

February 3-5, 2023 • Hudson, WI



Educational Booklet

**Join us in Hudson, Wisconsin for winter family fun!
Friday - Sunday, February 3-5, 2023**

Greetings students, children of all ages and fellow hot air enthusiasts. For the 34th Annual Hudson Hot Air Affair, we have selected the theme of Experience the Magic.

The Hudson Hot Air Affair winter festival and hot air balloon rally offers family fun activities for kids of all ages, starting with our school programs and Torchlight Parade, the biggest little parade in the Midwest. Come watch the balloon launches, the smooch board competition, kite flying and ice carving (just to name a few of the free activities). Don't miss the free Kids' Ice Fishing Contest at Perch Lake on Sunday.

Seeing the skies filled with hot air balloons is amazing and truly magical! But did you know, the pilots need to master the art of ballooning and have a license to fly. Come see and talk to our wonderful pilots at the Moon Glow or Field of Fire.

This year's Hot Air Affair event theme Experience the Magic encourages us to celebrate the awesomeness of using our senses to appreciate beauty and our environment to the fullest. It's not just the wonderment of a handful of tricks but of real life experiences. We can open up our minds to many things such as creative thinking, experimentation, using our imagination, dreaming and much more—thus providing an opportunity to better understand and appreciate this same beauty and environment with even more amazement, awe and wonder.

EXPERIENCE THE MAGIC

During Hot Air Affair, you can experience the magic and wonder of watching hot air balloons floating through the sky (if Mother Nature cooperates), but there are many other types of magic. From mythical creatures to magicians and magic tricks, let's explore some magic.

See a complete schedule and event details at HudsonHotAirAffair.com



FIND THE CREATURES

Can you find the 10 mythical creatures lurking in this booklet. Write down the page number where each of these creatures appear. (See the answers on page 10)

___ Centaur, ___ Dragon, ___ Griffin, ___ Flying Pig, ___ Medusa,
___ Mermaid, ___ Pegasus, ___ Phoenix, ___ Unicorn, ___ Yeti

MEET THE YETI

The Yeti (or Abominable Snowman) is a mythical creature believed to live in the snowy Himalaya Mountains. Usually described as a tall, hairy, apelike being that walks on two legs, its Tibetan name is Yeti. A similar creature, called Sasquatch or Bigfoot, is said to live in the wilderness of western North America.

Yetis are the Worst! by Alex Willan. Gilbert the Goblin is certain Yetis are the worst! Sure, they may seem cool and mysterious, but if you meet one, are they all they're cracked up to be? And that's what Gilbert plans to do: meet a yeti. That is, if he can find one...but how hard can that be? Look for this book and other Yeti books at your library.



MAGIC VIDEOS TO WATCH

Learn Five Easy Magic Tricks for Kids - Vanish, Money, Levitation and More by AboutMagic from WayneMagician.com. - Learn easy magic tricks that are simple and quick for kids to learn and perform. And they're great for grown-ups who would like to teach kids some easy magic tricks. [Watch here.](#)

Easy Magic Card Tricks for Kids and Beginners by AboutMagic from [WayneMagician.com](#) - For kids who want to learn some easy card magic tricks, we explain some of the best easy card tricks for kids and beginners. In our kid card tricks tutorial, we selected magic tricks for beginners and kids that are especially easy. These are easy magic tricks to do at home for beginners and kids. [Watch here.](#)

Harry Houdini For Kids by Bedtime History. - Learn about one of history's most famous magicians and escape artists. [Watch here.](#)

Houdini Straightjacket Escape - Houston Texas (1923) by David Folender. Watch this historic 1923 video of Harry Houdini's escape. [Watch here.](#)

MAGIC JOKES

What do you call a dog that can do magic tricks? A labracadabrador.

What do you get when you cross an airplane with a magician? A flying sorcerer!

What is a magician's favorite makeup? Vanishing cream.

I showed a mime a magic trick. He was speechless.

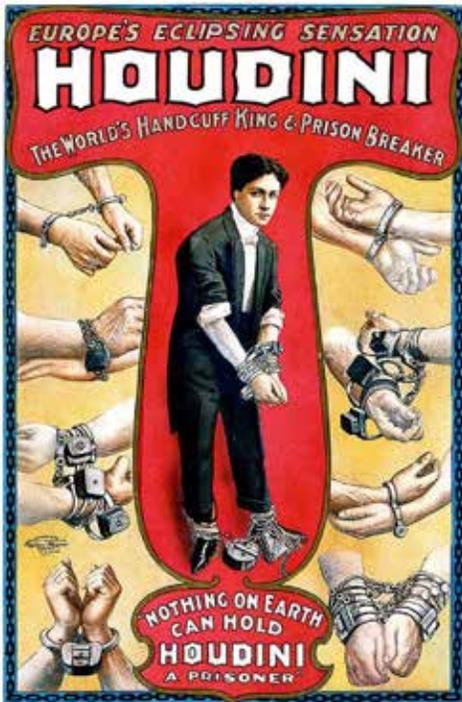
What do you learn at witch school? Spelling.

What do you call a fairy who likes to fix things? Tinkerbell

What do you call a magic owl? Hoo-dini.

WORLD FAMOUS MAGICIAN

Harry Houdini was a world famous magician who was known for his daring feats of escape. He was born in 1874 in Budapest, Hungary. When he was four years old his family moved to the United States. They lived in Appleton, Wisconsin, in an area that is now known as Houdini Plaza. His father served as rabbi of the Zion Reform Jewish Congregation.



As a young man Harry was interested in magic and performing. Around the age of seventeen he began doing a magic show with his brother "Dash" called "The Brothers Houdini." Harry met and married a dancer named Bess and they started their own magic act called "The Houdinis." Bess was Harry's assistant for the rest of his career.

Harry began to focus his act on escapes and would escape from all kinds of things like handcuffs, straitjackets and ropes. He then traveled to England where he challenged the English police at Scotland Yard to an escape. The police searched Harry thoroughly and handcuffed him inside a cell. Houdini escaped in a matter of a few minutes and after that he was soon famous. Everyone wanted to see his amazing escapes.

Harry traveled around Europe and then returned to the United States performing all sorts of dangerous escapes like the water torture cell, straitjacket escape and box in a river. These escapes made him the most famous magician in the world.

Interesting Facts about Harry Houdini: One of his famous illusions was the "vanishing elephant" where he made an elephant disappear. He taught U.S. soldiers how to escape capture during World War I. Later in life, Harry took on many other activities like making movies, learning to fly an airplane and proving that psychics were fake.

Houdini died from a ruptured appendix on October 31, 1926 (on Halloween).



CHARLY MARKERT BALLOONS AT HOT AIR AFFAIR

There will be three vintage Charly Markert hand-painted balloons on display during Hot Air Affair on February 4th and 5th. Charly's son Tim is bringing the balloons to Hudson for this year's theme to "Experience the Magic" of Charly Markert hand-painted balloons. The Markert balloons coming to Hot Air Affair include *Le Grande Carousel* which was inspired by the hand carved carousels that he would ride as a child growing up near Coney Island in New York. Charly's *King Tut* balloon was commissioned by an archaeologist and is inspired by King Tutankhamun and Nefertiti. *Amadeus* is an amazing celebration of the Baroque era of art and is Charly's crowning achievement which took over a year to complete.



HOW DOES A HOT AIR BALLOON FLY?

Hot air balloons use the basic scientific principle of hot air rises. A balloon is lifted upwards when the warmer air inside the balloon rises in the cooler air outside of the balloon. This is because hot air is lighter than cool air because it has less mass per unit of volume. The actual balloon part (called an envelope) has to be very large because it takes a lot of heated air to lift the balloon off the ground. For example, to lift 1000 pounds of weight you would need almost 65,000 cubic feet of heated air! To help keep the balloon in the air and rising, hot air needs to be pushed upwards into the envelope using the burner. The burner uses propane gas to heat up the air inside the envelope to lift the balloon off the ground and into the air. The pilot must keep firing the burner at regular intervals throughout the flight to ensure that the balloon continues to stay afloat. Because the wind blows in different directions at different altitudes, the pilot can maneuver the balloon. If the pilot wants to move in a particular direction they simply ascend and descend to the appropriate level and ride with the wind.

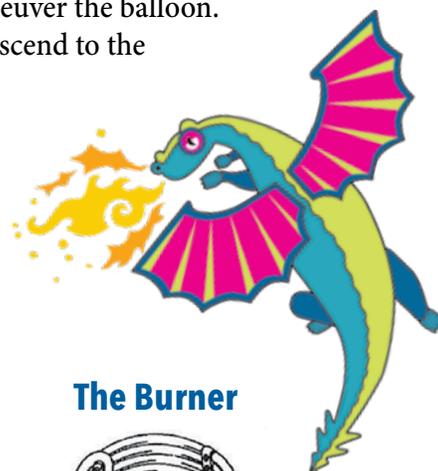
PARTS OF A HOT AIR BALLOON

A hot air balloon is made up of three main parts:

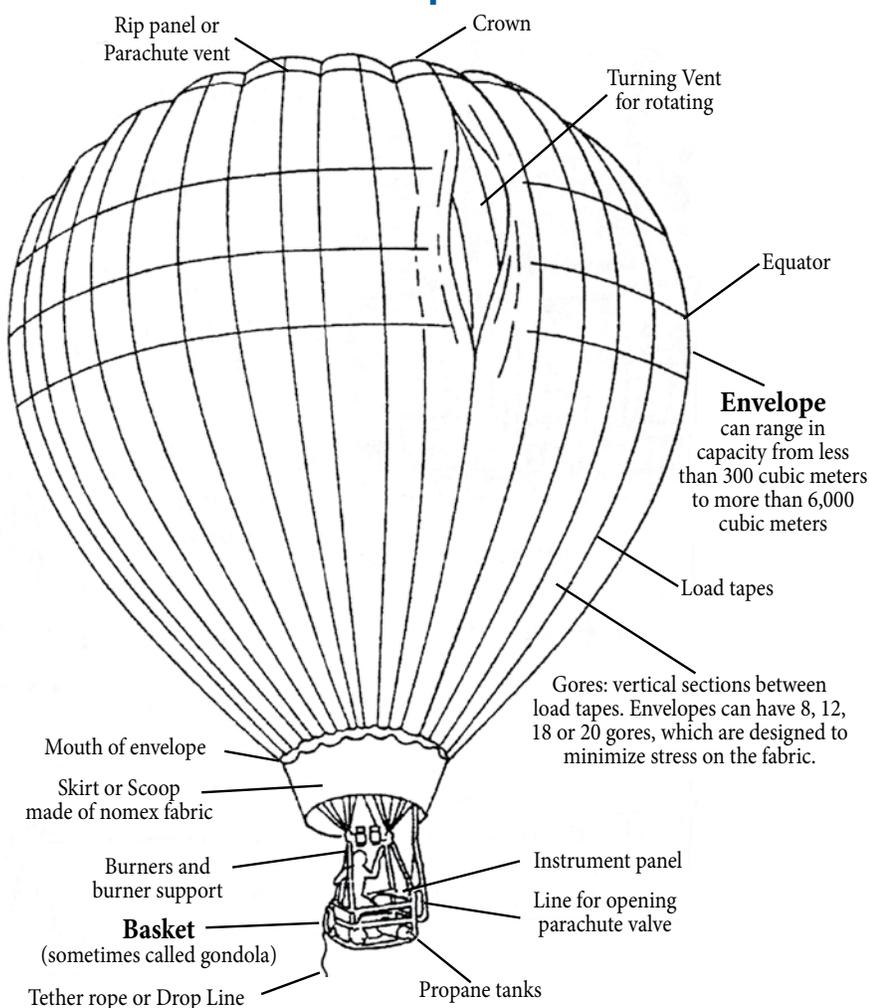
The Envelope - the fabric balloon which holds the air

The Burner - this heats up the air inside the envelope

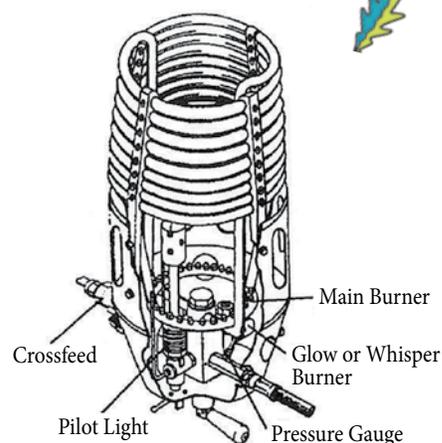
The Basket - where the pilot and passengers ride



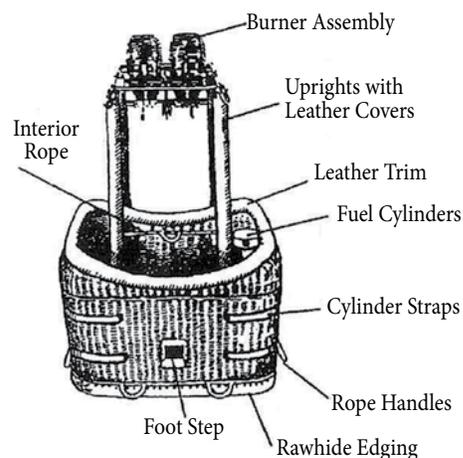
The Envelope



The Burner



The Basket



"WEATHER" TO FLY OR NOT - THAT IS THE QUESTION?

Before a hot air balloon can lift off, the pilot must ALWAYS first check the weather. Hot air balloons depend on different weather factors, including wind speeds, visibility and more.

How do pilots steer balloons?

Generally speaking, they don't. A balloon drifts in the same direction and at the same speed as the wind. The skill is for the pilot to pick the altitude that has the most desired wind direction. Surface winds many times blow in a different speed or direction than the winds aloft.

What are winds aloft?

The winds on the ground may not even have a hint of a breeze, but balloon flights may be canceled due to wind. How come? Pilots look at winds at the surface (the wind you can feel) and the winds at 1 to 9,000 feet. The balloons are not going to 9,000 feet, but it tells the pilot if they might encounter issues such as wind shear, turbulence, or strong surface winds later on. Even if there are no winds at the surface, the winds aloft may drive the decision not to fly. Winds aloft of 18-20 knots or 20 miles per hour can be sufficient to cancel a flight.

Can it be too windy to fly?

Balloons fly best in light and stable winds of 4-6 miles per hour. Maximum safe winds are 8-10 mph. Wind affects every phase of a flight. Here are the reasons wind is such an issue:



During inflation the balloon envelope is filled with cold air using a fan. The balloon fabric is like a giant sail, and winds approaching 10 mph make it almost impossible to fill the balloon, caving in the side and rolling the balloon around, sometimes violently.

High winds can carry a balloon into areas that are unsuitable for a landing—such as metropolitan areas, forests, restricted airspace or large bodies of water.

Very low winds can strand you over unsuitable landing areas.

And then there is the landing. High wind speeds mean that the pilot needs a larger area in which to land. A balloon relies on the friction of the basket dragging along the ground to come to a stop as balloons do not have brakes.

Can balloons fly in cold temperatures?

The temperature difference between inside and outside the balloon envelope determines the lift of a balloon, so balloons can fly well in cold weather. However, if the liquid propane in the fuel tanks is too cold, it may become too cold for the propane to work well. But the tanks can be warmed before the flight.



When is the best time to fly?

Hot air ballooning is a year-round sport. Weather conditions for ballooning are best just after sunrise and 2-3 hours before sunset. Good winds (2-8 mph) often occur during these times. During the day, when the sun is high, thermals (large bubbles of hot air that rise from the sun-heated earth) make ballooning hazardous.



FACTS ABOUT HOT AIR BALLOONS

What are balloons made of?

The bag or envelope, as it's more properly called, is made from a light weight ripstop nylon or polyester fabric much like parachute fabric. Balloon fabric is coated with polyurethane or silicone to help stop air leaking through. The bottom of the balloon is usually made from a fire resistant fabric called "Nomex."

This is the same material as fire suits. Nomex is used because it protects the balloon from accidental burn damage. The Nomex is also used to make a 'scoop' or 'skirt' which helps to direct heat from the burners' flame up into the balloon. The scoop has some added advantages when the balloon is on the ground.

FACTS ABOUT HOT AIR BALLOONS

How are the baskets made?

The baskets are made from rattan or wicker. Each one is individually woven by hand.

Why are most balloons shaped like a teardrop?

The shape of a typical hot air balloon is derived from a set of mathematical equations which reduce the stress on the fabric. The resulting shape, sometimes referred to as the natural shape, minimizes the horizontal stress on the fabric. Vertical stresses are carried by webbing tapes, which run from the top to the bottom of the balloon. Computer design software can now engineer balloons in almost any shape.



How big are hot air balloons?

Typical sport balloons range in size from 65,000 to 105,000 cubic feet in volume and stand about 70 ft. tall. This is about the same as a 7-story building. The most popular sport balloon is approximately 55 feet wide (diameter) and carry 3 to 4 people. A typical 77,550 cubic foot balloon has 1,750 sq. yards of nylon fabric in its envelope (or one-fifth of an acre in surface area). It also includes more than 3 miles of thread and almost one-half mile of nylon webbing used for reinforcing. It displaces almost 3 tons of air. These sport balloons carry 3 to 4 people.

Where does the balloon land?

The balloon lands on the ground. Since the balloon travels with the wind, it is difficult to predict the exact landing site prior to the launch. However, a pilot is able to determine the general flight direction and landing area by studying the winds.

How do you get the balloon back?

Your chase crew driving a van or pickup truck helps get the balloon back. This chase crew follows the flight of the balloon (as well as the existing roads allow) and should be on hand to make the recovery when the balloon touches down.

Do you need a license to pilot a balloon?

Yes. The Federal Aviation Administration issues a Balloon Pilot Certificate. You must pass an FAA written examination, obtain a prescribed number

of hours in a balloon, make a solo flight and a flight to altitude, pass a flight test and submit a medical statement.

Are you afraid of heights?

Because there is very little sense of motion in a balloon, many people are able to overcome their fear of height. Rather than looking down, the natural reaction is to look “out” at the horizon and, because the balloon is moving relatively slowly, you probably won’t react the same way you would in an airplane (or even on a shaky stepstool!). It’s always an option to sit down in the basket, which seems to solve any uneasiness for most people after just a few moments.

How long does it take to set up a balloon?

It usually takes 3 or 4 people about 20 minutes to get a sport size balloon ready for flight. This includes unloading the basket and envelope from the trailer, rigging and checking the system and the cold and hot inflation. Larger and special shaped balloons can take up to an hour to ready for flight.

How high do balloons fly?

Most balloon flights occur between 500 and 1,000 feet above the ground, but balloons can fly at treetop level or go much higher.



What fuel does a balloon use?

Hot air balloons use propane, kept in pressurized tanks on the floor of the basket. The balloon carries 30-40 gallons of liquid propane. It is carried under pressure and passes to the burners through flexible hoses. When the valves are opened, the propane atomizes and is ignited by a pilot light in the burners. The flame may shoot out as much as ten or twenty feet, making a loud “whoosh.”

Is ballooning SAFE?

Statistics have shown ballooning to be the safest segment of general aviation. The two most significant hazards are poor pilot decisions, and contact with power lines. Providing that the aircraft is properly maintained, and that the pilot is prudent in his/her decision-making process and proficient in piloting skills, the risk is minimal. You are probably safer in a balloon than in your own car on an interstate!

How long does a balloon last?

A hot air balloon will usually last for 500-600 flying hours depending on how regularly it is flown and how well it is maintained. Balloons deteriorate rapidly if they are packed wet or if they aren't aired regularly. A typical sport balloon pilot flies about 50 hours per year so a new balloon should last 8 - 10 years. Commercial pilots fly 150 - 200 hours per year so their balloons tend to last about 3 years.

How much does a balloon cost?

New 4-passenger sport balloons cost around \$40,000. Of course, the exact price can vary considerably depending on the options that you want. A special shape balloon costs much more, usually \$150,000+.

What is the difference between a gas balloon and a hot air balloon?

A gas balloon is completely enclosed and is filled with helium, hydrogen, ammonia, or coal gas. A hot air balloon gets its lift from heating the air within it. Gas ballooning is almost completely silent whereas, the propane flame shooting out of the burners of a hot air balloon makes a loud "whoosh" sound.

How fast does a balloon go?

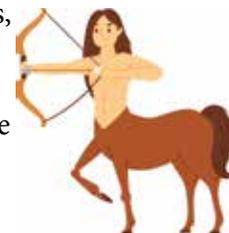
As fast as the wind; or as slow. Since the balloon has no forward propulsion system, its speed is determined entirely by the speed of the wind. That's why balloon races are events of accuracy not speed.

Can you fly in the winter?

Yes indeed! As long as you are properly dressed (as you would if, for example, you'd be attending an outdoor football game), winter flying can be incredibly beautiful. The air is frequently clearer, and visibility much improved (25-50 mile visibility is often possible). Because trees are bare, it is also easier to spot wildlife. The only concern may be that access to landing sites may be more difficult if there is significant snow cover.

How long can a balloon stay up?

It depends. Normally, the balloon carries enough fuel to remain aloft for up to 2 hours, but factors such as outside air temperature, weight being carried in the basket, and weather determine the duration of the flight.



How about making a snack to take along on your visit to one of our great parks?

S'mores Trail Mix

Ingredients:

1 cup mini graham crackers or cereal
1 cup mini marshmallows

1/2 cup candy-coated chocolate pieces (or chocolate chips)
1 cup whole-grain cereal squares (or mini pretzels)

Directions:

Measure out and combine graham crackers, chocolate pieces, marshmallows and cereal in a large bowl. Store airtight for up to 2 weeks at room temperature.

Want to experiment? Try adding 1/2 to 1 cup each some of these extra add-ins. Add peanuts, almonds, walnuts or other nuts or seeds (sunflower, pumpkin, etc.). This will add some protein, as well as taste great. Try adding dried fruit like raisins, banana chips, freeze-dried strawberries or other fruits. Try adding mini pretzels or other cereals like oat squares.

Use your imagination and create your own special s'mores trail mix, but remember to write down your recipe so you will know how to make it again.

Serving size: 1/2 cup, makes 7 servings.



OUTDOOR ADVENTURES

They don't call Hudson a Tree City for nothing! We have city, county and state parks a plenty within our borders. And we also have self-guided tree treks for the smallest nature enthusiasts. Check out the following parks section with listings for our wonderful Wisconsin Parks!

HUDSON & NORTH HUDSON PARKS

Hometown Park Challenge:

Get out and explore your hometown parks in Hudson and North Hudson, Wisconsin. Did you know there are over 25 public parks right here in your hometown? Do you know where all of them are? How many of the parks have you been to? Here is a challenge for you and your family. Can you visit all of the public parks in Hudson and North Hudson in 2022? Use this chart below to track when you visited each park.

When you are out visiting all of the great parks, you may want to bring some water to drink and a snack. Please remember to be kind to the earth and bring



your own reusable water bottle and always put your trash in a trash can (or take it home if there are no trash cans available). *Notice for parents: if you are visiting the parks in the winter months, the restrooms, drinking fountains, picnic tables and trash cans may not be available, so plan accordingly.*

Have even more fun by taking a photo of yourself at each park and use your photos to make an album of your park visits adventure.

Learn more about the parks at: HudsonWI.gov/Parks and www.NorthHudsonVillage.org/Parks

Hudson Parks

Anderson Park

100 Mont Croix Drive

Date visited: _____

Meadows Park

31 Canary Way

Date visited: _____

Birkmose Park

50 Coulee Road

Date visited: _____

Prospect Park

511 Wisconsin Street

Date visited: _____

Burton Field

1110 9th Street

Date visited: _____

Vine Street Square

1005 Vine Street

Date visited: _____

Coon's Hill Park

400 Knollwood Drive

Date visited: _____

Webster Park

602 Laurel Avenue

Date visited: _____

Grandview Community Park

1100 Carmichael Road

Date visited: _____

Weitkamp Park

648 O'Neil Road

Date visited: _____

Lakefront Park

505 First Street

Date visited: _____

Williams Park

931 Laurel Avenue

Date visited: _____

Lake Mallalieu Boat Launch

(Corky's Pier) 1530 2nd Street

Date visited: _____



North Hudson Parks

Brown's Beach

615 Galahad Road North

Date visited: _____

Mallalieu Park

1138 Bald Eagle Road North

Date visited: _____

Chief Jensen Memorial Park

1245 Vail Way North

Date visited: _____

Pepper Fest Park

401 7th Street North

Date visited: _____

Deer Run Park

1112 Sommers Street North

Date visited: _____

Sommers Landing Park

729 4th Street North

Date visited: _____

Eagle Woods Park

546 Helen Street North

Date visited: _____

St. Croix Station Park

235 Station Lane North

Date visited: _____

Ferry Landing Park

715 Galahad Road North

Date visited: _____

Webster Park

1020 Webster Street North

Date visited: _____

Glen Oaks Park

53 4th Street North

Date visited: _____

Woodcrest Park

1606 Prairie Drive North

Date visited: _____

Jens & Gurian Jensen Memorial Park

759 Lund Street North

Date visited: _____

LET'S HAVE SOME FUN!

Here are some suggested hot air balloon activities you can enjoy at home.

GOOD READS:

Flight for Freedom: The Wetzel Family's Daring Escape from East Germany, by Kristen Fulton

This is an inspiring true story about one family's escape from behind the Berlin Wall! View a reading of this book on [YouTube](#) or check availability at your local library.



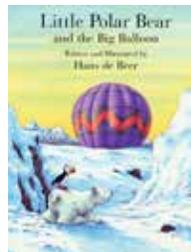
The World Needs Who You Were Made to Be, by Joanna Gaines

This book celebrates how creativity and acceptance can come together in a bright and beautiful adventure. View a reading of this book on [YouTube](#) or check availability at your local library.



Little Polar Bear and the Big Balloon, by Hans de Beer

A little polar bear helps a puffin who is unable to fly find another way to fly home, which involves a hot air balloon. View a reading of this book on [YouTube](#) or check availability at your local library.



FUN EXPERIMENTS:

National Geographic Kids: Racing Rocket Balloons.

This experiment is fun to do with a few other people so you can race your balloons.

Step by step instructions on the [National Geographic Kids website](#).

Learning 4 Kids: Hot Air Cold Air Science Activity

This is a great experiment to watch the effects of hot air and cold air on a balloon. This activity is a great opportunity for kids to talk about what they can see and why it is happening. Kids will absolutely love this activity and will see, first hand, what effects hot and cold air has on a balloon.

Step by step instructions on [Learning 4 Kids website](#).



VIDEOS TO WATCH:

Don't miss the Hot Air Affair video *Rivers in the Air... Just Add Wind*. Kids can tune in for FUN viewing with local artist and educator Liz Malanaphy. Watch and learn about the wind and why hot air balloons rely on it to fly in the sky. Watch on [YouTube](#).

SciShow Kids video: *How Do Hot Air Balloons Work?* Hot Air Balloons! They're those big, beautiful balloons people can float up to the sky in—but how do they get up there?! Watch on [YouTube](#).

Thinking Captain video: *How Do Hot Air Balloons Work?* from Best Learning Videos For Kids. The Thinking Captain shows how a hot air balloon works. Watch on [YouTube](#).

X-Stream Science video: *The Montgolfier Brothers First Flight* Parents will enjoy this video too. Learn about the Montgolfier Brothers and early hot air ballooning. Watch on [YouTube](#).



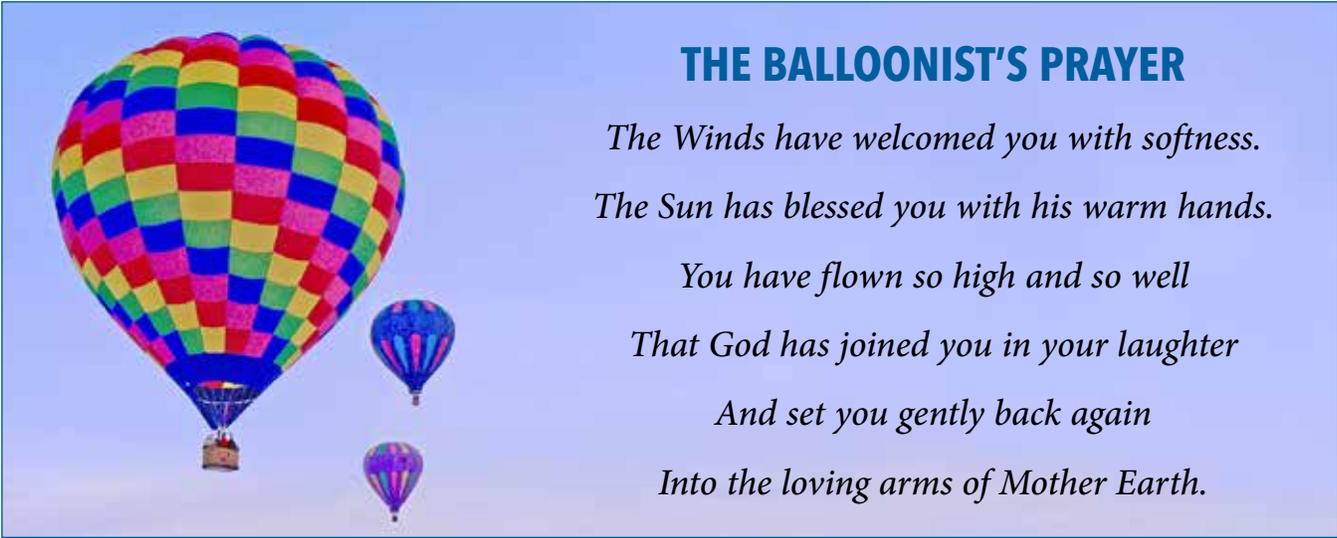
Hudson Hot Air Affair
Friday - Sunday, Feb. 3-5, 2023





See a replica of the Montgolfier Balloon made by Dave & Sue Johnson at Hudson Hot Air Affair.

The French brothers Joseph and Jacques Montgolfier were concerned about the effects of flight on living creatures. This led to the hot air balloon ascent of the *Aerostat Réveillon* on September 19, 1783 with the first living beings in a basket attached to the balloon: a sheep, called *Montauciel* (Climb-to-the-sky), a duck and a rooster.



THE BALLOONIST'S PRAYER

*The Winds have welcomed you with softness.
The Sun has blessed you with his warm hands.
You have flown so high and so well
That God has joined you in your laughter
And set you gently back again
Into the loving arms of Mother Earth.*

Creature Answer: 7-Centaur, 4-Dragon, 8-Griffin, 6-Flying Pig, 9-Medusa, 11-Mermaid, 3-Pegasus, 10-Phoenix, 5-Unicorn, 2-Yeti

OUR HISTORY

The Hot Air Affair was conceived back in 1990 as an idea to fuel public pride in Hudson and the St. Croix Valley by drawing local, state and national attention to our area while at the same time providing a mid-winter economic boost to our local businesses. The Hudson Hot Air Affair was incorporated in 1997 and is operated as an all-volunteer, non-profit community organization. Proceeds from the event go to supporting the Hot Air Affair, as well as several activities that raise funds for local charitable organizations. We hope you enjoy this year's event "Experience the Magic" with your family and friends.

Thank you to the Hudson Hot Air Affair Corporate Sponsor:



Also, a special thanks to the following businesses for sponsoring this educational booklet:



UPS Store - Hudson
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Viking Electronics
1531 Industrial Street • Hudson, WI 54016
715.386.8861 • vikingelectronics.com



Sources:

- www.adventureballoons.co.uk/about/balloon-weather
- storiesbystorie.com/10-yeti-books-for-kids
- https://www.ducksters.com/biography/entertainers/harry_houdini.php