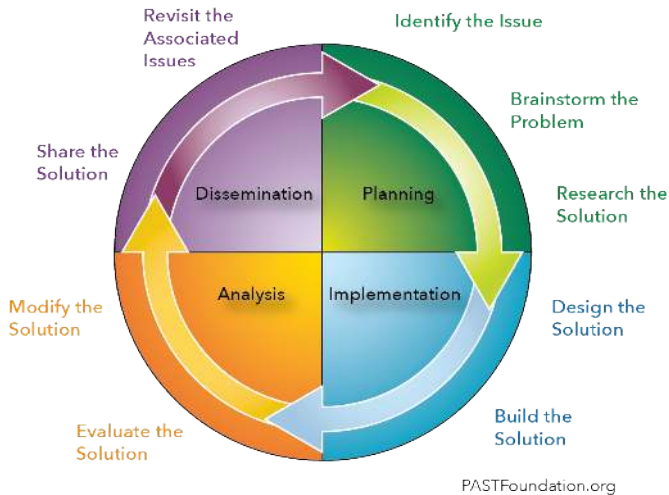


Build Your Own Kaleidoscope Mini Challenge

Name: _____

Date: _____



Problem Scenario:

Did you know that the word kaleidoscope comes from Greek words meaning "beautiful form to see." How will you create your kaleidoscope to create color reflections?

Challenge:

How can you use light and color to create different forms using reflections?

Supplies:

- Empty toilet paper roll
- Mylar Sheets (thick) or Mirror sheets, or aluminum foil and cardboard
- Scissors and Tape
- White Card stock
- Bendy Straw
- Markers, Stickers- any materials for decorating

1. Brainstorm: Use the space below to brainstorm the design and approach to building a strong stain glass panel.

- How does light travel?
- What is reflection?
- What happens to light when it strikes a flat reflective surface?
- How does angle affect reflection?
- What does a triangular prism look like? What about a rectangular prism?

2. Design/Build:

- Prepare your reflective surface (Mylar, Mirror Sheet or Cardboard and Aluminum Foil)
- * *If you are using mylar or mirror sheets:*
 - Cut mylar or mirror sheet into a 10cm X 10.5cm rectangle.
 - Tri-fold mylar or mirror sheet into a triangular prism with the mirror side facing in, and tape along the top to hold it in place.
- * *If you are using cardboard and aluminum foil*
 - Cut cardboard into a 10cm X 10.5cm rectangle.
 - Cover the cardboard with aluminum foil, and tri-fold into a triangular prism, and tape along the top to hold it in place.
- Grab your toilet paper roll! Put your triangular prism into the roll (you may have to bend a little to get it to slide in). It should fit tight in the empty toilet paper roll so that it does not fall out. Decorate your toilet paper roll.
- Cut off the bendy end (ridge end) of a flexible straw.
- Tape the straw along the top of your tube with the flexible part (ridge) of the straw hanging over the edge of the toilet paper roll.
- Using the cardstock paper, cut out 3.75-inch diameter circle. You can also print out the circles provided on the next page. Cut out as many as you would like to design!
- Poke a hole in the center of your circle. This may take a few times to get the correct size.
- Decorate the circle
- Place your circle onto the bendy straw attached to your tube through the hole that you created. The design should be facing the toilet paper roll.

3. Evaluate:

- Hold the kaleidoscope up towards a light. - Look through the triangular prism.
- Turn your circle on your straw.
- Observe the colors, forms and shapes!
- Record your observations below.

4. Modify:

- Create a rectangular prism to put into your toilet paper roll. How does this change the shapes and forms you observe?
- What would happen if you created a different prism to put into your toilet paper roll?
- How do different shapes, colors etc drawn on your circle effect what you observe?

5. Share:

Share your creation on Social Media!

Tag us on Facebook, Twitter or Instagram @pastfoundation

Use the hashtag #ThisIsPAST or #DesignThinking

2. Design/Build (cont):

