



Inspired by the  
Mister Rogers'  
Factory Tours.

**GALLERY  
GUIDE**



This exhibit was inspired by the Mister Rogers' Factory Tours. Mister Rogers' believed that explaining real life to children is important to their development. Mister Rogers' explains...

*“ My father and my two grandfathers worked in factories, and I was always interested in their work. When we show factories, they certainly have fascinating machines, but I always emphasize that it takes people to make machines and to make them work. I like children to know that people can take pride in their work and that everyone's job is important. ”*

## EVERY OBJECT HAS A STORY OF HOW IT IS MADE.

How People Make Things celebrates that story—the people, the manufacturing processes and the technology used to make everyday objects in our world.

Once, every product we used was made by hand, usually one at a time. Some things are still made that way. But over the years, people invented machines to make things quickly, more efficiently and less expensively. Almost everything you buy at a store is made in factories, by many people, each doing a part of the manufacturing process.

Come in and explore using your hands, tools and machines to:

**CUT MOLD DEFORM ASSEMBLE**

You'll discover how familiar the story of manufacturing is to all of us.



# FACTORY HUB

## The Factory Hub immerses you in a factory setting.

It's where you'll encounter the idea that it takes people to make the objects found in our everyday world.

Here, you can read stories about real factories in your neighborhood, and experience demonstrations of each process, and meet real makers from your community. Displays highlight the processes that are explained in depth throughout other parts of the exhibit.



## Factories in Your Neighborhood

This series of displays recognizes local factories and shows that many everyday items are made close to where you live. It includes fun facts and artifacts that correspond to the selected factories.

## People Matching Game

This game gives you the opportunity to examine the four different manufacturing processes while trying to match the job description or clue to the corresponding finished product.



## Role Playing

In the locker area, dress up like a factory worker with safety glasses, overcoats, hardhats and aprons. Then, compare your reflection to pictures of real factory workers. The safety equipment is included in this display because in real factories, safety is a priority.





# CUT

**Cutting is when material is removed to form a new shape.**

Cutting should be a very familiar to you. You frequently cut paper with scissors at school and home. This room shows other ways that cutting can be done. It also includes different tools and materials that are frequently involved in the process.



## Die Cutter

The die cutter is a machine used to cut the same shape over and over. A piece of material is fed under the die. Then, a crank is turned, pressing the die through the rollers to create the new shape.

**Cut a pattern of a horse or box that can be folded and taken home.**

## Baseball Bat Process Display

Learn how a baseball bat is made by seeing each stage of the manufacturing process. Touch each piece and feel how the wood's texture changes from a very rough surface to a smooth surface. The materials for this display were donated by Louisville Slugger.



**A baseball bat is made using a lathe. A rough piece of wood is secured to the machine at two points. The lathe then spins the piece of wood very fast. As the wood spins, tools are lightly and slowly applied to the wood to cut away material. After the rough material is cut away, a new tool is used to slowly shape and smooth the rounded piece of wood. Lathes can also be used on other materials such as metal. Examples of items that can be made on a machine lathe include candlestick holders, cue sticks and table legs.**

## Nokona Baseball Glove Display

This display tells the story of the Nokona Athletic Goods Company and features their handmade baseball gloves. You can see the many parts and pieces used in making a baseball glove. The gloves are examples of two processes, cut and assemble.

The pieces of the baseball gloves are cut with large machines similar to die cutters. Later, the cut pieces are assembled by machines and sometimes people. A more in-depth story can be found on the How People Make Things website, [www.HowPeopleMakeThings.org](http://www.HowPeopleMakeThings.org)

## Cut With Wax

Wax is a very easy material to cut. Different sculpting tools are placed around the wax so you can experience 3-dimensional cutting by hand. After the wax is cut, the shavings are collected and placed into a wax melter. They are then melted and reformed into wax blocks for reuse.





## Rotational Ball Mold Artifact



This type of mold is used to make large hollow objects that cannot be made by injection molding. Some common items that are rotationally molded are balls, traffic cones, kayaks and playground slides.

*This display was donated by the Hedstrom Plastics Company. It is a smaller version of the mold used in the How People Make Play Balls, Mister Rogers Factory Tours video.*



## Match the Mold

Match finished objects with the industrial molds from which they were made. Try to fit the objects provided into the corresponding molds. The molds and objects used are a football, small balls, a shopping cart wheel, a shoe sole and a toy mouse container.

## Mold Filling

This activity shows you what happens inside an injection molder. **Pull the lever to fill one of six molds with fluid.** The molds represented are a clothes hanger, a comb, a Lego block, a fork, a flyswatter and a wing from a model airplane kit.



**All of the molds in these displays were once used in factories. In the manufacturing process, these molds would have opened and closed to form the objects.**

## Crayola Crayon Process Display

This display shows the materials used to make blue crayons. When molding crayons, wax is melted, colored with powdered dye and poured into molds. The new crayons are wrapped in paper and put into boxes. This complete process can be viewed in the How People Make Crayons, Mister Rogers Neighborhood Factory Tours video.

**Molding is when materials are added to a mold to create a new shape.**

This room includes hands on activities as well as industrial machines that show how molded objects are formed. In molding, you learn about state change. State change is when a material is melted into a liquid and then cooled, turning it back into a solid.

**MOLD**



## Molding with Wax

This activity is an example of a simple form of molding. The wax used is paraffin wax, which has the unique property of melting at low temperatures, making it safe for you. Mold an object out of wax.

1. Pour the warmed liquid wax into the mold.
2. Watch it harden into a solid.
3. Remove your newly formed shape.
4. Recycle your shape by putting it in the warm wax. Watch it melt back into a liquid.



## Deform a Penny

A rolling mill is a machine that flattens metal. Sheets of metal are fed between two large rollers. Each time, the gap between the rollers gets smaller, forcing the metal to get progressively thinner. This process is used to make aluminum foil. **Flatten a penny by placing it in one of two rolling mills.**

1. Place your penny in the coin slot.
2. Turn the crank to deform your penny.
3. Your strength combined with the power of the rollers is the **FORCE** used to deform your penny.
4. Take your deformed penny to Rolling Mill 2.
5. Place your deformed penny from Rolling Mill 1 in the coin slot.
6. Turn the crank to further flatten and texture your penny.
7. Your penny is complete! Please do not put your completed penny into another machine.

# DEFORM

**Deforming is when a material is forced into a new shape.**

The result of forces like suction, compression (pushing) and torsion (twisting) helps explain how materials can be reshaped. Many of these processes need to be done with machines, but people are needed to run the machines. Although many materials can be deformed, metal, plastic and wood are used most often.

## Deform a Wire

A spring is made by bending or deforming a piece of wire into a coil shape. **Change a straight wire into a spring shape by winding it around the metal shaft.** Examples of springs are found in the center of the table.



## Exploded Bicycle

The Exploded Bike is an artist's interpretation of how a bike is assembled. Because the pieces are in the correct location but moved away from the frame, you see how the pieces fit together to make one object. The pieces are suspended with cable, secured on both sides to keep them in place.



This bike was donated by the Cannondale Bicycle Corporation of Bedford, Pennsylvania, the largest manufacturer of bicycles in the United States.

## Trolley Parts Bins & Assembly Table

Making a Trolley is an example of how people assemble products in factories. This activity shows the process of assembly, as well as other activities including testing, sorting and disassembly.

1. Gather the Trolley parts from the labeled sorting bins.
2. Take the parts to the Assembly Table and build your Trolley.
3. When the Trolley is complete, take it back to the sub-assembly table for a run on the test track.
4. Disassemble your Trolley and sort the parts back into the bins.



## Build-It

In this activity, you can assemble different parts and pieces to make assemble a structure. Try different designs to test the strength and stability of the structure. Any time two or more parts are joined together, they are being assembled.

This building activity pairs a regular system with an unusual variety of building materials to allow for endless creativity. No two structures will ever be the same.



**Assembly is when two or more parts are joined together to create a new shape.**

It is the part of manufacturing that completes a product before it is ready to use. In this room, there are examples of machines that are used in assembly, things that are assembled and activities that help explain assembly more thoroughly.

ASSEMBLE

# MEET THE MAKERS

With the help of local and national guests, we have been able to expose our audience with a diverse assortment of highly skilled makers. Guest Makers work alongside children and staff in a creative environment to show off and teach visitors about skills, tools, processes and creations of their craft.



Programming is a great way to energize and deepen exhibit experiences, cultivate new audiences, and build valuable partnerships. For the exhibit, each host museum will be able to modify programming suggestions to fit their community.

# VIDEO WALL

The videos run continuously, alternating between two selections that represent the process of deforming. The artifacts displayed in the structure are examples of the products shown in the videos.

The videos shown in this display are from the *Picture Picture Factory Tour Series* from *Mister Rogers' Neighborhood*:

## Carousel Horse and Vans Shoes

**How People Make Carousel Horses**  
*The Carousel Works, Inc.*  
Mansfield, Ohio, 1998

**How People Make Tennis Shoes**  
*Converse, Inc.*  
North Andover, Massachusetts, 1991

## Balls and Crayons

**How People Make Play Balls**  
*Hedstrom, Inc.*  
Ashland, Ohio, 1998

**How People Make Crayons**  
*Binney & Smith, Inc.*  
Easton, Pennsylvania, 1981

## Wagons and Quarters

**How People Make Wagons**  
*Radio Flyer, Inc.*  
Chicago, Illinois, 1996

**How People Make Quarters**  
*United States Mint*  
Philadelphia, Pennsylvania, 1983

## Traffic Lights and Toy Cars

**How People Make Traffic Lights**  
*Eagle TCS/Siemens Energy*  
Austin, Texas, 1999

**How People Make Toy Cars**  
*Strombecker Corporation*  
Chicago, Illinois, 1991

