrative writings use pronouns like I, me, my, we, and us, so be sure to use those words in your writing.



Multiplying by 10

Directions: Scan the QR code to watch the video, and then solve the multiplication problems.

10 x 1 = 10	3 x 10 =	10 x 11 =
10 x 8 =	10 x 2 =	5 x 10 =
10 x 3 =	0 x 10 =	9 x 10 =
8 x 10 =	10 x 10 =	7 x 10 =
10 x 9 =	11 x 10 =	10 x 6 =
10 x 5 =	4 x 10 =	12 x 10 =

SHOW NOT TELL! THE STORY PIRATES CREATOR CLUB

Character Traits

Who is your character?	Choose a character trait to describe them. There are some suggestions below!
SHOW the character trait to the reader! Write about what the character is DOING because of that trait.	

Other words for "kind"
considerate
generous
helpful
thoughtful

Other words for "energetic"
exuberant
lively
spirited
vivacious

Other words for "friendly"
affable
amiable
gregarious
welcoming

Other words for "funny"
amusing
comical
hilarious
silly

Other words for "wise"
knowledgable
perceptive
prudent
shrewd

Other words for "unfriendly"
antisocial
disagreeable
hostile
rude

Other words for "lazy"
lackadaisical
lethargic
passive
weary

Other words for "hard-working"
diligent
industrious
persevering

DIY Air Cannon

FUN FACT

Dolphins can create vortex rings to play with in the ocean by blowing air through their blowholes. The quick burst of air combined with the round shape of the blowhole creates a vortex ring of bubbles.

MATERIALS

- Plastic or styrofoam cups
- Scissors
- Balloon
- Various items to knock over

DIFFICULTY

AIR PRESSURE

Air pressure, also known as atmospheric pressure, is the force exerted on a surface by the weight of air. Even though it is invisible to our eyes, the air surrounding us puts about 14.7 pounds per square inch of pressure on everything on the surface of Earth. That's a lot of pressure!

VISIT
DIYSCIENCETIME.ORG
FOR MORE SCIENCE FUN!

Why do scientists love renewable energy so much?

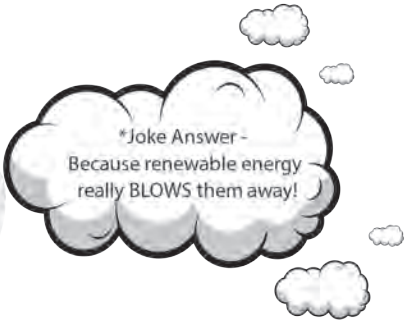
*Answer on the next page

ALABAMA PUBLIC TELEVISION

DIY SCIENCE TIME

"Science is wherever YOU are!"

DIY Air Cannon



EXPERIMENT

Step 1: Gather your materials.

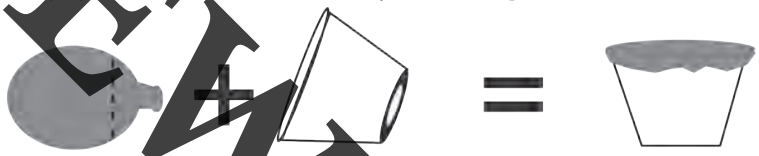
Step 2: Cut the neck off of the balloon and keep the large part.

Step 3: Carefully cut a hole in the bottom of the cup about the size of a dime with your scissors.

Step 4: Attach the cut balloon to the mouth of the cup. Be sure to stretch it tightly and reinforce by wrapping a rubber band around the lip of the cup.

Step 5: Tap or gently pull back the balloon and let it go to force the air out of your cannon.

Step 6: Set up a target, such as hanging toilet paper, to test to see how far your air rings can reach.



WHY IT WORKS

Although you can't see it, your cup is filled with air. When you apply a force to the air molecules by pulling back the balloon and letting it snapback, the air molecules are pushed towards the opening. This movement sets off a quick chain reaction of collisions with other air molecules and the sides of the cup. The only way for the air molecules to escape is through the opening at the bottom of the cup. The quick escape of these air molecules forms a stream of air that flows straight out of the cannon.

EXTEND YOUR LEARNING

- What might happen if you used a different sized cup? Could you cut a 2 liter bottle to make a larger cannon?
- Could you try another stretchy material to take the place of the balloon?
- Does it change the experiment if you make the hole a different shape? What if you place it in a different spot?
- Experiment with your air cannon to see what changes allow you to shoot air the furthest.
- Have a target competition with a friend.

WORKFORCE CONNECTION

A meteorologist studies interactions between temperature, humidity, air pressure, precipitation and vortices in the atmosphere. They develop an understanding of how vortices such as tornadoes, waterspouts and hurricanes form so they can predict the weather to keep people informed and safe. They also study and learn about the polar vortex and how it affects the weather during winter.

it's Storytime CHALLENGE

Create a better way to combine and carry multiple drinks
(rather than a plastic 6-pack ring).

it's Storytime REUSE Toolbox

- Cardboard
- Paint Stirrers
- Popsicle Sticks
- Rubber Bands
- Tape/String/Glue
- Ruler
- Wax Paper/Aluminum Foil

What other materials could you find and use?

ASK ▸▸▸▸ **What is the problem?**

IMAGINE ▸▸▸ **Brainstorm possible solutions.**

PLAN ▸▸▸▸ **Pick an idea and plan out how you are going to do it.**

CREATE ▸▸▸ **Build it!**

IMPROVE ▸▸▸ **What worked? What didn't? How can you make it better?**

SHARE ▸▸▸ **Share your idea!**

LIVE from the OPERA HOUSE it's Storytime

TCAPS Traverse City Area Public Schools Great Community, Great Schools

Michigan Learning Channel A Public Media Partnership

CITY OPERA HOUSE

Week 2: Across America

From coast to coast, explore what it means to be American. Our featured careers this week are reporter, architect, and paramedic. Scan the QR code or visit MichiganLearning.org/Week-2-America to explore all of our videos this week.

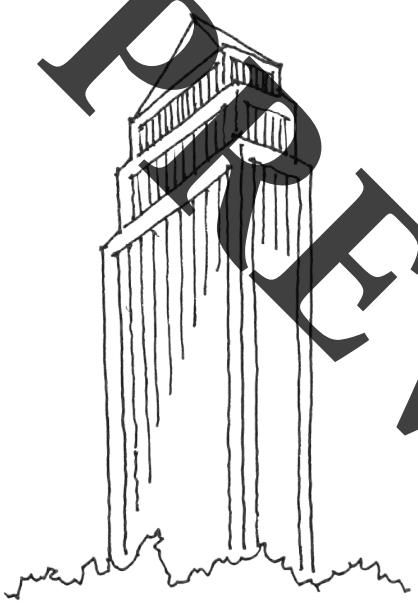
Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

Watch Story Pirates	60 mins. of activity	Read for 20 minutes	Research a featured career	Guess the age of a building
Read for 20 minutes	Research the Native Americans of Michigan	Learn about a family member's job	Watch DIY Science Time	60 mins. of activity
60 mins. of activity	Draw a local landmark	HAVE FUN! (Free Space)	Go swimming	Read for 20 minutes
Watch Curious About Careers	Do a good deed	Find all the states that border Michigan	Watch InPACT at Home	Name 3 states that start with the letter M
Watch InPACT at Home	Read for 20 minutes	Go for a walk or hike	60 mins. of activity	Spot a fire truck

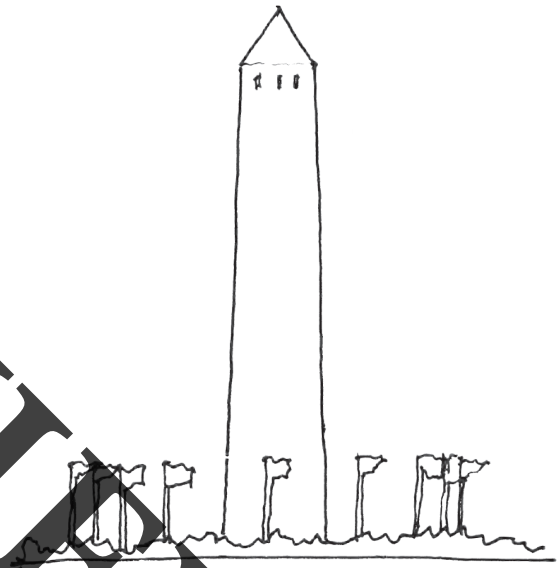
https://michiganarchitecturalfoundation.org

MICHIGAN ARCHITECTUR FOUNDATION

ArchiTREKS: Landmarks



High-Rise Building



Monument

Church Steeple

Water Tower

These are examples of landmarks. What landmarks are in your neighborhood? Draw a picture of a local landmark!

WHY IS LANSING MICHIGAN'S CAPITAL?

READ, Write, ROAR!

ACTIVITY GUIDE

SCAN TO WATCH LESSON

EPISODE 102: MAKING MICHIGAN

Persuasive writing is used to help win people over to your opinion. Think of something you believe in strongly, or maybe make up a funny or silly idea use the graphic organizer below to help frame your ideas to write a persuasive letter.

Introduction: State your opinion clearly.

Reason 1: Explain why you think your opinion is right.

Reason 2: Provide a second reason, and provide some evidence.

Reason 3: Explain how your opinion helps other people.

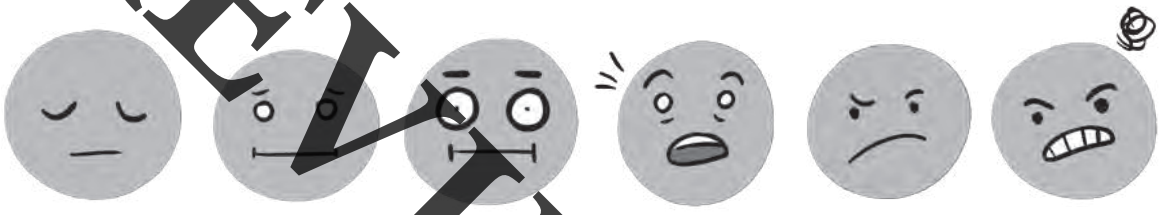
Conclusion: Summarize your opinion and state what you'd like your reader to do.

SHOW NOT TELL! Emotion

THE STORY PIRATES CREATOR CLUB

What **emotion** would you like to "Show, Not Tell"? Pick one from the examples below, or just choose your own! If you're not sure what some of the words mean, look at the picture of the face for a clue.

Elated Jubilant Thankful Gloomy Sorrowful



Lonely Anxious Petrified Startled Frustrated Furious

Irate Amazed Bewildered Shocked Inquisitive

Who is your character?	SHOW the emotion to the reader. What does the character SAY because they feel that way?
What **emotion** are they feeling?	

DIY Electromagnets

FUN FACT

The strength of magnets are measured in units of either tesla (T) or gauss (G). The tesla is used to measure very strong magnets. Weaker magnetic fields are measured in gauss. It takes 10,000 gauss to equal just 1 tesla! The strongest magnets in the world run at 45 teslas while Earth's magnetic field is only about 1/2 a gauss!

MAGNETISM

Magnetic activities like this can be very attractive! Magnets can be found in nature and can also be created by using electricity. Electromagnets are devices that create a magnetic field through the application of electricity.

MATERIALS

- Battery
- Wire
- Nail
- Paper clips
- Electrical tape

DIFFICULTY

VISIT
DIYSCIENCETIME.ORG
FOR MORE SCIENCE FUN!

ALABAMA PUBLIC TELEVISION

What is a magnet's favorite sport?

*Answer on the next page

DIY SCIENCE TIME

"Science is wherever YOU are!"

DIY Electromagnets

*Joke Answer - Pole vaulting!

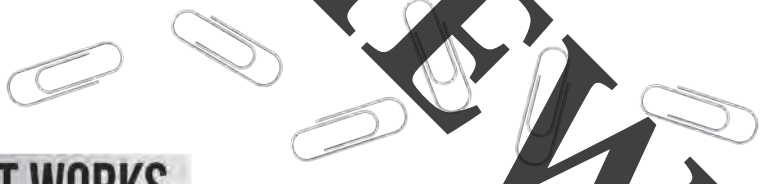
EXPERIMENT

Step 1: Gather your materials.

Step 2: Coil your wire around the nail, leaving some extra wire on both ends.

Step 3: Attach the wire to the battery on both ends using electrical tape.

Step 4: Bring the nail close to the paperclips to test your electromagnet!



WHY IT WORKS

During this activity you are creating an electromagnet. An electromagnet uses electricity to create a magnetic field. The magnetic field is created by the electric current running through the wire, and is concentrated around the inner coil of wire where the nail is located. The nail is now a temporary magnet that can pick up small pieces of metal.

EXTEND YOUR LEARNING

- How could you make your electromagnet pick up more paper clips? Or bigger paper clips?
- Could you stack two batteries together?
- What would happen if you changed the type or size of nail you are using?
- Do different types of nails work?

WORKFORCE CONNECTION

A radiologist is a doctor who performs and reads medical imaging such as ultrasounds, X-rays and MRIs to check for problems and diseases. MRIs (Magnetic Resonance imaging) are devices that take pictures of the inside of the body using electromagnets.

it's Storytime

CHALLENGE

Make a Bandolier Bag

A bandolier bag or gashkibidaagan is a beaded shoulder bag with a wide strap often ornately decorated with beadwork made by the Ojibwe women. Traditionally, these bags feature designs based on nature.

Small Paper Lunch Sack
Large Paper Grocery Bag
Markers/Crayons
Glue
Beads (Optional)

it's Storytime REUSE Toolbox

What other materials could you find and use?

Did You KNOW

The Grand Traverse Band of Ottawa and Chippewa Indians is one of the 12 federally recognized tribes in Michigan.

- According to Cindy Winslow, the TCAPS Indigenous Education Cultural Program Director:
- We are made up of the three fires - Odawa, Ojibway, and Potawatomi.
- We are woodland Natives.
- We speak Anishinaabemowin.
- We have powwows, which are a gathering of families for celebration.
- Regalia is what a dancer wears during traditional dances, like at a powwow. Regalia is not a costume. Regalia pieces have meaning.
- We are guided by the grandfather teachings of honesty, bravery, wisdom, humility, respect, love, and truth.
- We are hunters and gatherers.

Where do you live?

Hint:
https://native-land.ca is a great resource

"I live on the land of the _____ tribal nation."

LIVE from the OPERA HOUSE it's Storytime

TCAPS Traverse City Area Public Schools Great Community, Great Schools

Michigan LEARNING CHANNEL PUBLIC MEDIA PARTNERSHIP

CITY OPERA HOUSE

Week 3: Sports and Games

Get serious about fun pastimes from soccer to Sudoku. Our featured careers this week are dancer, athletic trainer, and musician. Scan the QR code or visit MichiganLearning.org/Week-3-Sports to explore all of our videos this week.

Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

Try an InPACT Activity Card	60 mins. of activity	Read for 20 minutes	Watch Math Park	Watch Curious About Careers
Read for 20 minutes	Watch DIY Science Time	Research a featured career	Design a new board game	60 mins. of activity
60 mins. of activity	Help an adult make a healthy dinner	HAVE FUN! (Free Space)	Make up a new sport or game	Read for 20 minutes
Practice portioning with Cyberchase	Watch Story Pirates	Try an InPACT Activity Card	Learn about a famous athlete	Watch Live From the Opera House
Watch InPACT at Home	Read for 20 minutes	Make an obstacle course	60 mins. of activity	Try a new food

PBS KIDS Cyberchase

Name _____

Week of _____

Jackie loves to be active. To help maintain good health and give her enough energy, she needs the following amounts from each food group each day:

Fruits	Grains	Protein	Dairy	Vegetables
1 ½ Cups	5 ounces	5 ounces	3 cups	2 Cups

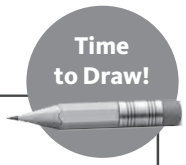
On the chart below, circle foods and drinks that will give Jackie the total amounts from each food group that she needs for one day. Add your choices up and total carefully to be sure. Note: "oz." is the abbreviation for ounce.

Vegetables	Fruits	Grains	Protein	Dairy
Small bowl of romaine lettuce (1/2 cup)	Small orange (1/2 cup)	2 slices whole- wheat bread (2 oz whole grains)	Slice of turkey (1 oz)	Glass fat-free milk (1 cup)
Small bowl spinach (1/2 cup)	Small apple (1/2 cup)	6 whole-wheat crackers (1 oz whole grains)	1 hard-boiled egg (1 oz)	2 slices low-fat Swiss cheese (1 cup)
Medium baked potato (1 up)	Large banana (1 cup)	1/2 cup cooked brown rice (1 oz whole grains)	1/2 cup cooked black beans (2 oz)	1.5 oz low-fat shredded cheddar cheese (1 cup)
12 baby carrots (1 cup)	16 grapes (1/2 cup)	Packet of instant oatmeal (1 oz whole grains)	Small hamburger patty (3 oz)	Snack-size container low-fat yogurt (1/2 cup)
Large sweetpotato (1 cup)	Mango (1 cup)	3 cups popped popcorn (1 oz whole grains)	Small chicken breast half (3 oz)	1 fat-free milk chug (1 cup)
6-8 cherry tomatoes (1 cup)	large peach (1 cup)	Medium piece of cornbread (2 oz refined grains)	12 almonds (1 oz)	Slice low-fat American cheese (1/2 cup)
Large ear of corn (1 cup)	large plum (1/2 cup)	Small whole-wheat tortilla (1 oz whole grains)	Small salmon patty (3 oz)	Small low-fat milk carton (1 cup)
TOTAL CUPS:	TOTAL CUPS:	TOTAL OUNCES:	TOTAL OUNCES:	TOTAL CUPS:

For more games and activities, visit pbskidsforparents.org

THE STORY PIRATES CREATOR CLUB

CREATE YOUR HERO



Draw and label your hero!

Hero's name

Activity Cards

Cut out the cards. When you're feeling antsy, try following the directions for one of the exercises!

Blast-Off Lunges

INSTRUCTIONS

1. Get into a lunge position with left leg forward, hips underneath you, and right leg behind your right hip.
2. Slowly sink into a lunge, trying to get your knee to touch the ground.
3. Immediately "blast off" by hopping upwards and into next lunge position with right leg forward and left leg behind.
4. If needed, instead of jumping into the next lunge position, jump with feet together and then bounce into lunge position.
5. Repeat as many rounds as possible.

Side Leg Lifts

INSTRUCTIONS

1. Start by laying on your side with your legs stacked on top of each other.
2. Slowly raise your top leg up towards the sky and then back down.
3. Complete 10 repetitions and then switch legs.
4. Complete 3 sets per leg.
5. For added challenge, tape a bag of water to the top leg for some added weight!

Tap Backs

INSTRUCTIONS

1. Stand up tall and proud with your feet together and hands on your hips.
2. Take your right foot and tap it right behind you, then place back to starting position.
3. Take your left foot and tap it right behind you, then place back to starting position.
4. Repeat as fast as can to get 100 tapbacks (50 on each leg).

Ski Jumps

INSTRUCTIONS

1. Start by standing tall with your feet shoulder width apart.
2. Using only your right foot, jump to the left about 2-3 feet and land on your left foot.
3. Gather yourself and then using only your left foot, jump to the right 2-3 feet and land on your right foot.
4. Repeat this as many times as you can for 30 seconds.

Bonus: After each time you jump, touch the ground with the same hand as the side you landed on. Ex: Land on your left foot, touch the ground with your left hand.

Cereal Bowl

INSTRUCTIONS

1. Lay flat on your back with feet together.
2. Bring your knees together and raise both legs up so that your feet are facing the ceiling.
3. In slow motion, stir the imaginary bowl of cereal with feet and keep hands under your bottom.
4. Repeat 30 times.

Lay Down Hip Stretch

INSTRUCTIONS

1. Start by sitting at the edge of a bed in a relaxed position with your feet hanging off.
2. Lay back, and pull your right knee towards your chest while keeping your left leg hanging off the bed.
3. Pull your knee until you feel a stretch in your left hip and hold for 10-15 seconds.
4. Relax, switch legs, and then repeat 2-3 times per leg.

Aligator Breath

INSTRUCTIONS

1. Stand with legs hip-width apart.
2. Spread arms out wide and inhale as you reach outward.
3. When you exhale, clap your hands together as many times as possible like baby alligator jaws.

Cloud Watching

INSTRUCTIONS

1. Find a day where there are a lot of clouds in the sky.
2. Lay down on your back on the ground or in the grass and look up into the sky.
3. Watch and admire all the different clouds. Look at the different shapes they make, how fast/slow they're moving, and where they are moving to!

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DON'T HATE! APPRECIATE! LET'S WRITE AN ODE!

READ, Write, ROAR!

ACTIVITY GUIDE

SCAN TO WATCH LESSON

EPISODE 104: TASTY MICHIGAN TREATS

Let's Celebrate What We Love

An ode is an ancient form of poetry that offers praise for an emotion, an activity, a person, place or thing, or an idea.
Write an ode where you choose something in your local surroundings or community to praise. Directly address the object of your affections with a second-person pronoun (you). Use hyperbole. Try to write at least 10 lines!

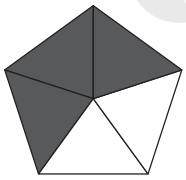
An Ode to _____

MATH PARK

Fractions of a Set

Directions: Scan the QR code to watch the video, and then write the fraction you see in the picture.

$\frac{4}{5}$



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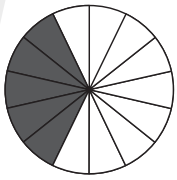

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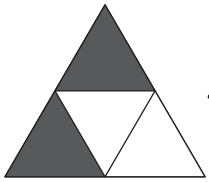

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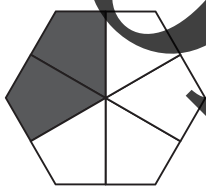

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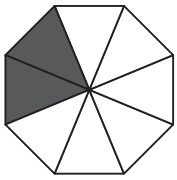

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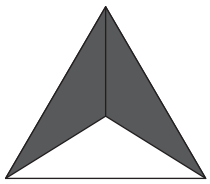

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DIY Snake Bubbles

FUN FACT

Some fish use bubbles as a nest for their baby fish eggs. These fish blow lots of tiny bubbles that float to the top of the water, creating a "hidden" spot for the baby fish eggs to hide from predators until they can hatch.

MATERIALS

- Bowl
- Water
- Dish soap
- Scissors
- Plastic water bottle
- Craft stick
- Sock

DIFFICULTY

SURFACE TENSION

Surface tension allows liquids to be strong. The strength is from cohesion, where a liquid's molecules are attracted to each other. Water is made of many tiny H2O molecules that are attracted to each other especially at the surface. Soaps and detergents decrease surface tension, breaking down dirt and grime. This decrease in surface tension allows bubbles to be made.

VISIT
DIYSCIENCETIME.ORG
FOR MORE SCIENCE FUN!

What is a bubble's favorite sport?

*Answer on the next page

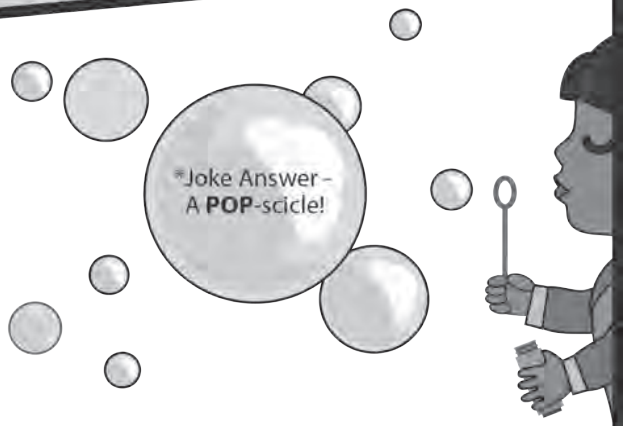
ALABAMA PUBLIC TELEVISION

DIY SCIENCE TIME

"Science is wherever YOU are!"

Mister C – Official Crew – S.T.E.A.M. Powered

DIY Snake Bubbles



EXPERIMENT

Step 1: Gather your materials.

Step 2: Pour 2 cups of water into the bowl.

Step 3: Add 1/4 cup dish soap to 2 cups of water, and stir with a craft stick.

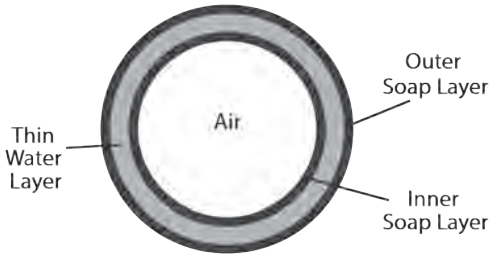
Step 4: Use scissors to carefully cut off the bottom of the water bottle.

Step 5: Put a sock over the bigger end of the bottle.

Step 6: Dip the sock into the soapy solution.

Step 7: Blow air into the smaller end of the bottle.

Bubble Diagram



WHY IT WORKS

Water mixed with soap decreases the water's surface tension and allows the water to become "flexible". A soap bubble filled with air is made of three very thin layers: soap, water, and another layer of soap. This sandwiches the water, allowing a bubble to form. As you blow the soapy water mixture through the holes in the sock material, tiny bubbles are formed very close together making the shape of a snake.

EXTEND YOUR LEARNING

- Do the bubbles look different if you use socks made of different materials? Try a dress sock or tights?
- What other bubble makers or bubble wands can you design?
- What happens if you change the amount of soap or water in your bubble solution?
- What might happen to the strength of your bubble if you were to add glycerin or corn syrup?

WORKFORCE CONNECTION

Chemists work with soaps and detergents to make the best cleaner. They need to understand the chemistry of the soap molecules and how they reduce the surface tension of water as well as grabbing onto the oils and dirt.

it's Storytime CHALLENGE

Create a better sneaker.

it's Storytime REUSE Toolbox

- Cardboard
- Paint Stirrers
- Drinking Straws
- Tree Bark
- Tennis Balls
- Styrofoam
- Balloons
- Plastic Shopping Bags
- Popsicle Sticks
- Rubber Bands
- Tape/String/Glue
- Ruler
- Wax Paper
- Aluminum Foil

What other materials could you find and use?

ASK ▸▸▸▸ What is the problem?

IMAGINE ▸▸▸ Brainstorm possible solutions.

PLAN ▸▸▸▸ Pick an idea and plan out how you are going to do it.

CREATE ▸▸▸ Build it!

IMPROVE ▸▸▸ What worked? What didn't? How can you make it better?

SHARE ▸▸▸ Share your idea!

LIVE from the OPERA HOUSE it's Storytime

TCAPS Traverse City Area Public Schools Great Community, Great Schools

Michigan LEARNING CHANNEL A PUBLIC MEDIA PARTNERSHIP

CITY OPERA HOUSE

Week 4: Engineering

Tinker, design, build, rebuild, and find engineering everywhere. Our featured careers this week are engineers from all kinds of specializations, auto design director, and software developer. Scan the QR code or visit MichiganLearning.org/Week-4-Engineering to explore all of our videos this week.

Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

Watch DIY Science Time	60 mins. of activity	Read for 20 minutes	Watch ArchiTREKS	Try the Daring Design Challenge
Read for 20 minutes	Find a green building outside	Watch Career Girls	Ask a family member about their job	60 mins. of activity
60 mins. of activity	Watch Story Pirates	HAVE FUN! (Free Space)	Design a robot	Read for 20 minutes
Research a featured career	Redesign something in your house	List things that use electricity	Watch InPACT at Home	Design an invention
Watch InPACT at Home	Read for 20 minutes	Watch Math Park	60 mins. of activity	Find a tall building in your neighbor-hood

DECODING WORDS: TRANSPORTATION

READ, Write, ROAR!

ACTIVITY GUIDE

SCAN TO WATCH LESSON

EPISODE 105: GETTING FROM HERE TO THERE

Let's read about the Ambassador Bridge! Circle any words with the root word **-port-**. Remember, **-port-** means "to carry or bring." Then, use the key to discuss what those words mean!

The Ambassador Bridge

You may have heard of the Mackinac Bridge in Michigan, but do you know about the Ambassador Bridge? The Ambassador Bridge is an important bridge in Michigan that connects Detroit, Michigan, and Windsor, Ontario, in Canada! Many companies transport their goods across the bridge on large trucks. Imports and exports sent over the bridge help people in both countries.

PREFIXES

ex-
out or away

im-
in or into

trans-
across or beyond

SUFFIXES

-ant
doing the action of the verb

-s
more than one

Write a sentence about the Ambassador Bridge! Include two **-port-** words.

_____

_____

THE STORY PIRATES CREATOR CLUB

DESCRIBE YOUR HERO

What are some words to describe your hero?

What is your hero really **GOOD** at, or what is your hero's **TALENT**?

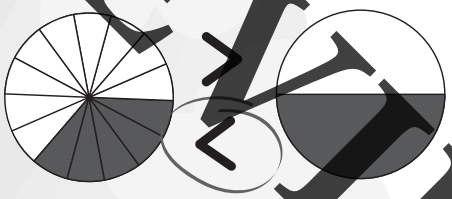
What is your hero's **WEAKNESS**, or what is your hero **AFRAID** of?

What does your hero like to do on a **NORMAL DAY**, when they don't have a big problem to solve?

MATH PARK

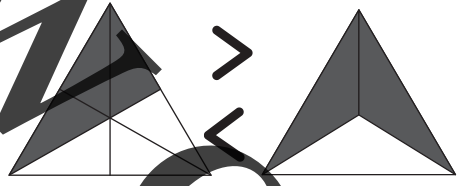
Equivalent Fractions

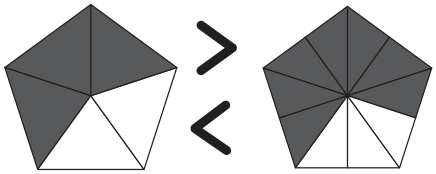
Directions: Scan the QR code to watch the video, and then circle the symbol that goes between them.



$\frac{3}{10} > < \frac{3}{5}$

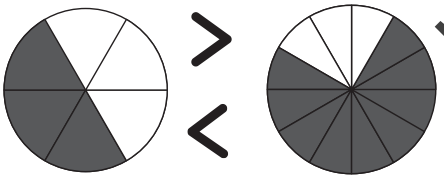
$\frac{1}{4} > < \frac{1}{8}$





$\frac{5}{5} > < \frac{1}{15}$

$\frac{1}{2} > < \frac{1}{4}$



Daring Design Challenge

PBS KIDS

THE CAT IN THE HAT Knows a Lot About That!™

Work together to build something new.

Sally and Nick build a bridge that's long and strong, a boat that floats, and a vase with a cool base. What can YOU create? Work together with a friend and challenge your building brains by designing some amazing creations in this collaborative game.

Materials

- Daring Design Challenge cards (print two-sided)
- The Engineering Design Process wheel
- Paper
- Pencil
- Tape
- Various household items
  (Examples: wooden craft sticks, paper, straws, building blocks, fabric scraps, cans, aluminum foil, paper plates and cups, string, etc.)

Play the Game

1. Print and cut out the Daring Design Challenge cards and the Engineering Design Process wheel.
2. Together, select a game card from the pile.
3. Follow the challenge and make something amazing as you move step by step—along with THE CAT IN THE HAT—through the Design Process wheel.

Tip

The shape and weight of a design can affect how it works. You may need a wider base or different material for your designs to balance, float, or move.

Remember

Accidents happen — if you're lucky! It's okay if things don't always happen how we planned. Sometimes we discover something unexpected that makes our designs even better.

More Ways to Play

1. Think of a problem that needs to be solved. Using the four blank Daring Design Challenge cards (included in this printout), create four more design challenges. Try them with a friend.
2. Choose a design you already created and make it again using a different material.
3. Time how long it takes you to build a design. Then try it again. Can you beat your time?

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The Engineering Design Process

Stabilizer

THE CAT IN THE HAT

1. With an adult's help, cut out THE CAT IN THE HAT figure, the stabilizer, and the wheel. Then cut along the vertical lines at the base of THE CAT IN THE HAT and the top of the stabilizer.
2. Push the stabilizer into the base of THE CAT IN THE HAT to create a "+". THE CAT IN THE HAT should now stand.
3. Use THE CAT IN THE HAT to guide you around the wheel.

Funded by a Ready to Learn Grant

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Create a musical instrument that can make three different notes or sounds.

Imagine & Plan!

Sounds can come from hitting or plucking an object, or blowing on or through objects of different lengths. What objects can help your design work?

Make a boat that floats.

Test!

Fill the bathtub or a sink with water to test your boat. Hope it floats!

Design something taller than you.

Create!

Have fun building together. Accidents happen, if you're lucky! Use a mistake to make it even better.

Build something that will balance a pencil.

Improve!

Can it balance two pencils? Three?

Design something that can launch a coin into the air.

Test!

How do you know if it is balanced?

Create something beautiful—just because.

Imagine & Plan!

Ask a friend how your creation makes him or her feel.

Make a ball that bounces.

Improve!

Can you make something that helps you move it faster?

Build a tower as tall as your table using only paper.

Imagine & Plan!

What can you do to make paper stronger and taller?

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Corporation for Public Broadcasting

PBS KIDS

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DIY Elephant Toothpaste

FUN FACT

Seaweed is in our toothpaste! Seaweed acts as a thickening agent that allows toothpaste to be squeezed from its tube!

MATERIALS

- Yeast
- Dish soap
- Measuring spoons
- Empty plastic bottle
- Cup with warm water
- 3% Hydrogen peroxide

DIFFICULTY

CHEMICAL REACTIONS

Chemical reactions take place when the molecular or ionic structure of a substance is rearranged. When a chemical reaction occurs, a new substance is created and the process is irreversible. Today we will be making elephant toothpaste!

VISIT
DIYSCIENCETIME.ORG
FOR MORE SCIENCE FUN!

Why are chemists great at solving problems?

*Answer on the next page

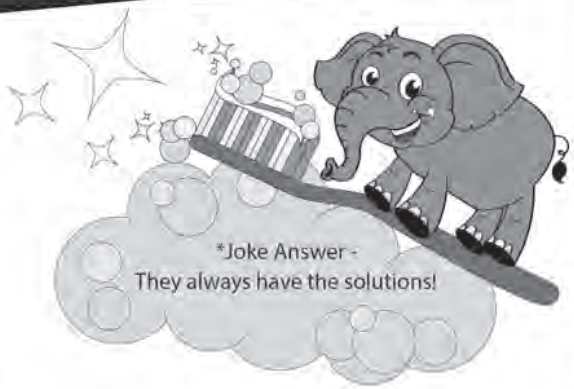
ALABAMA PUBLIC TELEVISION

DIY SCIENCE TIME

"Science is wherever YOU are!"

OFFICIAL CREW - Mister C - S.T.E.A.M. POWERED

DIY Elephant Toothpaste



EXPERIMENT

Step 1: Gather materials.

Step 2: Place 2 tablespoons of yeast into 3 oz of warm water.

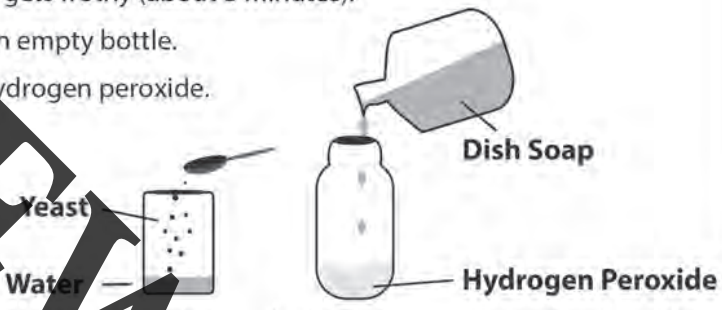
Step 3: Mix yeast and warm water, let stand until it gets frothy (about 3 minutes).

Step 4: Pour 4 ounces of hydrogen peroxide into an empty bottle.

Step 5: Squirt 1 tablespoon of dish soap into the hydrogen peroxide.

Step 6: Pour your yeast mixture into the bottle.

Step 7: Observe what happens!



WHY IT WORKS

"Elephant toothpaste" is created when a chemical reaction takes place and releases one oxygen atom from the hydrogen peroxide (H^2O^2). Hydrogen peroxide decomposes, or breaks down, into water (H^2O) and oxygen (O^2) naturally over time, but the yeast causes this to occur faster. The yeast has an enzyme in it called catalase. Catalase is a catalyst, something that increases the speed of the reaction. The catalyst is what causes the oxygen to be released quickly to create our "elephant toothpaste." So why did we add soap? We wanted to capture all of the released oxygen (gas) from the chemical reaction!

EXTEND YOUR LEARNING

- Would the experiment still work if you added more yeast?
- What happens if you don't add the soap?
- Does the shape or the size of the bottle change how the elephant toothpaste flows?

WORKFORCE CONNECTION

Cosmetologists, people who study the application of beauty treatments, work carefully with chemical reactions on a daily basis to help color people's hair. When someone's hair is bleached, a chemical reaction takes place to change the melanin from brown to a colorless (pale yellow) color. This irreversible process (chemical change) then allows the cosmetologist to apply a new color to the hair.

Week 5: Our Stories

From legends to our everyday lives, stories shape who we are. Our featured careers this week are writer, archaeologist, and teacher. Scan the QR code or visit MichiganLearning.org/Week-5-Stories to explore all of our videos this week.

Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

Learn about a family member's job	60 mins. of activity	Read for 20 minutes	Read a story from a different country	Try "Going on a Book-nic"
Read for 20 minutes	Research a featured career	Watch Cartoon Academy	Draw a family portrait	60 mins. of activity
60 mins. of activity	Fill out the Career Girls Comic	HAVE FUN! (Free Space)	Watch Story Pirates	Read for 20 minutes
Watch Live From the Opera House	Write an original story	Watch DIY Science Time	Watch InPACT at Home	Make a family recipe
Watch InPACT at Home	Read for 20 minutes	Draw a comic strip	60 mins. of activity	Watch Math Park

TELLING INTERGENERATIONAL STORIES

READ, Write, ROAR!

ACTIVITY GUIDE

SCAN TO WATCH LESSON

EPISODE 106: LET'S TALK TOGETHER

Rather than screen time, spend time talking!

Traveling Conversations

Walk & Talks

Share connections with books & shows

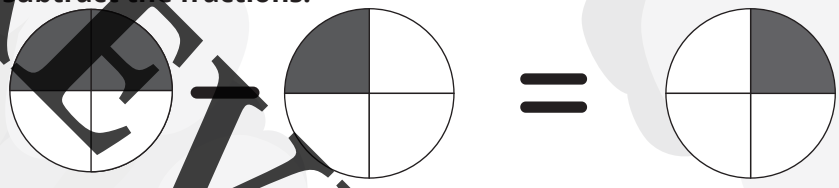
Conversation Starters

- Tell me about a time you laughed really hard.
- Share a memory about when you felt embarrassed.
- How did you feel learning something new?
- What was your favorite toy when you were a kid?

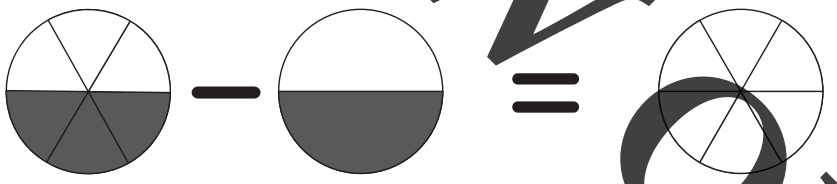
MATH PARK

Adding & Subtracting Fractions

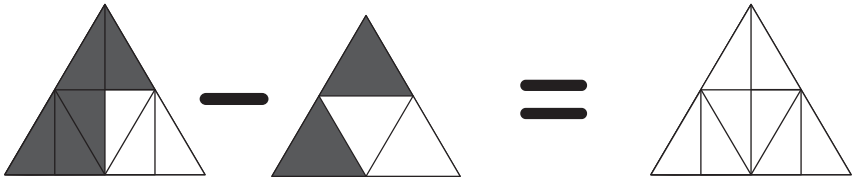
Directions: Scan the QR code to watch the video, and then add and subtract the fractions.



$\frac{4}{8} + \frac{1}{8} = \frac{\quad}{\quad}$



$\frac{2}{4} + \frac{1}{4} = \frac{\quad}{\quad}$



THE STORY PIRATES CREATOR CLUB

THE HERO SIZED PROBLEM

Every story involves some sort of problem, but in a hero story that problem is SO HUGE that a whole community is in danger, and a hero needs to save the day! For more ideas on how to create a Hero Sized Problem, check out our Hero Stories videos at storypirates.com/storypiratesuniversity.

What is the **COMMUNITY** where your story takes place? A city? A town? An underground snow fortress? Use your imagination, then draw and label a picture or map!

What is the **HERO SIZED PROBLEM** in the community?

THE STORY PIRATES CREATOR CLUB

CREATIVE SOLUTIONS

The Hero Sized Problems of today can't be solved just by punching, kicking, and blowing things up. Heroes need to be able to use their imaginations, and come up with creative ways to solve problems that nobody has even thought of before. For more ideas on how to invent some **CREATIVE SOLUTIONS**, and then have your hero **TRY, FAIL, AND TRY AGAIN**, check out our Hero Stories videos at storypirates.com/storypiratesuniversity.

The **FIRST** solution the hero tried:

Unfortunately (what went wrong?):

The **NEXT** thing the hero tried:

Unfortunately (what went wrong?):

The solution that **FINALLY** worked:

It worked because:

DIY Heatless Lava Lamp

FUN FACT

Lava lamps were invented in 1948 and were originally called "Astro Lamps." The lava lamp made its television debut in the US in the 1960s on a show called "Doctor Who." Sales skyrocketed after this TV appearance!

MATERIALS

- 2-liter bottle
- Vegetable oil
- Water
- Effervescent tablets
- Food coloring
- Funnel

DIFFICULTY

DENSITY

Density is a measurement of the matter an object has within a given volume. Objects with more matter in a given volume have a higher density. Objects with less matter in the same amount of volume have a lower density. Density is found by dividing the mass of an object by its volume.

VISIT

DIYSCIENCETIME.ORG
FOR MORE SCIENCE FUN!

What runs but never walks?

*Answer on the next page

ALABAMA PUBLIC TELEVISION

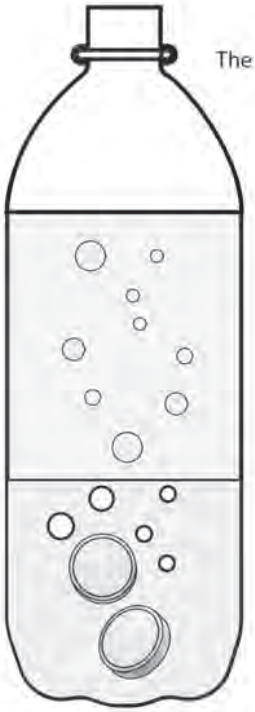
DIY SCIENCE TIME

"Science is wherever YOU are!"

OFFICIAL CREW - Mister C - S.T.E.A.M. POWERED

*Joke Answer -
The water from your faucet!

DIY Heatless Lava Lamp



EXPERIMENT

Step 1: Gather your materials.

Step 2: Clean and rinse your empty 2-liter bottle.

Step 3: Pour 3 cups of water into your bottle.

Step 4: Add food coloring to the water.

Step 5: Gently pour vegetable oil into the bottle and observe how the water and oil interact.

Step 6: After allowing the water and oil to settle, drop pieces of the effervescent tablets into the bottle.

Step 7: Observe what happens!

WHY IT WORKS

The oil and water stay separate because they have different densities. The oil floats on the water because it's less dense than water. When the effervescent tablet sinks to the bottom, it mixes with the water and starts a chemical reaction that produces carbon dioxide, a gas that rises through the oil. When these bubbles rise, they pull some of the colored water up and through the oil. The gas eventually escapes at the top, but the water falls back down through the oil because it is more dense!

EXTEND YOUR LEARNING

- What happens if you add more pieces of effervescent tablet, or change the amount of water in the bottle?
- Try shining a light, like a flashlight, through the bottle. What can you see differently?
- Is there a limit to the number of times you can repeat the experiment?

WORKFORCE CONNECTION

Paint chemists are scientists who study the properties and use of paint. Most paints are made of the same basic ingredients: pigments, binders, liquids, and additives. How these ingredients interact due to their densities plays an important part in determining the way that paint performs. Paint chemists study things like how well a paint can cover a surface or how long a paint may be able to last outside in the weather.

it's Storytime CHALLENGE

Poetry brings people together.
It is a great way for you to share your thoughts and feelings about big ideas. Poetry helps us see the beauty in ourselves and others as we work with the beauty of words.

Notebook Paper or Scrap Paper
Pencil or Pen
Markers
Scissors *(regular or decorative edge)*
Large Paper
Grocery Bag
Watercolor Paints *(optional)*

it's Storytime REUSE Toolbox

What other materials could you find and use?

I am _____
I wonder _____
I hear _____
I see _____
I want _____
I feel _____
I worry _____
I dream _____
I try _____
I hope _____
I am _____ *(repeat the first line)*

LIVE from the OPERA HOUSE it's Storytime

TCAPS Traverse City Area Public Schools Great Community, Great Schools

Michigan Learning Channel A PUBLIC MEDIA PARTNERSHIP

CITY OPERA HOUSE

Week 6: Great Lakes

Dive in and explore the lakes that make Michigan special. Our featured careers this week are meteorologist, oceanographer, and water chemist. Scan the QR code or visit MichiganLearning.org/Week-6-Lakes to explore all of our videos this week.

Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

Go fishing	60 mins. of activity	Read for 20 minutes	Watch the sunset	Make a pond viewer
Read for 20 minutes	Watch Story Pirates	Name all 5 Great Lakes	Design a boat or ship	60 mins. of activity
60 mins. of activity	Draw an underwater world	HAVE FUN! (Free Space)	Watch BeLEAF It or Not	Read for 20 minutes
Watch Curious About Careers	Go swimming	List careers that work in or near water	Watch InPACT at Home	Play in the rain
Watch InPACT at Home	Read for 20 minutes	Watch the sunrise	60 mins. of activity	Watch Live From the Opera House

A POND WITH A VIEW

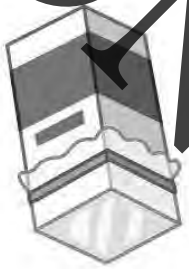
DIFFICULTY: EASY

While there is action all around a pond, what do you think is happening *in* the water? Ponds are filled with animal and plant life that have special qualities that help them spend all or most of their lives underwater. Make this pond viewer to bring on your next pond exploration!

MATERIALS

- One-half gallon milk carton
- Scissors
- Waterproof, strong tape (e.g. duct tape) or a sturdy rubber band
- Heavy, clear plastic wrap

LET'S MAKE A POND VIEWER!



1. Have an adult cut off the very top of the milk carton and the very bottom to create a rectangular tube.
2. Tear off a sheet of plastic wrap and place it over one of the open ends. Fold down the plastic wrap… make sure wrap is smooth and tight for clear viewing.
3. Using the tape or the rubber band, secure the plastic wrap in place. Keep the plastic wrap as tight as possible so you have a flat viewing surface.

POND VIEWING TIPS

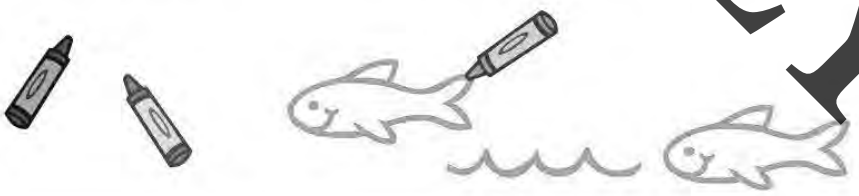
1. Splashing and stirring up mud will make it difficult to see into the pond. Be as still as possible when using your viewer.

2. Despite what NatureCat says, it is noble and fun to get wet! If the shoreline is murky, slowly wade out to your knees before using your viewer where it may be less murky.

3. Other ways to view: on a dock, over the side of a canoe, or in a stream, lake or tide pool!

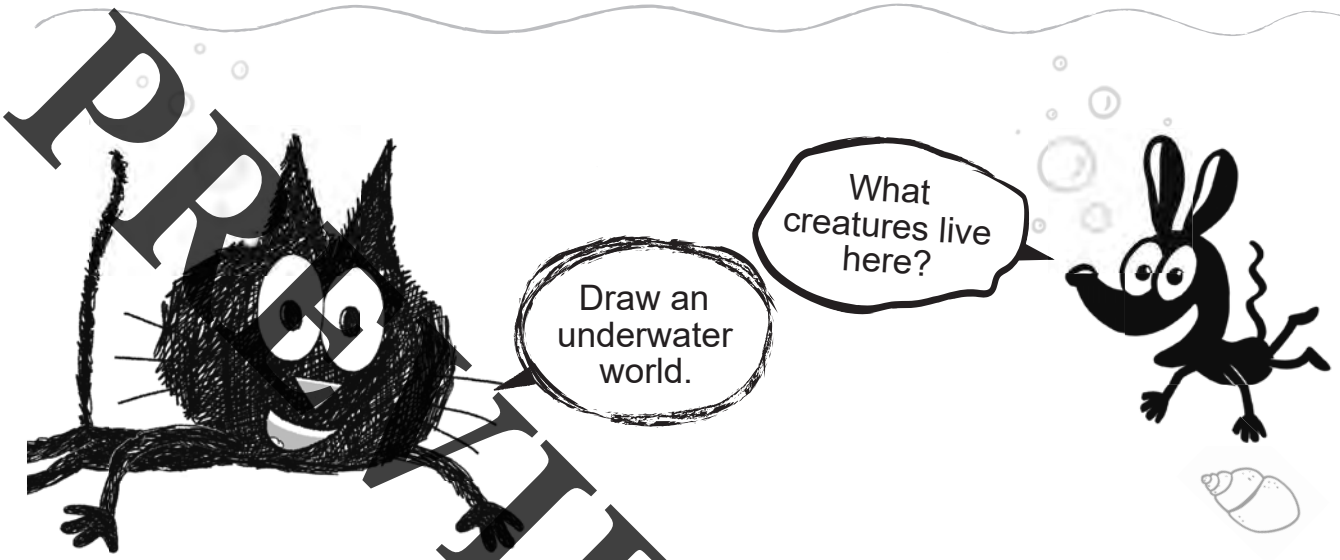
LET'S TAKE A CLOSER LOOK

Describe a plant or animal that you see. Draw a picture of it, and ask an adult to help you identify and label your picture.



pbskids.org/naturecat

Underwater World



Produced by:

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THE STORY PIRATES CREATOR CLUB

DIALOGUE PRACTICE

A hero story needs lots of interesting dialogue. You want the reader to be able to hear it when your hero gives an inspiring speech, or whispers a secret plan, or makes a cool snappy comment. Practice writing some dialogue for your hero that you might put into a story later! For more ideas and information, watch our Hero Stories videos at storypirates.com/storypiratesuniversity.

Write some dialogue here. Use quotation marks, and check out the next page for some words you could use instead of "said".

You can also draw your hero in an exciting scene, and add a speech bubble for what they're saying.

LAKE EFFECT SNOW AND DIALOGUE

READ, Write, ROAR!

ACTIVITY GUIDE

SCAN TO WATCH LESSON

EPISODE 103: WHAT'S UP WITH THE WEATHER?

What interests you and would make a great story? Use the three-column chart below to organize your writing into three parts.

BEGINNING	MIDDLE	ENDING

DIY Bouncy Ball Recipe

FUN FACT

Bini the Bunny holds the world record for the most basketball slam dunks in one minute by a rabbit. Bini made 7 dunks in just 60 seconds! Now that's one bouncy bunny!

MATERIALS

Ball mixture
- Glue
- Cornstarch
- Food coloring
- Mixing bowl
- Measuring spoons

Borax Bath
- Borax
- Warm water
- Mixing bowl

DIFFICULTY

POLYMERS

Polymers are large molecules made from bonded (chemically linked) groups of similar atoms. The word polymer is Greek for "many parts." Polymers are made of many monomers (Greek for "one part"). A polymer is a chain of linked monomers. Polymers can be found all around us: bicycle tires, plastic plates, strands of our hair, and even super duper bouncy balls!

Why did the bucket bounce?

*Answer on the next page

VISIT

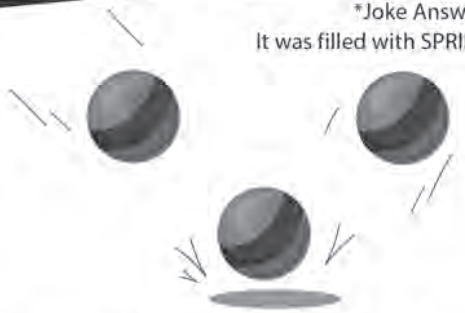
DIYSCIENCETIME.ORG
FOR MORE SCIENCE FUN!

apt
ALABAMA PUBLIC TELEVISION

DIY SCIENCE TIME

"Science is wherever YOU are!"

*Joke Answer -
It was filled with SPRING water!



DIY Bouncy Ball Recipe

EXPERIMENT

Step 1: Create a Borax bath by mixing together 2 Tbsp Borax into 1 cup of warm water in a mixing bowl.

Step 2: Create your ball mixture by mixing together 1 Tbsp cornstarch with 2 Tbsp of glue. If you want your ball to be colored, add food coloring and mix together in another bowl.

Step 3: Carefully drizzle your ball mixture into your Borax bath. Allow it to sit in the bath for 15-20 seconds. Stir and make sure that all parts of the mixture have been activated by the Borax bath (should feel firm).

Step 4: Remove your ball mixture from the Borax bath and form into a ball shape. A measuring spoon can be used as a guide to help shape your ball. Place your ball back into the Borax bath for 60 seconds.

Step 5: Be sure to wash your hands after handling the Borax bath.

Step 6: Try bouncing and testing your ball!

WHY IT WORKS

You are seeing a chemical reaction right before your eyes during this experiment. The glue is a polymer and the Borax links together the molecule chains of the glue. The cornstarch helps to thicken the mixture, allowing it to be formed and hold a ball-like shape. Although you can't see the molecules linking in the chemical reaction, we know a chemical reaction has taken place because our ingredients have combined to create a new item!

EXTEND YOUR LEARNING

- What happens if you changed the amount of cornstarch or glue used in the recipe? Could you make a larger ball?
- Does your bouncy ball behave differently if chilled in the freezer?
- Could you separate your recipe and use different food coloring to make a multi-colored ball?

WORKFORCE CONNECTION

A geneticist is a biologist who studies genetics, the science of genes, heredity, and variation of organisms. The genes they study are made of polymers called DNA. Two long strands of these polymers form the familiar double helix shape of DNA. The monomers that make up DNA strands are called nucleotides. Geneticists study the genes of organisms like human beings, animals, crops and bacteria.

it's Storytime CHALLENGE

Build a boat that can float for 3 minutes.

it's Storytime REUSE Toolbox

- Cardboard
- Paint Stirrers
- Paper/Newspapers
- Drinking Straws
- Tree Bark
- Tennis Balls
- Styrofoam
- Balloons
- Plastic Shopping Bags
- Popsicle Sticks
- Rubber Bands
- Tape/String/Glue
- Ruler
- Wax Paper/Aluminum Foil

What other materials could you find and use?

ASK ▶▶▶▶ What is the problem?

IMAGINE ▶▶▶ Brainstorm possible solutions.

PLAN ▶▶▶▶ Pick an idea and plan out how you are going to do it.

CREATE ▶▶▶ Build it!

IMPROVE ▶▶▶ What worked? What didn't? How can you make it better?

SHARE ▶▶▶ Share your idea!

LIVE from the OPERA HOUSE it's Storytime

TCAPS Traverse City Area Public Schools Great Community, Great Schools

Michigan Learning Channel A Public Media Partnership

CITY OPERA HOUSE

Week 7: Around the World

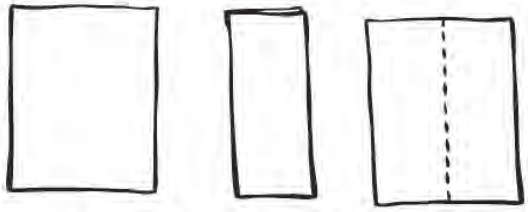
Experience food, art, music, and cultures from around the globe. Our featured careers this week are chef, airplane pilot, and cybersecurity expert. Scan the QR code or visit MichiganLearning.org/Week-7-World to explore all of our videos this week.

Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

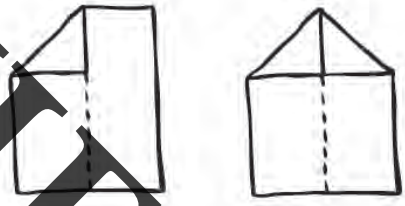
Make paper airplanes with Ready Jet Go	 60 mins. of activity	 Read for 20 minutes	Write a story about traveling	Learn to say hello in another language
 Read for 20 minutes	Write your hero story with Story Pirates	Design your own flag	Learn about a family member's job	 60 mins. of activity
 60 mins. of activity	Watch Math Park	 HAVE FUN! (Free Space)	Watch DIY Science Time	 Read for 20 minutes
Watch Live From the Opera House	Learn about a place you'd like to visit	Watch Cartoon Academy	Watch InPACT at Home	Watch Virtual Vitamin Z
Watch InPACT at Home	 Read for 20 minutes	Make Density Art	 60 mins. of activity	Create a musical instrument

Paper Airplane

1. Fold paper in half the long way and reopen.



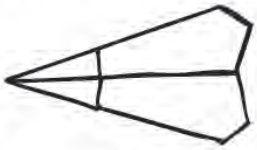
2. Fold the top two corners into the center spine of the paper.



3. Refold lengthwise and rotate the paper to lay on the table like this:

4. Fold the top left corner down to lay parallel to the bottom spine. Repeat this step on the other side.

5. Turn the paper over and repeat the last two steps. Your airplane should look like this!



6. Now, try to fly it to the moon! How far can you make the airplane fly?

For more games and activities, visit pbskidsforparents.org

Produced by: WIND DANCER FILMS

Funded by:

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Sponsored by: ABCmouse.com

Density Art

1. Scan the QR code on this sheet to watch the video and follow along with Mister C.

Scanning this

helps you

2. You'll need:
    a. This printout
    b. Plain printer paper or canvas paper
    c. Food coloring
    d. Vegatable Oil
    e. Pipette or straw
    f. Pan

Discussion Questions:
Does the type of paper impact the art?

How can you manipulate the colors to make more colors than you originally had in the food coloring box?

What if you added something like glitter to the oil and water mixture?

Fun Fact:
Symmetry is used in photography to create beautiful images. Butterflies have a line of symmetry down the center of their bodies.

URBAN SPRAWL HAIKU

READ, Write, ROAR!

ACTIVITY GUIDE

SCAN TO WATCH LESSON

EPISODE 112: WILDLIFE HABITS

Mr. Kass explained the concept of urban sprawl and explained how Haiku, a form of Japanese poetry, often explores the intersection between the natural world and the human-built one. He then talked us through how to write a Haiku that attempts to explore that intersection.

1. Read Mr. Kass' examples of Haiku.
2. Think about areas you've experienced where it seems like the natural world is intersecting with the human built one.
3. Write your own Haiku where you explore that intersection. Try to write at least 4-5 Haiku.

Mr. Kass' Haiku

#1
On the lake bottom
a walleye peeks into
the nose of a soda bottle

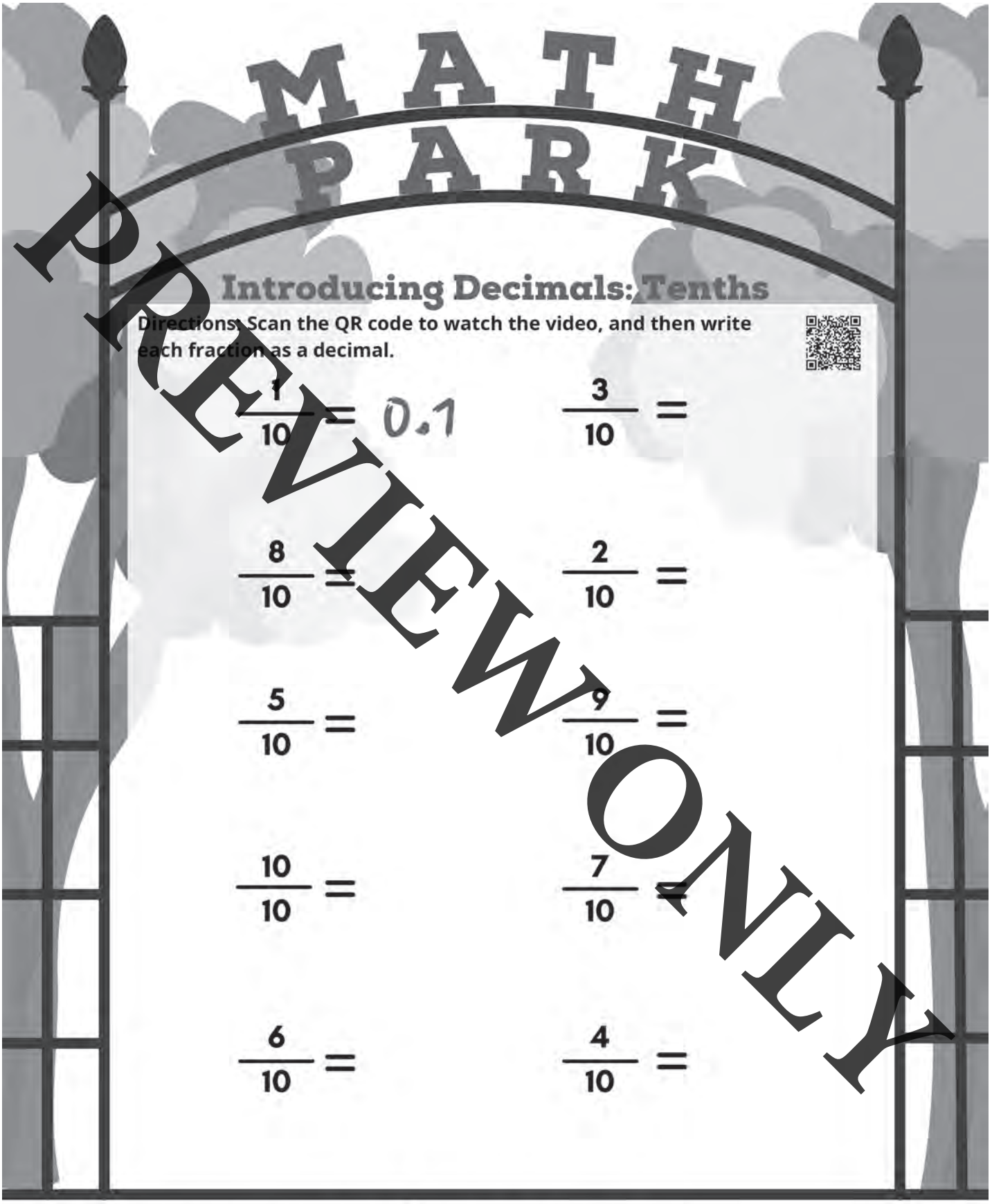
#2
Mist rises above a stand
of Michigan pines
and a cell phone tower

#3
In the dumpster
behind a restaurant's kitchen
the glint of a raccoon's eye

WRITE YOUR STORY!

THE STORY PIRATES CREATOR CLUB

Write a title in the box below, then use the characters, emotions, and dialogue from earlier in this book to create a story!



Introducing Decimals: Tenths

Directions: Scan the QR code to watch the video, and then write each fraction as a decimal.

$\frac{1}{10} = 0.1$ $\quad\quad$ $\frac{3}{10} =$

$\frac{8}{10} =$ $\quad\quad$ $\frac{2}{10} =$

$\frac{5}{10} =$ $\quad\quad$ $\frac{9}{10} =$

$\frac{10}{10} =$ $\quad\quad$ $\frac{7}{10} =$

$\frac{6}{10} =$ $\quad\quad$ $\frac{4}{10} =$

DIY SCIENCE TIME

"Science is wherever YOU are!"

*Joke Answer -
They have lots of degrees!

DIY Thermometer

EXPERIMENT

Step 1: Gather materials.

Step 2: Fill your bottle about half way up with water and add a few drops of food coloring.

Step 3: Shape the modeling clay into a sphere larger than the opening of the bottle. Carefully poke your straw through the clay (make sure the straw doesn't get blocked).

Step 4: Place the clay sphere and straw on top of the bottle, allowing the straw to reach near the bottom of the bottle (don't allow the straw to touch the bottom of the container). Seal the bottle with the clay, making sure there are no gaps to allow air to enter.

Step 5: Note the level of the water, this is room temperature.

Step 6: Try placing your thermometer in ice water and observe what happens to the liquid in the straw.

WHY IT WORKS

When the temperature of the liquid in the bottle increases, it has gained energy, causing its molecules to expand and rise into the narrow straw. When the liquid cools, its molecules lose energy causing them to contract, allowing the liquid in the tube to fall to a lower level. Therefore, high levels of liquid in the tube indicate a higher temperature and low levels indicate a lower temperature.

EXTEND YOUR LEARNING

- What happens if you put your thermometer into warm water?
- Would using a liquid other than water change the way your thermometer behaves?
- Could you add lines to your thermometer to get a better, more accurate reading?

WORKFORCE CONNECTION

Solar photovoltaic (PV) installers, also known as PV installers, assemble, set up, and maintain rooftops or other systems that convert sunlight into energy. Solar photovoltaic installers usually work as part of a team. They must understand how solar energy is converted into electric energy by the solar panels they install. They must also set up systems to safely store this collected solar energy for use in homes and businesses.

it's Storytime CHALLENGE

What else can you make with origami?
It can be a design that you know, or you can create your own design.

it's Storytime REUSE Toolbox

What other materials could you find and use?

- Paper/Newspaper
- Ruler
- Scissors

ASK ▸▸▸▸ **What is the problem?**

IMAGINE ▸▸▸ **Brainstorm possible solutions.**

PLAN ▸▸▸▸ **Pick an idea and plan out how you are going to do it.**

CREATE ▸▸▸ **Build it!**

IMPROVE ▸▸▸ **What worked? What didn't? How can you make it better?**

SHARE ▸▸▸ **Share your idea!**

LIVE from the OPERA HOUSE it's Storytime

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Michigan LEARNING CHANNEL

CITY OPERA HOUSE

Week 8: Space

Meet astronauts and virtually visit the planets and stars. Our featured careers this week are astronaut, astronomer, and computer scientist. Scan the QR code or visit MichiganLearning.org/Week-8-Space to explore all of our videos this week.

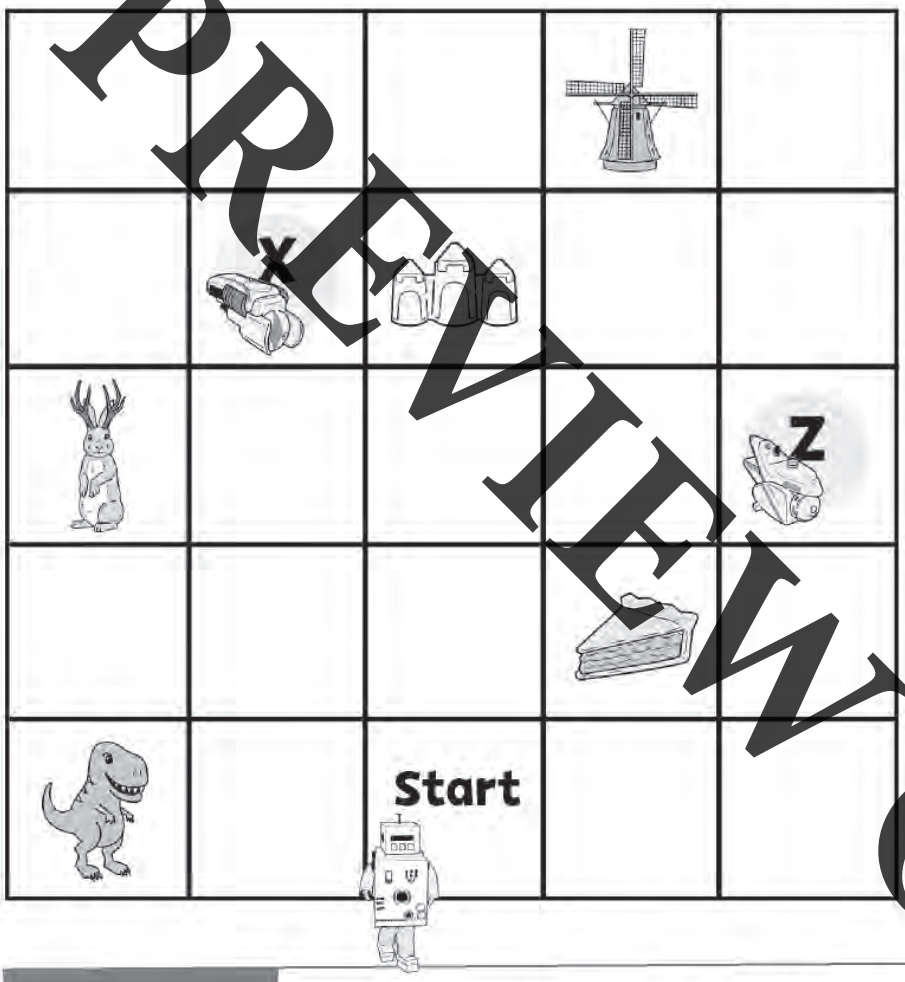
Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO! Some of them are in this book, and some ask you to use your imagination or go outside.

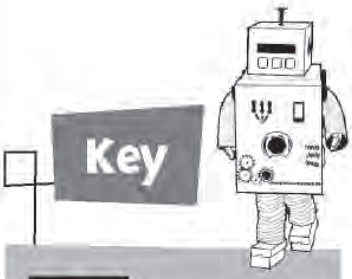
Stargaze	60 mins. of activity	Read for 20 minutes	Draw a space creature	Watch Career Girls
Read for 20 minutes	Try the Odd Squad Robot Coder	Create your own constella-tion	Research a featured career	60 mins. of activity
60 mins. of activity	Draw your hero story with Story Pirates	HAVE FUN! (Free Space)	Look at the clouds	Read for 20 minutes
Name all the planets in the solar system	Watch NASA at Home	Watch Live From the Opera House	Watch InPACT at Home	Visit a new place
Watch InPACT at Home	Read for 20 minutes	Design a rocket ship	60 mins. of activity	Stargaze

Robot Coder

Name

Follow the code! Agent Oswald needs YOUR help to move the ODD-some robot through the warehouse to retrieve his gadgets. Use the key on the side of the page and follow the codes to guide the robot.





Key

- Forward
- Left
- Right
- 3 — Number of Spaces

Code 1 ↑ 2 → 2

Where did you end? _____

Code 2 ← 1 ↑ 3

Where did you end? _____

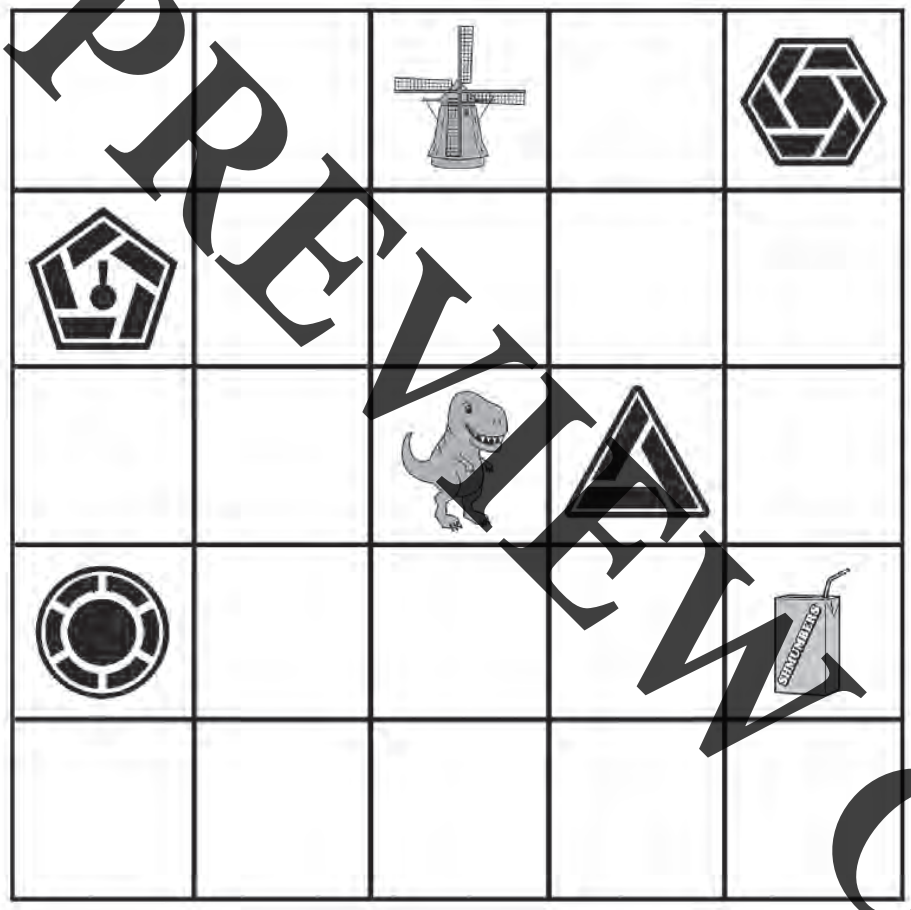
Code 1 = Z on the grid, Code 2 = X on teh grid

Find more games and activities at **pbskidsforparents.org**

Robot Coder

Name _____

Write your own code! Mark a box on the grid as the start. Select a shape (●■▲●) as the ending point. On a separate piece of paper write the name of this shape. This is the answer to Code 1.



Fill in the blank spaces below for Code 1. You don't have to fill in all the boxes, but you can. Use arrows (e.g., ↑ ↓ ← →) and numbers to create your code. Remember, the robot must move around objects.

To create Code 2, do the same thing only choose a different shape for the ending point. Write the name of this shape on a separate piece of paper. Fill in the blank spaces below for Code 2.

Challenge a family member or friend to follow your codes and tell you where they ended. You can then reveal your answers!

Code 1

☐☐☐☐☐☐

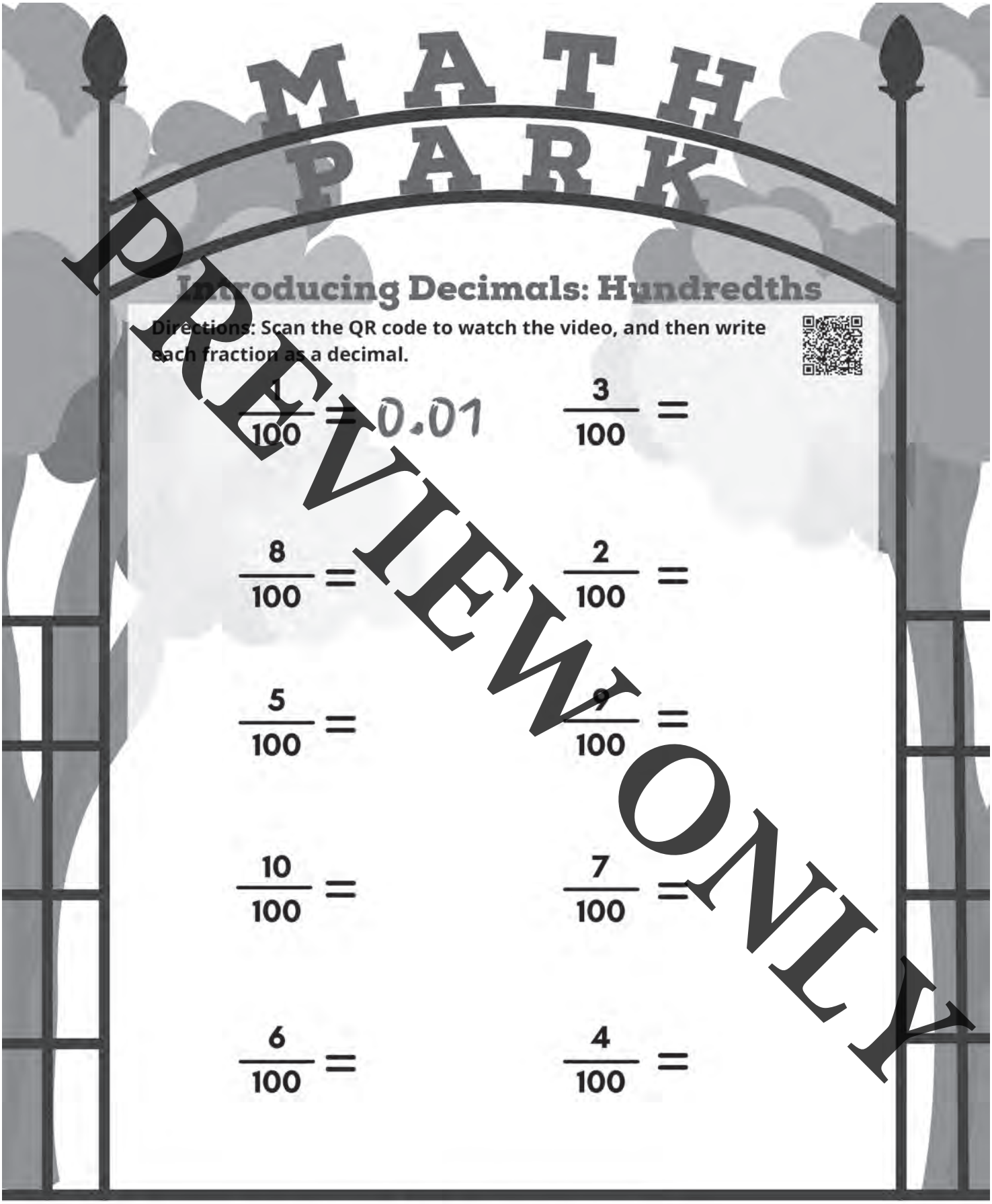
Where did you end? _____

Code 2

☐☐☐☐☐☐☐☐

Where did you end? _____

Find more games and activities at **pbskidsforparents.org**



Introducing Decimals: Hundredths

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$\frac{1}{100} = 0.01$

$\frac{3}{100} =$

$\frac{8}{100} =$

$\frac{2}{100} =$

$\frac{5}{100} =$

$\frac{9}{100} =$

$\frac{10}{100} =$

$\frac{7}{100} =$

$\frac{6}{100} =$

$\frac{4}{100} =$

DESCRIPTIVE WRITING

READ, Write, ROAR!

ACTIVITY GUIDE

SCAN TO WATCH LESSON

EPISODE 104 - MICHIGAN'S TASTY TREATS

We used the famous (and delicious!) Michigan pasty to help us learn a bit of history and see a model of how to write descriptively about a favorite food.

Try it!

Complete the chart below with sensory words to describe *your* favorite meal. What do you see, taste, hear, smell, and touch while eating it? Then, write a few descriptive sentences about your favorite meal including sensory details from the chart to make your writing coming alive!

See _____

Taste _____

Hear _____

Smell _____

Touch _____

My Favorite Meal

_____

_____

_____

_____

DRAW YOUR STORY!

THE STORY PIRATES CREATOR CLUB

Use the story you wrote earlier in this book to draw a comic!

DRAW YOUR STORY!

it's Storytime CHALLENGE

Design a lever contraption to launch a ping-pong ball high enough in the air to catch it!

it's Storytime REUSE Toolbox

What other materials could you find and use?

- Duct Tape
- Paint Stirrers
- 1 Ping-Pong Ball
- 1 Wooden Block or Spool
- 3-oz Paper Cups

What else can you launch?
(hint: stuffed animals are fun to launch!)

ASK ▸▸▸▸ What is the problem?

IMAGINE ▸▸▸ Brainstorm possible solutions.

PLAN ▸▸▸▸ Pick an idea and plan out how you are going to do it.

CREATE ▸▸▸ Build it!

IMPROVE ▸▸▸ What worked? What didn't? How can you make it better?

SHARE ▸▸▸ Share your idea!

LIVE from the OPERA HOUSE it's Storytime

TCAPS Traverse City Area Public Schools Great Community, Great Schools

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CITY OPERA HOUSE

DIY Thermometer

FUN FACT

Before there were thermometers there was an instrument called a thermoscope. Thermoscopes are devices that show changes in temperatures. Unlike a modern thermometer, thermoscopes don't have standard scales for measuring temperature.

MATERIALS

- Ice
- Water
- Small bowl
- Food coloring
- Modeling clay
- Bottle with small neck
- Clear plastic drinking straw

DIFFICULTY

THERMAL ENERGY

Thermal energy is the energy contained within a system that is responsible for its temperature. Heat is the flow of thermal energy. The total kinetic energy of moving particles of matter is called thermal energy. All matter has thermal energy, even matter that feels cold. That's because the particles that make up matter are always in motion and have kinetic energy.

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Why are thermometers so smart?

*Answer on the next page

ALABAMA PUBLIC TELEVISION