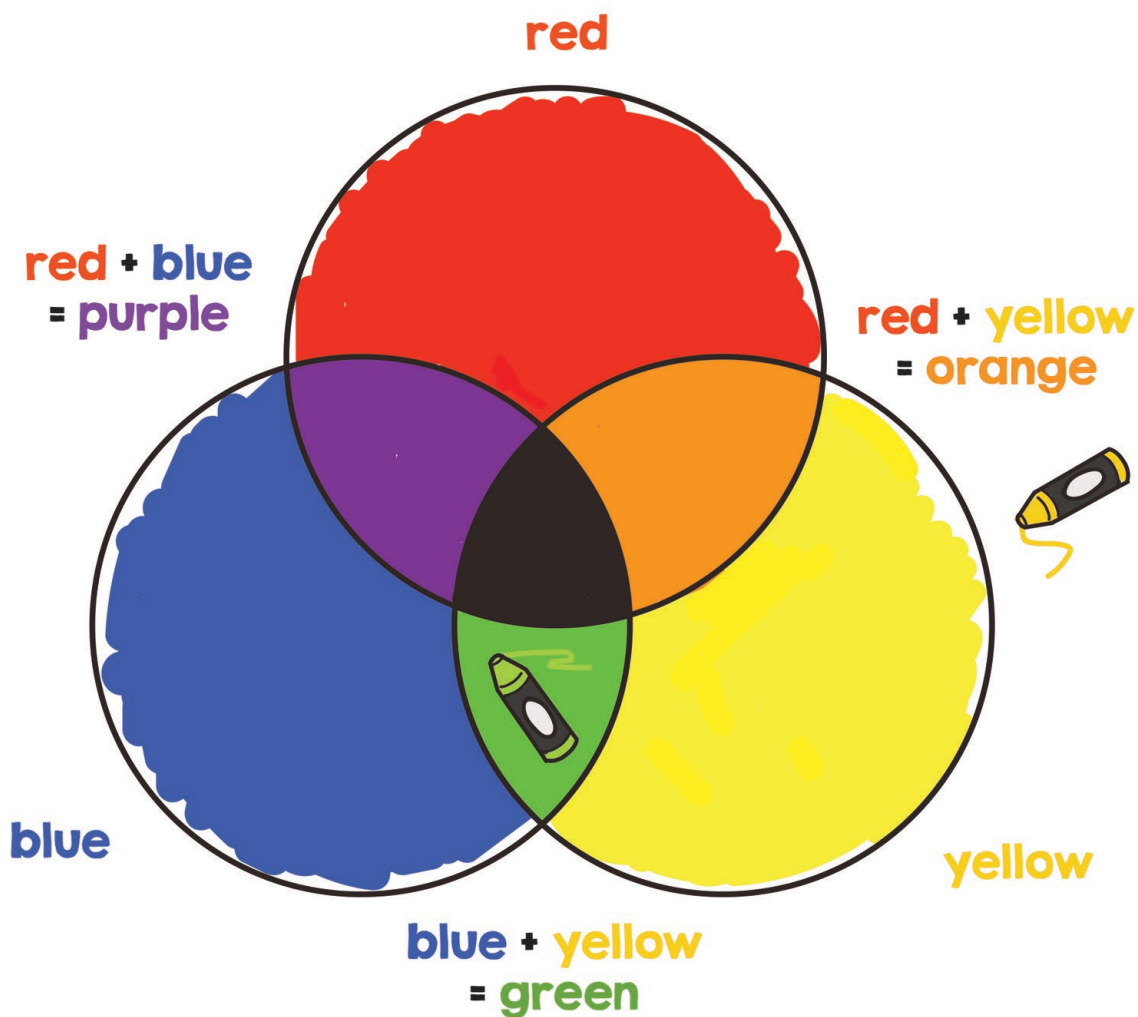


color mixing

What happens when you mix colors?
Grab some paint and try it yourself!



What can you paint with your colors?



discover rainbows

Learn how rainbows are made in the sky.



do it yourself

my ice cube paints

Make your own “cool” ice paint set!

what you'll need



ice cube tray



water



food coloring



cling wrap



toothpicks



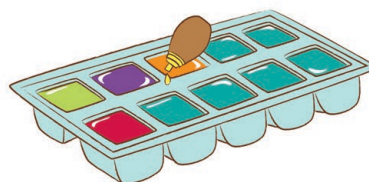
paper

1



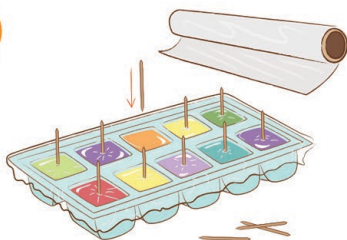
Fill your ice cube tray with water.

2



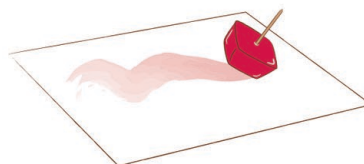
Drop food coloring into each cup.
Try mixing colors to see what you get!

3



Cover your tray with plastic wrap.
Poke a toothpick into each cup and
freeze the tray until the ice is solid.

4



Draw with your ice paints!

did you
know?

*Icebergs are giant blocks of ice that float in the ocean.
There are animals like polar bears, seals, and walruses
that use icebergs as a place to rest and hunt for food.*

snack time

fruit kebabs

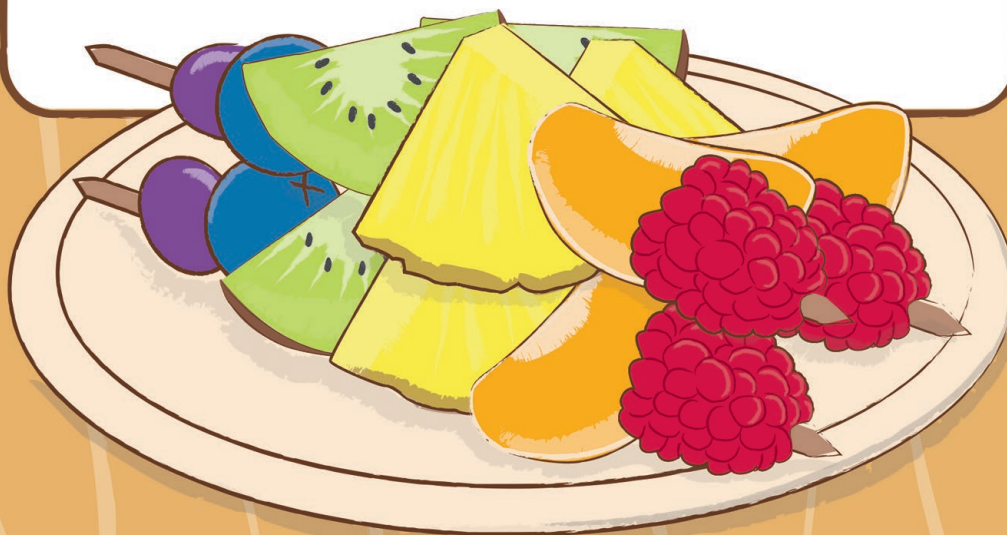
Eat all the colors of the rainbow with this delicious and healthy snack! You can also use different fruits that you like, such as strawberries, apples, or mangos. You will need:

Ingredients:

- | | |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> raspberries | <input type="checkbox"/> blueberries |
| <input type="checkbox"/> tangerines | <input type="checkbox"/> grapes |
| <input type="checkbox"/> pineapple | <input type="checkbox"/> skewers |
| <input type="checkbox"/> kiwifruit | |

Instructions:

- 1 Wash your fruit thoroughly.
- 2 Peel any fruit that needs the skin removed, such as kiwis or oranges.
- 3 Cut the larger fruits into smaller triangles or squares.
- 4 Skewer a couple pieces of fruit through each skewer. You can do it in the order of the rainbow colors if you'd like. Enjoy your healthy and refreshing snack!



the dot game

Make boxes to catch rainbows!

**1**

Grab a friend or two. Take turns drawing one line.

2

Make a square and get 1 point. Color in each square you win.

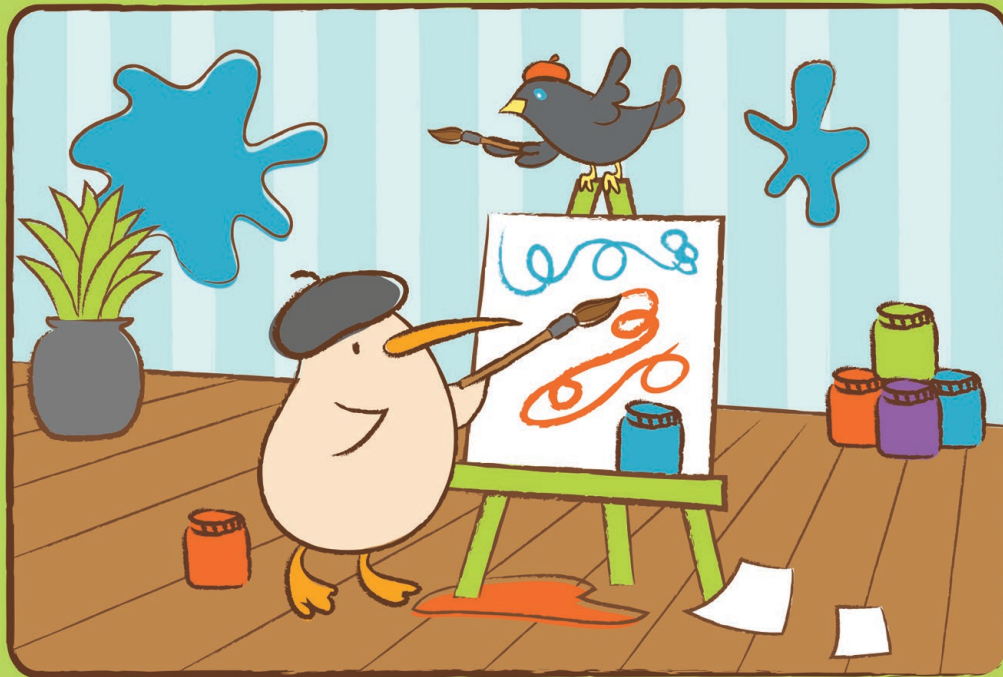
3

Catch a rainbow for 3 points.

4

The person with the most points wins the game!

find 5 differences



did you
know?

Paint used to be made from things in nature like dirt, berries, and flowers. Paintings using dirt and charcoal have been found in caves from thousands of years ago!

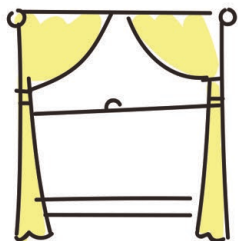
KEY: paint splotch, stack of paint jars, paper, paintbrush, hat

in the orchestra

Discover the different instruments in an orchestra!

did you know?

Music is made by lots of different instruments. Listen carefully to your favorite song. Can you pick out the different instruments that you are hearing?



Woodwind instruments like *clarinets*, *oboes*, and *flutes* make noise when you blow into them.

The **conductor** is in charge of the orchestra. Conductors move a special stick called a *baton* to show the musicians how fast and how loud to play.



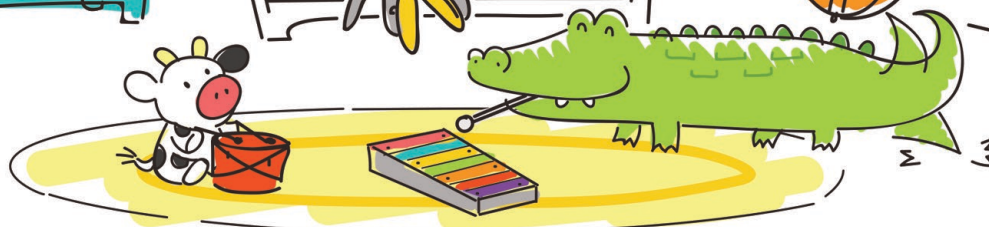
Percussion instruments like *drums* or *cymbals* help to keep the beat of the song.



Brass instruments like *trumpets* and *tubas* are curved and curly and make bright, loud sounds!



String instruments like *violins*, *cellos*, and big *basses* all make noise by vibrating musical strings.



When they all play together, they make beautiful music!

recipe for music

Bing! **BANG.** Bop. Boop!

What makes music more than just a jumble of noises? The recipe! Music is made up of two main parts: **rhythm** and **pitch**.

A rhythm is a pattern of sounds.

Pitch refers to how high or low a sound is.

ingredient #1 is rhythm: the *pattern* of the sounds

Try singing this song:

♪ *Row, row, row your boat...*

That rhythm is **long, long, long, short, long.**

Now try singing the middle of the same song:

♪ *Merrily, merrily, merrily, merrily...*

That rhythm is totally different!

It's **short-short-short, short-short-short, short-short-short, short-short-short.**

Both are examples of a pattern created with sound. That's rhythm!

Row, row, row your boat!



Some musical patterns have moments of silence called **rests**. The lack of sound is part of the rhythm, too!

ingredient #2 is pitch: how high or low the sounds are

A high pitch could be a bird tweeting outside your window.



A low pitch could be the sound of a truck's horn.

Try singing the sound of a doorbell. The first "*ding*" is a high pitch and the second "*dong*" is a low pitch.



ding~
DONG!

When you put pitches and rhythms together in a specific order, you get a song!

Keep an ear out today. Where else can you find examples of pitch and rhythm?

do it yourself drum

what you'll need



empty can



balloon



scissors



tape

optional



paint



colored paper



stamps or markers



sticks



Grownups only! Before you start, prepare the can by taping over any sharp edges! Or, use an oatmeal container or sturdy cardboard tube instead.



1



Use paint to decorate your can. Let it dry.

2



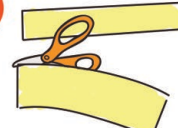
Cut the end off of the balloon.

3



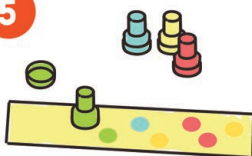
Stretch the balloon over the open end of your can. Use tape to hold it in place.

4



Cut a long narrow strip from the colored paper.

5



Decorate the colored paper.

6



Wrap the decorated paper around the center of your can and tape it in place.

7



Use your hands or two sticks to play your drum.

try this!

Try making more drums with different sized cans. Play your drums and listen to the sounds the different sized drums make!





xylophone

Type Of Instrument

percussion family

What It Is Made Of

wood

How It Is Played

with mallets

Did You Know?

Xylophones are made of wooden bars placed on top of an empty or hollow space, like a cardboard box! They are played with sticks called mallets. Mallets can have wooden, rubber, or plastic ends.

explore more!

A xylophone's bars create sounds by vibrating or moving very quickly. The different bars make different sounds or pitches. Try this experiment and see what pitches you can create!

what you'll need



several drinking glasses



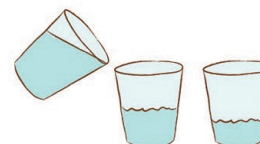
small spoon

1



Start experimenting with one glass. Fill the glass about half-full with water, and tap gently on the side. What do you hear?

2



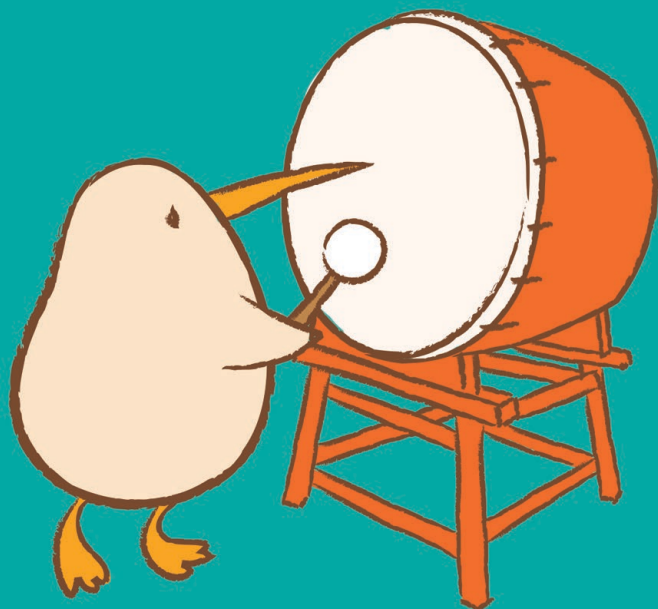
Try pouring some of the water from one glass to another, and tap the side again. Does the sound change? Now add more glasses!

3



If you have a keyboard in your house, you can use that to tune your water xylophone. Can you make the sound of the glass match the note from your keyboard?

Keep exploring with water and sound! Experiment with different sizes and shapes of glasses and see how that changes the sound. Can you play a tune on your water xylophone?



drum

Type Of
Instrument
percussion
family

What It Is
Made Of
wood or metal, with
animal skin or plastic

How It
Is Played
with hands
or sticks

Did You Know?

The body of a drum is called the shell. It is usually made of wood or metal. The top of the drum is called the head, which is stretched over the shell. The head is usually made of animal skin or plastic. Drums can be played with bare hands, or with different kinds of sticks and mallets.

explore more!

Drums can be so loud that you can actually feel the sound they make. A really loud sound can be powerful enough to move something. Try this experiment and see for yourself!

what you'll need



1



Cut the bag open and stretch it tight over the top of the cup. Secure with the rubber band.

2



Grind some pepper on top of the plastic.

3



Without touching the cup, crash the pot lid on the pot. Can you make the pepper jump and dance?

Keep exploring with drums and sound! Here are some things you probably have at home that you can use to create music:

- coffee can and a pencil
- oatmeal can and a chopstick
- pot lids, pots, and a wooden spoon
- plastic bucket and your hands

playground boogie

Turn on some tunes, pretend you're at the park, and try these playground-inspired dance moves!

jump rope
jump to the beat



hula hoop
twirl your hips



teeter-totter
tilt your body



rings
swing your arms



**try
this!**

Combine these dance moves to create your own playground boogie.

what makes a bird a bird?

Bee hummingbirds are smaller than your finger. Emus are as tall as a grown-up man. Eagles can fly faster than most cars can drive. Emperor penguins can dive deeper in the water than the deepest scuba divers.

If birds are so different, how can you tell if an animal is a bird? Just look for these clues!

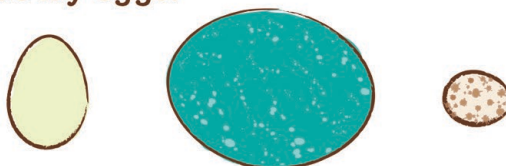
1 All birds have feathers.



2 All birds have beaks.



3 All birds lay eggs.



discover senses in nature

Explore your backyard or park using your five senses: smell, sound, taste, touch, and sight. There are many things in nature you can experience that are close to you or only a few steps away!

There are lots of sounds that you can listen to when you're outside. See if you can hear birds chirping, squirrels scampering up trees, or bees buzzing!

Brush your hands against the grass, touch a leaf, or pick up some twigs. Many things in nature are smooth, hard, and sometimes fuzzy!

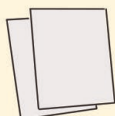
Follow your nose to find all the scents outside! Smell some flowers, plants, tree bark, or leaves. They can smell sweet, minty, or fresh.

Use your sense of taste to eat fruits, vegetables, and herbs grown from home, or start your own garden if you don't have one.

Look under rocks, in bushes, and down in the soil to see the little things. You may find snails, caterpillars, and ants!

do it yourself hatching egg

what you'll need



paper



scissors



markers



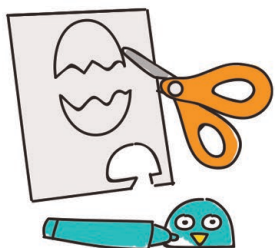
tape



clothespin

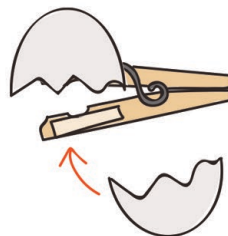


1



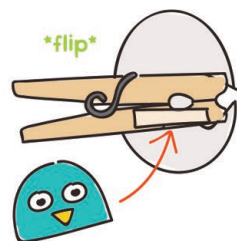
Cut out and color two halves of an egg and a baby bird.

2



Tape the two halves of the egg to the clothespin.

3



Tape the baby bird to the back of the clothespin.

4



Open the clothespin to make the baby bird hatch!

did you know?

Mother birds lay eggs. The baby bird grows and grows inside the egg until it's strong enough to pop out.

do it
yourself

binoculars



what you'll need



3 toilet paper tubes



scissors



yarn or string



glue



stickers

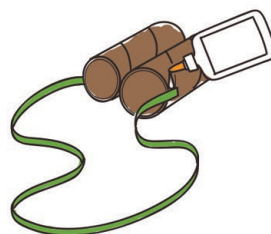


1



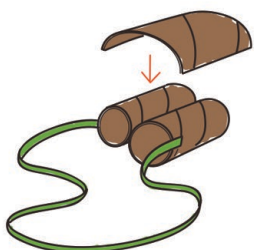
Glue two toilet paper tubes together. Or use two rubber bands to hold them together without glue.

2



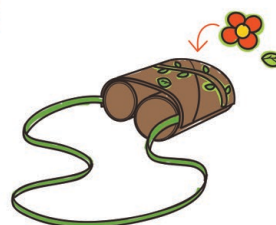
Cut a long piece of string and glue the ends to the sides of the tubes. Or poke holes in the tubes and tie the string on.

3



Cut the other toilet paper tube in half. Fit the cut tube over the other tubes and glue it in place. Let dry.

4



Decorate your binoculars with stickers. Now it's time to go outside and explore!

**Grownups only!**

You can use a hot glue gun instead of white glue for faster drying time.

Can you find all the objects listed at the bottom of the page?



Bonus!

- How many rocks do you count?
- How many pine cones are there?
- How many red objects can you find?



Nest and Eggs

Many hummingbirds use stretchy silk from spider's webs to make their nests. This lets the tiny nests stretch to make room for the growing babies.

What They Eat

Hummingbirds lick nectar from flowers with their long tongues. Hummingbirds eat twice their weight in flower nectar and insects every day. That would be like you eating 100 cheeseburgers!

How They Move

Hummingbirds can hover in midair and even fly backwards. Hummingbird wings move so fast they make a humming sound. That's why we call them hummingbirds!

Hummingbird eggs are about the size of a jelly bean or a pea. Can you draw a nest of hummingbird eggs?



Nest and Eggs

Kiwis make their nests on the ground. Kiwi eggs are about one fourth the size of the mom kiwi. That would be like you laying an egg the size of a cat. The dad kiwi takes care of the eggs.

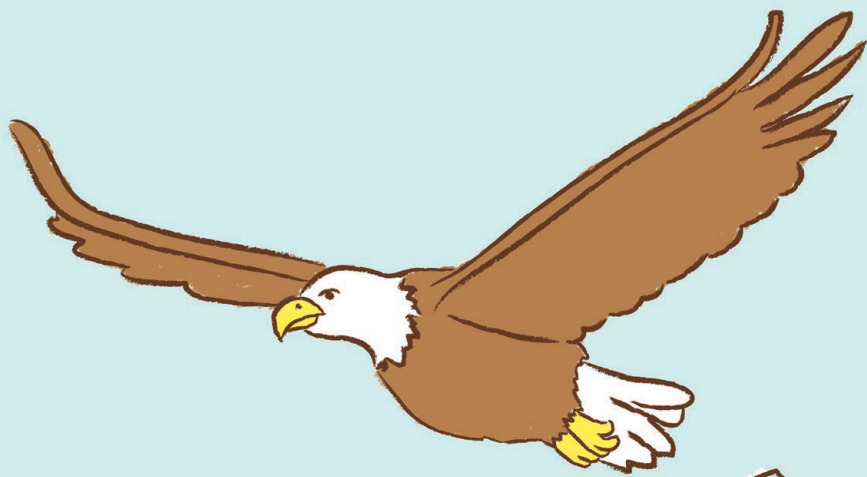
What They Eat

Kiwis use their long beaks to dig for worms, spiders, and insects. Kiwis have nostrils at the end of their beaks. This lets them sniff to find bugs hiding in the dirt.

How They Move

Kiwis have tiny wings hidden under their feathers. Kiwis can't fly, but they can run very fast. A kiwi could beat you in a race!

Mom kiwis are bigger than dad kiwis.
Some dad kiwis sit on their eggs to keep them warm.
Can you draw a picture of a kiwi family?



bald eagle

Nest and Eggs

Bald eagles build nests high in large trees. The mom and dad eagles build the nest together. Each year, they add more twigs, grass, and feathers until the nest is huge!

What They Eat

Bald eagles catch fish by swooping down to the water and grabbing the fish in their claws. They hunt for fish with eyes that point down, like catfish. These fish can't see the eagle coming from above.

How They Move

Bald eagles are amazing fliers. A bald eagle diving through the air can fly faster than a car driving on the highway.

Bald eagle nests are so big that two five-year-olds could fit in them lying down. Can you draw yourself inside a bald eagle nest?

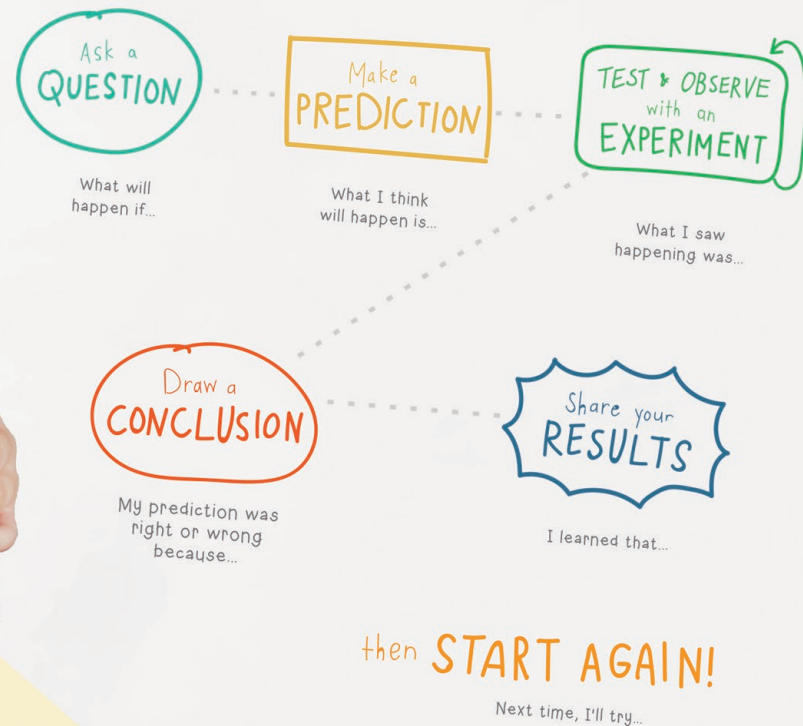
how to be a scientist

You don't need fancy equipment to be a scientist. You just need your curiosity! 💡

Science is about asking questions, like "Why is the sky blue?" and "How do plants grow?"

The tricky part is finding the answers to those questions, which is why scientists use the **scientific method**.

The scientific method helps you plan an **experiment** and learn from it. There are only five steps, but you can use them to figure out almost any problem. a test to see what happens



Last but not least, there's secret sixth step to the scientific method: have fun! 😊

photo by esthermm/shutterstock.com

why measure?

Take a look at these containers. Which one has more colored water — the **blue**, the **orange**, or the **green**?



answer: Believe it or not, all three have exactly the **SAME AMOUNT**!



blue = 1 cup

orange = 1 cup

green = 1 cup

The water looks different because the containers are all different shapes. In the thin glass, the water forms a tall shape. In the wide bowl, the water spreads out and forms a short shape. It's very hard to tell how much is in a container just by looking at it. That's why measuring is important. Measuring carefully when you follow a recipe will help you add the right amount of each ingredient. That's how you make sure to get a tasty treat when you're done — every single time!

**try
this!**

Find containers of different sizes and shapes. Pour one cup of water in each. How do they look different? Experiment and see what you discover!

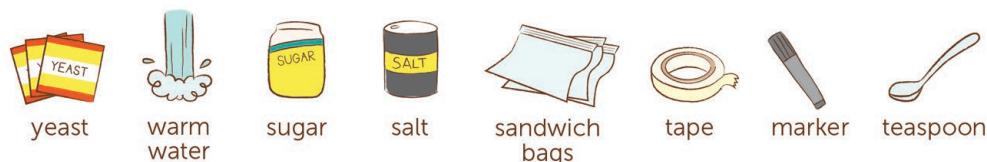


try for yourself!

yeast experiment

Find out what yeast likes to eat with this bubbly experiment!

what you'll need



1



Using the masking tape and marker, label one bag "sugar", one bag "salt", and one bag "water only."

2



Pour one packet of yeast and $\frac{1}{2}$ a cup of warm water into each bag.

3



In the bag labeled "sugar", add 2 teaspoons of sugar. In the bag labeled "salt", add 2 teaspoons of salt. Don't add anything to the "water only" bag.

4

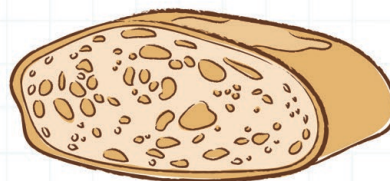


Squeeze all the air out of the sandwich bags and zip them shut. Set a timer and check on the bags after 10 minutes, 30 minutes, and 60 minutes. Do the three bags look different?

did you know?

Yeast loves sugar! When you added sugar to the warm water, it became active. The yeast eats the sugar and then makes a gas. The bubbles of gas make the bags puff up.

The bubbles you see are why yeast is used to make bread. The yeast makes bubbles in the bread, which makes it bigger and fluffier. Look at a slice of bread. Do you see the holes? These are from the bubbles the yeast made!



ice experiment

melting race

what you'll need



2 similar
ice cubes



rubber band

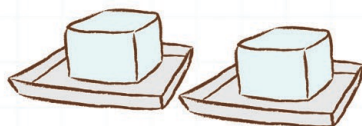


trays or
plates



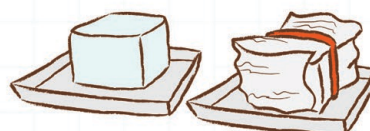
piece of
newspaper

1



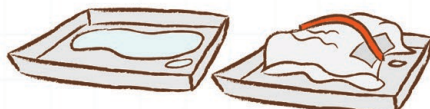
Place each ice cube on a tray.

2



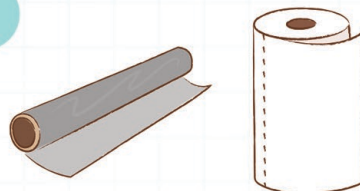
Wrap one ice cube tightly in newspaper and rubber band in place.

3



Watch what happens. Which cube do you think will melt faster? Why?

4



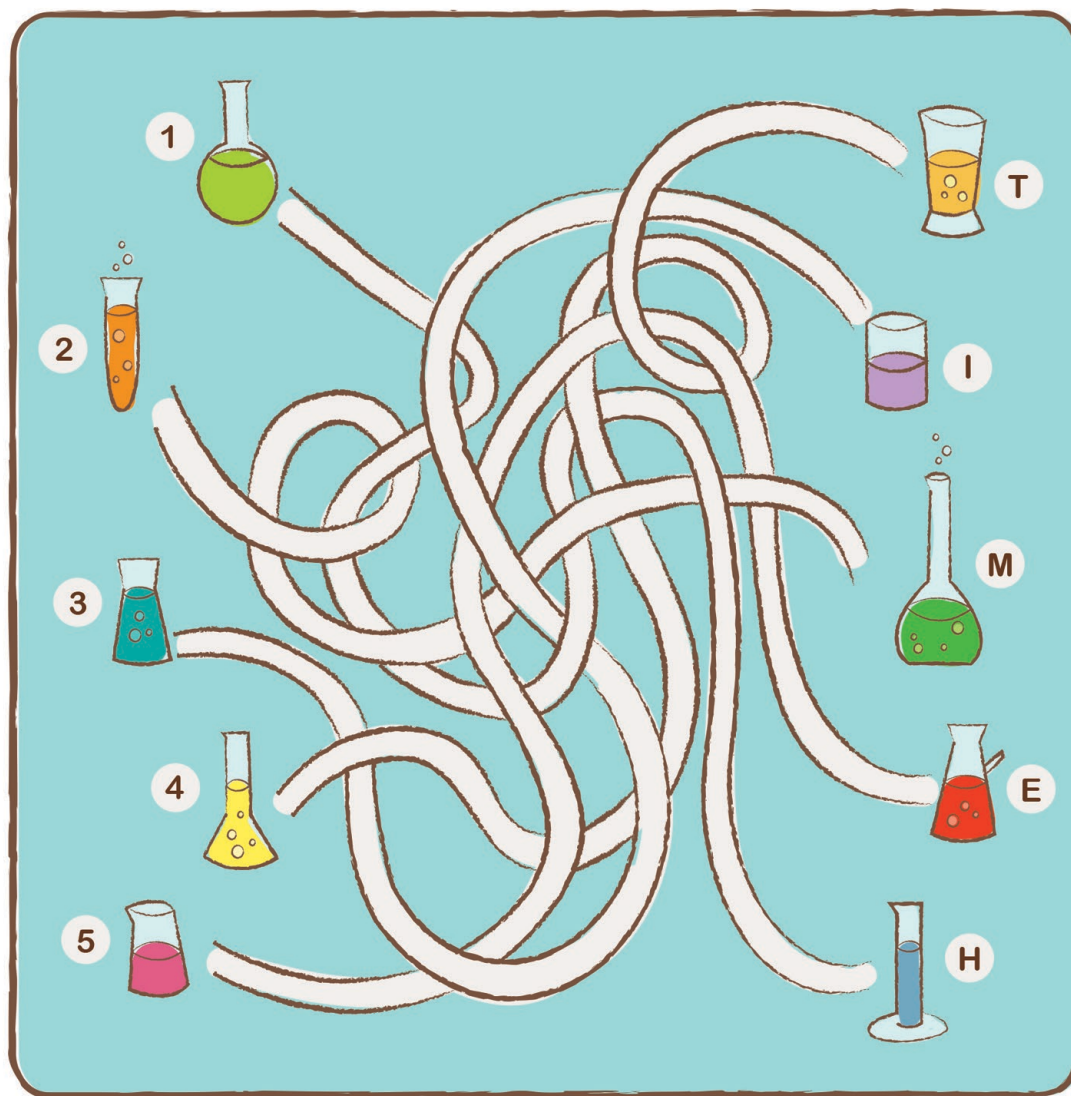
Try the experiment again with some aluminum foil or a paper towel. Which do you think will melt the quickest?

did you
know?

The ice cube without the newspaper melted first because it got warmer faster. The newspaper helped the other ice cube stay cold, which made it take longer to melt.

matching beaker maze

Connect the beakers and find the answer to the joke.



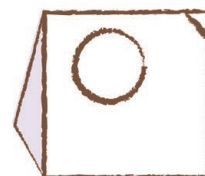
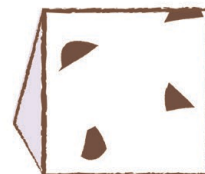
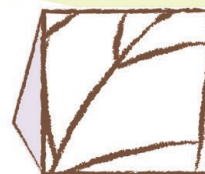
Q: What is a chemist's favorite kind of tree?

A: A C $\frac{1}{1}$ E $\frac{2}{2}$ $\frac{3}{3}$ S $\frac{4}{4}$ R $\frac{5}{5}$ E!

matching

microscope matching

Match each object on the left with its zoomed-in image on the right. Then color it in!



did you
know?

Microscopes are tools that let you see very small objects — things that are too small for you to see with just your eyes. Scientists use microscopes to study things like bacteria and plant cells.

going on a hike

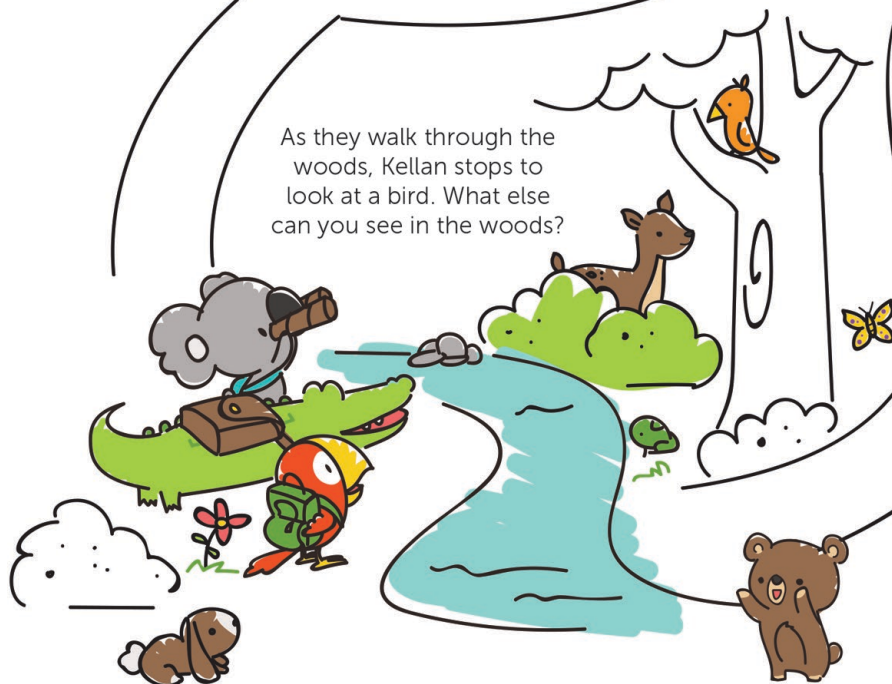
Kellan, Peter, and Ella are going on a hike to see what they can see during their camping trip.

Before they start on their hike, Kellan packs a pair of binoculars and Peter grabs a snack.



What is Ella packing?

As they walk through the woods, Kellan stops to look at a bird. What else can you see in the woods?



They hike and hike and hike and eventually get to the top of the mountain. What do you think they can see?



After eating a snack on the top of the mountain, Kellan, Peter, and Ella hike back down to their campsite.

When they arrive, they put away their backpacks and build a little campfire. This is the perfect spot to rest and read stories from their favorite books.



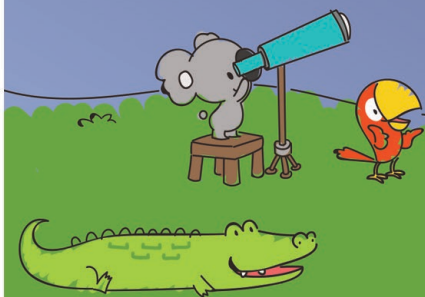
patterns in the sky

When you look up at night, do you see patterns or shapes in the sky made out of a group of stars? You're not the only one. Those patterns are called **constellations**.

The **Big Dipper** is one of the most famous star patterns in the sky. It's made from the seven brightest stars of Ursa Major.



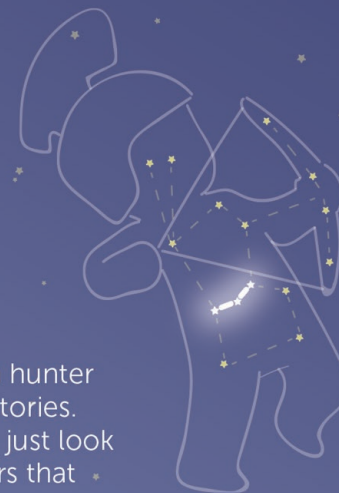
Ursa Major is one of the largest constellations, and its name means "Great Bear." If you connect the stars, you can see the bear shape!



Ursa Minor means "Little Bear," but because of its shape and size, people have nicknamed it the Little Dipper.



The **North Star** is the brightest star in the Little Dipper. Sailors use this star to help them travel across the sea.



Orion is named after a hunter from famous Greek stories. It's easy to find Orion — just look for a line of three stars that make his belt!

Try to spot these well-known patterns the next time you go stargazing!

do it yourself

my chair tent

Build a tent for your own indoor camping adventure!

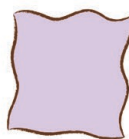
what you'll need



two chairs



rope

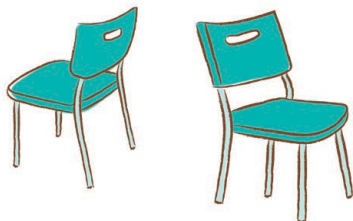


sheet



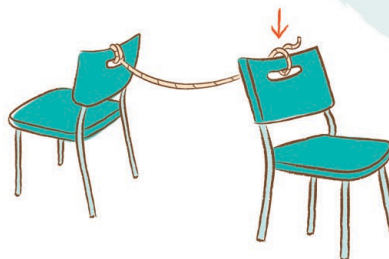
soup cans

1



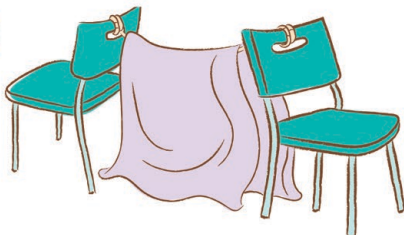
Arrange two chairs 3–4 feet apart with their backs facing each other.

2



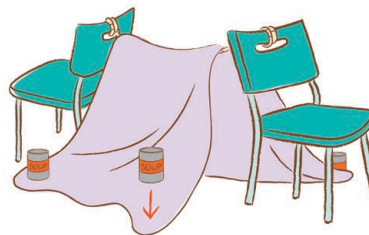
Tie a rope from the back of one chair to the back of the other chair.

3



Hang a sheet over the rope. You can put something heavy on each chair if they don't stay in place.

4



Secure the edges of the sheet by placing the soup cans on each corner. Have fun camping!

did you know?

Most bugs that bite don't like citrus. To help keep mosquitos away when camping or going outside, rub the inside of a lemon or orange peel on your skin!

do it yourself

my canteen sleeve

Make a sock water bottle holder to carry your drink!

what you'll need



two socks



yarn



water bottle

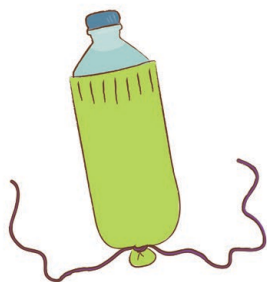


scissors



beads
(optional)

1



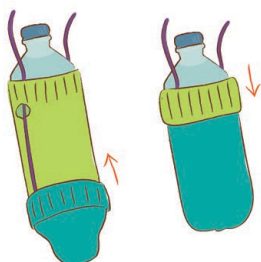
Slip the water bottle into one sock and tie the yarn around the bottom of the sock.

2



Cut two small holes in the sides of the sock. Pull the string through.

3



Pull the second sock over the first. Fold the sock tops over (like a cuff).

4

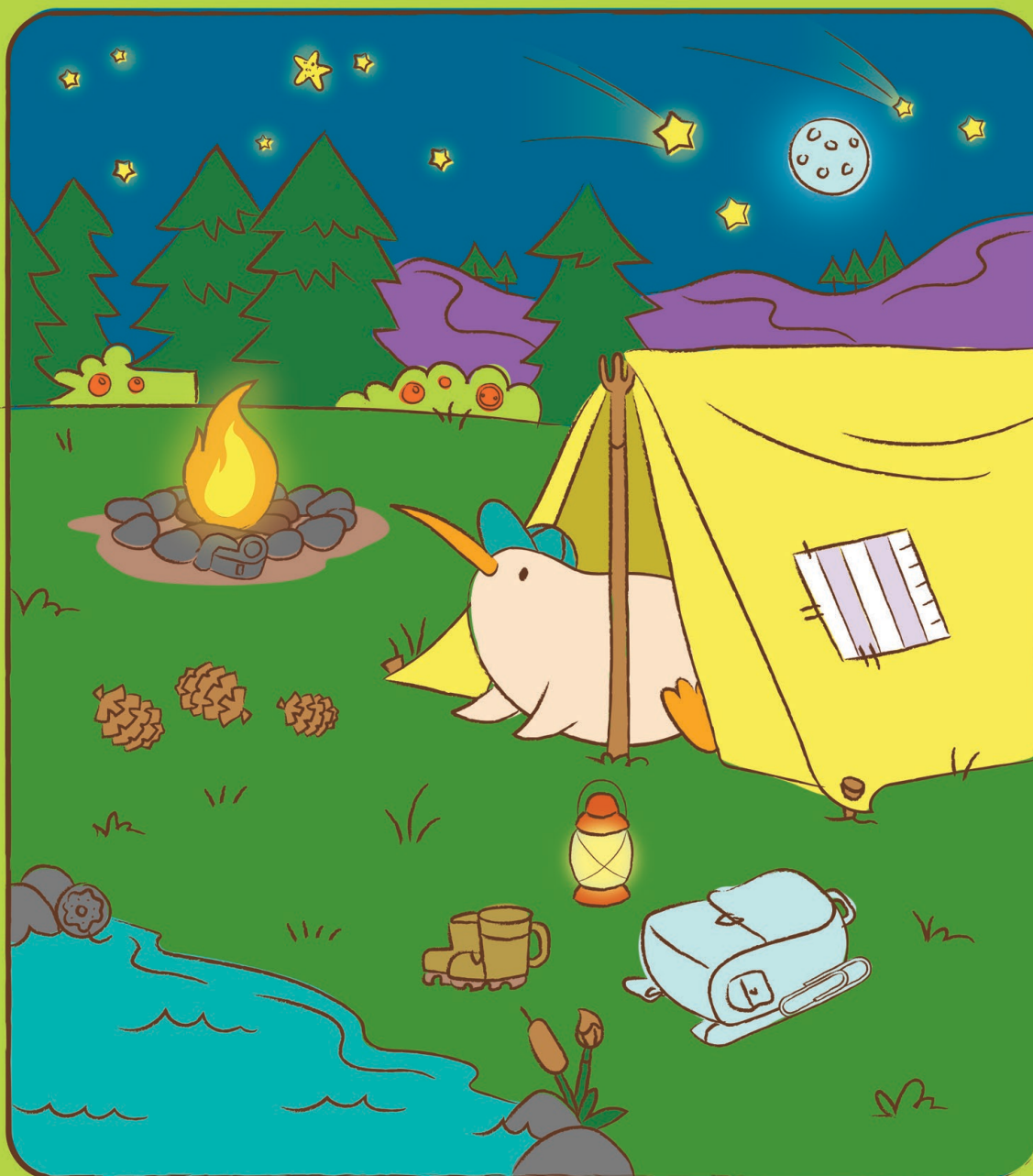


Add beads to your string if you'd like. Tie the ends and you're ready to go!

did you
know?

*Water that you find outside isn't always safe to drink!
Always make sure to bring lots of fresh water with you
when you go camping or for a hike.*

hidden pictures



Can you find the...?

- | | | | | | | | | | |
|---------|---|----------|---|------------|---|-----------|---|--------|---|
| whistle |  | starfish |  | fork |  | paperclip |  | button |  |
| donut |  | cookie |  | paintbrush |  | ruler |  | mug |  |



cygnus

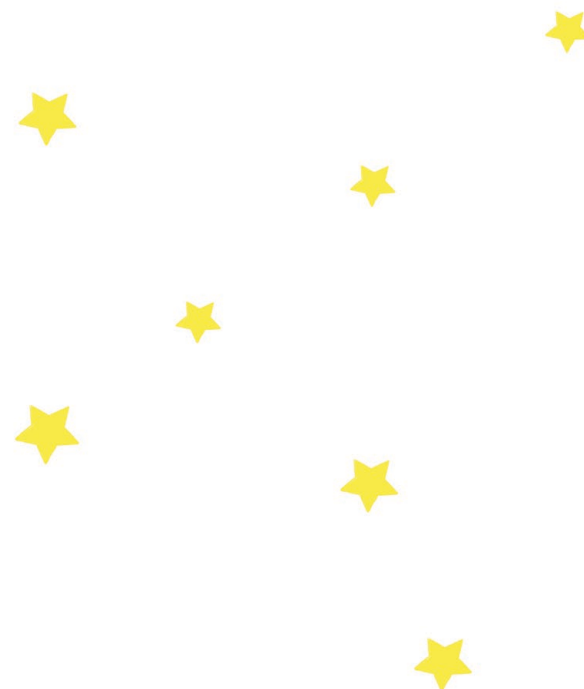
"The Swan"

About the Stories

The word Cygnus comes from the ancient Greek word for swan. Many others also saw these stars as a flying bird. Some people saw an eagle, some saw a hen, and some saw a pigeon. The stars in Cygnus are also called the Northern Cross.

Star Fun Fact

Most stars always shine out the same amount of light. Cygnus contains a special star that gets brighter and darker. Stars that do this are called variable stars.



Connect the stars and draw your own picture.



ursa major and ursa minor

"The Big Bear and The Little Bear"

About the Stories

The Little Bear is sometimes also called the Little Dipper because the stars make a shape like a cup with a long handle. The stars in the Big Bear's tail and back make the same shape. They are sometimes called the Big Dipper.

Star Fun Fact

The star at the end of the Little Bear's tail is called Polaris or the North Star. The North Star is special because it is almost directly above the North Pole.



Connect the stars and draw your own picture.



gemini

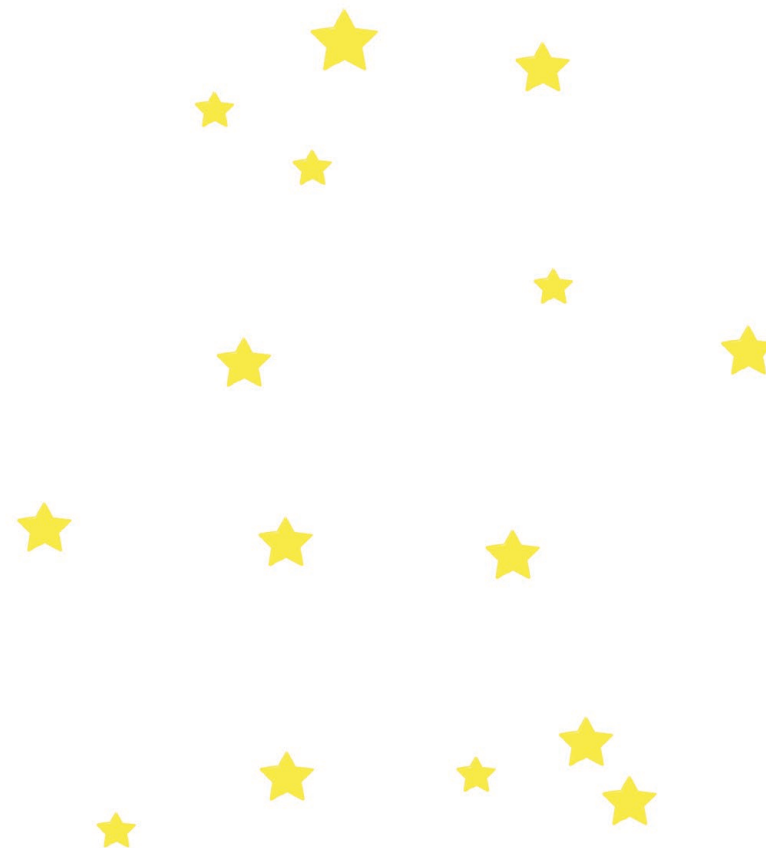
"The Twins"

About the Stories

Gemini is the Latin word for twins. Long ago people told a story about twin boys named Castor and Pollux. People thought these stars looked like the twins standing arm in arm. The stars at the boys' heads are named Castor and Pollux after this story.

Star Fun Fact

The star Castor is really a group of six stars. The three pairs of stars in Castor orbit or travel around each other.



Connect the stars and draw your own picture.