

Shrinky Dinks

Materials:

Item	Amount per student	Amount for 24 students
Shrink-it plastic sheets	1 (or 2?)	24 (up to 48?)
Colored Pencils	~3	A few packs
Permanent markers (not water-soluble!)	~3	A few packs
Scissors	1	24
Metric rulers	1	24

Equipment:

Item	Amount per student	Amount for 24 students
Oven heated to 120°C (300°F)	1	1
Coloring books or other image sources	1	Many?
Pans (Non-stick)	1	2 or 3

Staff Notes: May be able to use aluminum foil or window screening instead of pans.

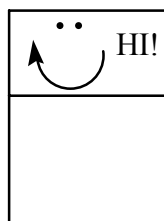
Safety Issues: The oven is hot! Use hotpads and tongs when removing items from it!

Procedure:

1. Cut a sheet of Shrink-it plastic (polystyrene) into the shapes that you want (at least TWO should be an easily measurable shape, i.e., rectangle or square), and decorate those pieces as desired. (Permanent markers like Sharpies work best – not Crayola or overhead markers. Colored pencils are also good for giving the background color.) You could also draw your design on the full polystyrene sheet, and cut it out afterwards. Some design ideas include writing quotes, tracing pictures, or making cool designs. Keep in mind that the design will shrink to about half its original dimensions when heated, so don't make anything too small! Also, the colors will intensify as the plastic shrinks, so use light coats of color. If you want to make a button or charm, a hole can be punched with a hole puncher, *prior* to heating. Please return the pieces of the polystyrene sheets that you do not need for later use. (Note: you are only required to do two of these in easily measurable sizes, and you do not have to use the entire sheet!)
2. Measure the dimensions in CENTIMETERS (length and width) of at least TWO of your polystyrene pieces and record them in your LNJ. See the sample diagram (and the sample data tables in Item 7 below. As shown in this diagram, define the width of your pieces as coming from the short side (the 8.5" side) of the polystyrene sheet and the length of the pieces as coming from the long side (the 11" side) of the polystyrene sheet, regardless of which side of your own piece is longer. Draw a diagram of your own polystyrene sheet that shows both the orientation and the placement of your Shrinky Dinks on the original sheet in your LNJ.

Sample Shrinky Dink:

width = 8.5" side



length = 11" side

So: width = 21.6 cm
and length = 10.0 cm

3. Place your polystyrene pieces onto a baking sheet. If necessary, a piece of screen or other material can be laid over the tops of the pieces to prevent them from curling up when heated.
4. Place the baking tray in a 120°C oven for 4-6 min. Monitor it to check for curling!
5. BE CAREFUL when taking the tray out. Use hotpads to remove the pans, and use tongs, tweezers or spatulas to remove the screen and the plastic pieces from the tray. Allow them to cool on the tabletop.
6. Measure and record the final dimensions of your Shrinky Dinks and calculate the percent shrinkage for each of the pieces. Show your work in your LNJ!
7. Sample calculations are tabulated here. You must include a table like this one for each of the items for which you measured dimensions!

<u>Title: "The Rabid Poodle"</u>	<u>Width (W)</u>	<u>Length (L)</u>	<u>Area (W x L)</u>
Original Dimensions (measured in cm)	10.0 cm	14.5 cm	145 cm ²
Final Dimensions (measured in cm)	5.0 cm	5.8 cm	29 cm ²
Loss of Dimensions (original - final)	5.0 cm	8.7 cm	116 cm ²
Percent Loss of Dimension [(loss/original) x 100%]	50%	60%	80%

<u>Title: "Darwin-Hoo"</u>	<u>Width (W)</u>	<u>Length (L)</u>	<u>Area (W x L)</u>
Original Dimensions (measured in cm)	9.8 cm	6.8 cm	67 cm ²
Final Dimensions (measured in cm)	5.2 cm	2.8 cm	15 cm ²
Loss of Dimensions (original - final)	4.6 cm	4.0 cm	52 cm ²
Percent Loss of Dimension [(loss/original) x 100%]	45%	59%	78%

Reflections:

1. Using the measurement data that you collected in lab and your own computed reductions, do you see any similarities and/or differences in the reductions in width, length, and/or areas of this material when heated?
2. What do the trends described above suggest about how you should orient other designs?
3. What adjustments would you make in your procedure to change or improve your finished product?