

## Second Grade Tour – Electricity and Local History

Key:

**Red Bold** – Location in Hearthstone

Orange Underline - Discussion Questions

**Green** – Interpretive Tools

### **Foyer / Grand Hall**

Introduction and welcome to students

Introduction

Hello and welcome to Hearthstone

My name is \_\_\_\_\_. I am the \_(position)\_\_\_ here at this beautiful museum.

Helping me today is our camera person Paula.

If you are not familiar with Hearthstone. It is the big beautiful old house that is on the corner of Prospect Avenue and Memorial Drive in Appleton. It sits right next to the Memorial Bridge and overlooks the Fox River.

It was built in 1882... That is 139 years ago... and it is absolutely stunning inside and out.

It is also very important in terms of

- the history of electricity and
- the history of Appleton.

I am delighted that I get to share that history with you today.

We are going to begin in the lower level exhibit area. So follow me!

## Lower Level Learning Center

### Introductions

- here we are in our lower level learning center.
- On today's tour we are going to learn about
  - Electricity
  - Local History
- It might be a little hard to take questions, but with the help of your teachers I think we can make it happen.
- Let's begin!

### Location

#### First... let's talk about electricity.

- We are going to use some of our exhibits to help demonstrate a few things about electricity

### Black Knob Display



#### Let's first look at this little demonstration.

- When I spin this knob, look what happens.

(DEMONSTRATE)

- Do you see this little indicator flashing back and forth?
- It shows that electricity is being made.

#### What does that tell us about the three things needed to make electricity? Can you find them in this exhibit?

- Magnet
- Coil of Wire
- Movement

Yes, yes, and yes! Those are the three things that you need every time you try to make electricity.

You need a coil of wire and a magnet to generate electricity.

Together the coil and magnet are called with either a

- Generator
- Dynamo

And you need movement.

Ok, let's try these other displays. Here's one. Watch what

happens when I turn this handle.

Paula is going to give us a close of look.

(DEMONSTRATE)

### Are we making electricity?

Yes! Just like with the first exhibit. Here we can see the bulb producing light.

### Do we have all three things for making electricity?

Yes!

Here we have...

- Five silver magnets
- A coil inside and
- A handle to turn the coil.

Notice... it makes no difference whether we move the magnet around the coils or move the coils around the magnets!

You still make electricity!

### Why does each work?

- Each has all three things essential for making electricity
- The magnet and coil are already there (together they form a “dynamo”).
- We supply the movement with our hand.

**But wait... here’s a question...**

### What if we wanted to light more than one light bulb?

### What would we need?

- Bigger dynamo (bigger magnet and bigger coils)
- Bigger muscles!

## Velocipede

Let’s go into the next room.

This funny looking contraption is an old-fashion bicycle.

It was called a “velocipede.”



Can you imagine riding down the street on this? I can't.

Its big wheel is hooked up to a bigger dynamo (magnet and coils).

Paula will show you right here.

Want to see how it works?

Ok, I will climb on and starting pedaling. It will be noisy!

(DEMONSTRATE)

Now we are lighting all kinds of lights using our leg muscles.

We have a bigger dynamo and are using bigger muscles.

We are making more electricity!

Wow!

Ok... Here's another question...

Would this be a good way to light our homes? Why not?

- Get tired!
- Oh yeah. Trust me. It wouldn't take long.

## Water Wheel



So we need to find a source of movement that never gets tired.  
What do you think would work?

- Engine (but you still need to add coal or gasoline or some other fuel – even in nuclear power plants)
- Wind might work. But it isn't always windy. What is like wind but never stops moving?
- Water! A big river that flows all year round would be a perfect source!

Let's go over here...

What would happen if you linked a dynamo to constantly moving water?

- Constantly make electricity (unlimited!)

Here we have a wheel that is just like the wheel on the velocipede.

Would you like to see it work? It's is going to be noisy again.

(DEMONSTRATE)

Here we are just pumping water over the top of the wheel.

The wheel turns solely because of the weight of the falling water and gravity.

When the wheel turns it provides movement.

When we connect that movement of the water wheel to a dynamo (like we have right here), what do we get?

Electricity! That's right!

Look at this indicator here. We are making electricity.

And we can use that electricity to light lights!

(DEMONSTRATE)

Falling water generates a great deal of power.

Seems like a good system, right?

Does the river ever get tired?

- No! It never stops.
- You have unlimited "muscle" power!

## Print of Paper Mills

The gentleman who built Hearthstone was named Henry Rogers.

He controlled all the dams along the river.

Here's a copy of a painting we have upstairs that shows...

- One of the dams that Henry Rogers controlled

(POINT OUT THE DAM)



- Henry Rogers' first paper mill and

He also had a paper mill by the dam on the river right down the hill from Hearthstone.

(POINT OUT THE MILL)

The mill already was using water power from water wheels – just like the one we just saw - that was used to grind wood into pulp to make paper.

- A paper mill owned by Kimberly and Clark

Their mill is this one right here.

(POINT OUT THE MILL)

In fact, Henry Rogers, along with other men named Kimberly and Clark created the paper industry along the Fox River.

That's why this area is called the "Paper Valley!"

(POINT OUT APPLETON PAPER AND PULP MILL and VULCAN MILL)

If you were Henry Rogers and you wanted to

1) make electricity

2) you controlled a dam

3) you had a mill equipped with water wheels

What would you do?

- Right! Hook up your dynamo (magnet and coils) to the same water wheel as your paper mill!
- That's exactly what Henry Rogers did!

Now the river, which never stops flowing, replaces our muscles. It is making electricity all day and all night every day of the year. It never gets tired!

139 years ago, Henry Rogers used water power and lights invented by Thomas Edison to light...

- His beautiful new home Hearthstone (this building we are in)
- His paper mill and
- Kimberly and Clark mill

It was the first time ever, anywhere in the world, where this happened!

Right here in Appleton! Wow!

## Display of First Power Plants

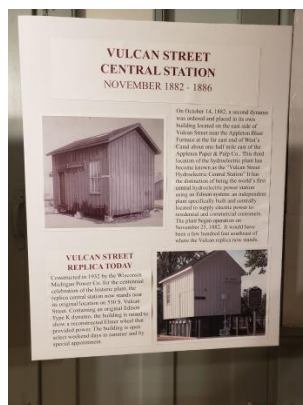
Let's move over here.



Here is the first power plant – anywhere in the world! - to light more than one building using Thomas Edison's lighting and hydroelectricity. Henry Rogers built it at his paper mill.



Two weeks later, the dynamo was moved to its own waterwheel. Here is a photo of the small building that housed the dynamo.



Then, a month later, Henry built another building.

It was the first building ever built solely as a central power plant producing hydroelectricity was constructed.

It is the Vulcan Street plant.

A replica still stands today in Appleton! You can go visit it!

## Original Dynamo



And here is one of the very first dynamos.

It is a real dynamo that was used in 1886 in one of the first power plants in Appleton.

### Can you identify the parts?

- Coil of Wire (easy)
- Magnet (actually is an electromagnet – there is a top piece and a bottom piece)
- Movement (this shaft here rotates very quickly when attached to a water wheel)

You can see in the photo from 1886, the same type of dynamo is being used to make electricity right here in Appleton!

Now that we have the basics... Let's move upstairs.

We are going to start in the Library. Please follow me.

## Library (tour moves to first floor)

Location

### By Desk



Let me start with a question...

### What do you do when you enter a dark room?

- Turn on the lights!
- Of course!

### And what happens?

- Power comes from somewhere else
- Lights the lights in your room.
- Exactly!

Hearthstone was the first house *anywhere in the world* where this happened. Yes, it was right here! In this house! In Appleton!

It was the first time someone could

- Walk into a room in their home
- Turn a switch
- Instant light
- First time ever!

As I mentioned before, Hearthstone is the first house anywhere in the world that is lit from a central Edison power station.





Henry Rogers started the power system and lit the two paper mills we saw earlier and this, his beautiful new home on September 30, 1882.

He used this light fixture. It is 139 years old and is original to this house. In fact, ALMOST ALL of the light fixtures are the very ones Henry used that first night. WOW!

**Here's a question...**

Have you ever wondered why we say "turn on the lights" when we are actually flipping a switch?

Well, the phrase actually started with these light switches!

Do they look like our current light switches?

No!

They were designed to work like a gas or water valve (which everyone was familiar with that turned to open). They work like this.

(DEMONSTRATE)

They "turn."

So these light switches started it all. They are the original switches used 139 years ago. They have been in use ever since.

They are very rare now. There are only 13 in the world and Hearststone has 11 of them! The other two are in other museums!

But this is where we get the phrase "Turn on the lights." Amazing!

Throughout our tour we will talk about other phrases that live on in our everyday speech but that we might not know where they came from!

So, let's think a minute... if Henry Rogers is making electricity in his paper mill on the river and he wants to have electric lighting in his house...

What does Henry Rogers need to build into his new house to light it with electricity?

- Switches (These are that old too and we still use them!)
- Light fixtures (Show electrolier. These are the original lights. They are 138 years old and we still use them too!)

- Wires (These are that old too... uh, but we don't use them!)

This was revolutionary!! Here's why this is so important. Do you know what kind of lighting electric lights replaced?



There are some examples in this room. Let's look around. Can you find them?.

- Candles
- Kerosene lamps
- Gas lights
- Fireplace

What are the problems with these kinds of lights?

- Takes time to light them
- Flicker
- Smoke
- Soot
- Bad smells
- Dangerous!! They are all on fire!

Does electric lighting solve all of these problems? Yes!

- On demand – they turn on as soon as you turn the switch
- Steady, even light
- No smoke or soot
- No smell
- No open flames so much safer!

How great is that!

## Phonograph



Ok... Here is another question...

Do you know who Thomas Edison was?

- Famous inventor
- 1078 patents! That's a lot!!
- Invented (among other things)
  - Electric lights
  - Movies
  - Phonograph and... here is one of the first ones!!!

Thomas Edison invented the light bulb with the help of others.

But he invented the phonograph – wholly from his own imagination.

The music recorded on wax cylinders (show one). Each holds about 2 minutes of music.

Can you believe it? This is a recording. This makes music!

Would you like to hear it play?

(DEMONSTRATE)

It runs entirely by springs. There is no volume control. The volume depends on the length of the horn... until people discovered they could do this...

(DEMONSTRATE)

And that's where we get the phrase "Put a sock in it" when we want others to be quiet!

The phonograph was revolutionary too! Just like the light bulb.

- First time on-demand music
- Didn't need someone to play an instrument
- Now music was available to everyone!!!

## Grand Hall

Central electrolier



Here is another original light fixture.

What do you notice about it?

- Short shades. Right!
- Bulbs stick out the bottom! Right again!

Why do you think the shades are so short? Two reasons...

- First, 8 watts of light!
  - Like a night light! (most of our bulbs are 10 times brighter)
  - But in 1882 people thought these were "as bright as day"! Seriously!
  - That's how bad candles were.
  - So the shades are short because you want all the light you can get out of the bulbs.
- Second, electricity was very, very expensive!
  - Each bulb cost \$1.60. Doesn't sound like much but...
  - Artist who carved all the woodwork, William Van Stratum
    - Highest paid artisan in Appleton at the time
    - Paid only \$1.00 a day
    - He would have to work two whole days just to

- afford one light bulb
- So that would be like each light bulb today costing \$700-\$800!! Wow.

Let's go into the Parlor.

## Parlor

Art

Other wonderful artists besides Van Stratum decorated Hearthstone.



### What examples of art to you see in this room?

- Ceiling – painted in 1889 by J. Frank Waldo, a famous artist
- Tiles – done in 1882 by Fredrika Crane, another famous artist.
- Paintings – Olive Correy and J. Frank Waldo
- Woodwork – William Van Stratum
- Furniture and musical instruments – various artisans

High Tech Features

### Do you notice something about this room? Listen...

- A very busy street right outside but you hardly hear it.
- Each wall is actually two walls – an outside brick wall and an inside brick wall.
- Keeps the house warm in the winter and cool in the summer
- Also keeps outside noise down

### Why would this have been important for the Rogers family?

After all there are no cars.

- The river!! It was the highway when this house was built!
- Very noisy – steam engines, boat whistles, and factories.

Let's now go through the Dining Room to the back porch for a moment.

Christmas Tree

(December can mention this.)

The Rogers family celebrated Christmas.

**Who celebrates Christmas?**

**Who celebrates other year-end holidays?** (Kwanzaa, Chanukah,

Ramadan, Three Kings, Solstice, New Year's, Lunar New Year's, others, nothing at all)

As we go through the house, you will see many ways that the Rogers and people who lived during the Victorian Era celebrated Christmas.

For those that celebrate Christmas, almost all of the things that people do today to celebrate Christmas started in Victorian Era!

#### **How do you celebrate Christmas?**

- Trees
- Ornaments
- Decorating throughout the house
- Giving presents
- Xmas cards
- Turkey dinner
- Caroling as we do it today
- All started in Victorian Era!

You will see some of these things as we move through the house.

Let's now go through the Dining Room to the back porch for a moment.

## **Porch**

### **Dam**

Let's look out towards the river. You can see it through the trees.

#### Do you see the river and the dam?

That was one of the dams that Henry Rogers controlled.

Henry Rogers' paper mill was located right at this end of the dam.

#### Why do you remember why he located his paper mill there?

- Water power! That's right!
- Remember the water wheel downstairs... falling water generates the most power.
- The dam holds back the river and creates a way for the water to fall downhill.
- This generates the most power, so Henry Rogers wants to be right here at the dam.

#### Why do you think the dam was placed here?

- Even before the first dam was built, there was a natural drop here in the

river.

- There was an 18 foot water fall here before the dam.
- It was the largest falls on the river.
- It was called “Le Grand Chute” in French which means “The Big Falls.”
- So putting the dam here took advantage of this natural drop too.
- Smart move!

Let’s go back to the Dining Room. It will be a little warmer!

## Dining Room

History

Have you ever noticed that there are lots of places around here with French names? Like...

- Grand Chute
- De Pere
- Fond du Lac
- Butte des Morts

Do you know why?

*Alden’s Home Atlas of the World, published 1887.*

- French were the first Europeans to travel here. They were explorers and missionaries like Joliet and Marquette.

(POINT OUT ON THE MAP OF NORTH AMERICA)

- This river was a highway even then, connecting French speaking people Quebec in Canada with French speaking people New Orleans in Louisiana.

Do you know who were already living along the river when the French arrived?

- First Nations peoples. These included the Menominee around Green Bay, the Ho Chunk around what is Oshkosh today, and the...
- Meskwaki who lived right here in the middle!
- The French called the Meskwaki people “Le Renard” meaning “The Fox” in English.
- Named after the animal that one of the clans used as a symbol.
- That’s where we get the name of the Fox River!

- After a clan symbol of the Meskwaki. The clan symbol lives on in our language!! WOW!

Here's another one...

Do you know how we get the name Outagamie as in Outagamie County?

- The Meskwaki actually came to this area around the year 1600.
- They traveled from the lower peninsula of Michigan, around Lake Michigan, to live here.

(POINT OUT ON THE MAP OF NORTH AMERICA)

- The Chippewa called them the "Odagaamii" or "people from the other shore"
- That's where we get the name "Outagamie" County!
- Isn't it interesting how history lives on in the words we use every day?

Now let's go into the Kitchen.

**Kitchen**

Center Table



What can you find in this room that runs on electricity?

- No...
  - **Stove** (first electric stove invented in 1892 but not popular until 1920s).
  - This one burns wood but it was super high tech for its day.
  - **Ice Box** (first electric refrigerator invented 1914. Again not popular until 1920s and change to freon.)
  - It kept food cold with big blocks of ice, kind of like a cooler we would use on a picnic today.
- Yes...
  - **Annunciator**  
This was the high tech way to call your servants to help you. It ran on electricity.



These buttons were scattered throughout the house and you would do this.

(DEMONSTRATE)

- And there is another one...

this... it's a Toaster!

It doesn't look like a toaster. But it is!

## Toaster



First...

- Notice that the toaster is plugged into the light fixture.
- There were no outlets in this house originally! Outlets hadn't been invented yet.

This toaster is as revolutionary as the electric light and the phonograph. Do you want to know why?

Do you know what huge change in America is directly related to the toaster and other small appliances?

- Women finally getting the right to vote!!
- That's right!!!
- How? Electric appliances (like the toaster, coffee makers, vacuum cleaners, etc.) made the lives of women easier and gave them sometime they never had before... free time.
- Free time for middle class women turned suffrage into a mass movement. Meaning that hundreds and thousands of women could join in the fight to get them their rights.
- 19<sup>th</sup> amendment recognizing women's right to vote was passed in 1920.
- This year is the 100<sup>th</sup> anniversary!
- Wisconsin was the first state to pass the amendment!



I told you the toaster was revolutionary!! How cool!

*We have a little time left so let's take a peek at the second floor.*

*Please follow me!*

**Return to Grand Hall for questions if 15 minutes or less in the hour.**

That concludes our tour. I hope that you have enjoyed it and learned a lot.

Paula and I both enjoyed it very much.

I would be glad to take any remaining questions.

Thank you very much for being a part of our Hearthstone tour today.

## Second Floor Sitting Area, Bedrooms, Bath

Each bedroom and bathroom



Here we have four bedrooms and a sitting room in the middle where the Rogers family could relax.

But maybe the coolest part of the upstairs is this room... The bathroom!

In bathroom describe

- Tub
- Sink
- Toilet and how it flushed.

All designed to make life easier but, importantly, this room also helped stop people from getting sick.

Center of sitting room



Beside electricity and indoor plumbing, this house had many other features that were absolutely brand new when the house was built that are commonplace now.

**Can you find some on this floor?**

- Hot and cold running water
- Central (steam) heat
- Sky light
- Large windows
- Painted walls (as opposed to wall paper)



