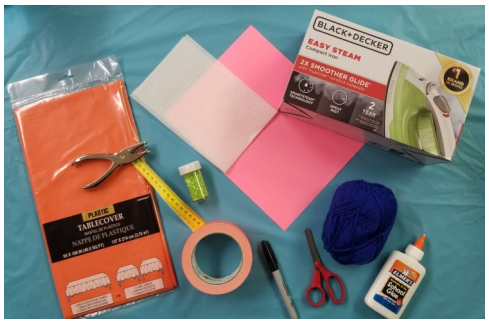
Plastic Fusion

Children's Museum of Houston

Can you make a piece of wearable art by fusing plastics with thermal energy?

MATERIALS



- Plastic Tablecloth
- Measuring Tape
- Sharpie
- Scissors
- Assorted Duct Tape
- Mask Template
- Iron
- Ironing Board
- Oven Mitts
- Wax Paper
- Card Stock
- Hole punch
- Yarn
- Glue
- Glitter

GET SET UP

1. Use a sharpie, measure and draw a 24"X36" rectangle on a plastic tablecloth (polymer). Cut it out. Cover the perimeter of the rectangle with duct tape to give it extra support.
2. Measure and cut (2) 9" pieces of duct tape. Lay your cape vertically. At the top of the cape, add a piece of 9" duct tape to each of the top 2 vertices (corners)- making sure at least half the tape hangs over the edge of the corner. Carefully fold the edges of the tape together to create a string that will tie your cape.
3. Using small scraps of plastic polymers (tablecloth), create artistic designs to go onto your cape. Layer the plastic together to make colorful patterns– remember, you are the Maker!
4. Carefully take your art and cape to an adult at an ironing station – they will fuse the artwork onto the cape. Place a sheet of wax paper underneath your cape, where the artwork is and another sheet of wax paper on top of the art. The shiny side of the wax paper needs to face upwards. Using a low setting on the iron and oven mitts, quickly slide the iron over the pieces to fuse (press for 1-2 sec.). Gently remove the wax paper.
5. Want to make a mask? You'll need a template. Trace the template on a piece of card stock. Cut it out including the eye holes. Decorate your mask. On either side of the mask punch a hole. Tie the end of a piece of yarn into one hole. Place the mask over your face and stretch the yarn around your head so it is tight. Cut the yarn and tie the other piece around the second hole.

DID YOU KNOW...

Making is the process of taking available materials and creating a specific object. It may seem difficult at first but with a little imagination and some pre-design (a sketch or a diagram), you'll start to get better. And that's really all it is—a process. Making is important because it is the first step to becoming an engineer. Just like an engineer, the main task of a maker is to solve problems.

Matter is anything that has mass and occupies space– it can be in the form of a solid, liquid, or gas. Matter is made up of particles that move and vibrate constantly. A rise in the temperature of matter makes the particles vibrate faster. **Energy** is the capacity to do work- in this case, transfer heat. There are many different forms of energy. **Thermal energy** comes from the temperature of matter. The hotter the matter, the more its molecules vibrate and the higher the thermal energy becomes. Matter can change from one state to another by adding in or taking away heat. Each time matter changes its state, the movement of molecules speeds up or slows down. Today, with the application of heat, the plastic polymer melted and fused together. A **polymer** is a long chained molecule with repeating subunits. One of the better known naturally occurring polymers is DNA.

CHALLENGE

1. What is making and why is it an important skill to learn?
2. What chemistry concepts are at play when making plastic fusion art?
3. What are some recyclable materials at your home that can be used to create plastic fusion art?

STEAM Challenge: If you set the temperature of an iron at its highest level it will be between 300-320 degrees Fahrenheit. That's pretty hot! The surface of the sun is roughly 10, 000 degrees Fahrenheit. How many times hotter is the sun than your iron!