

Fabric Pattern Design Project - Due 9/24

Role: You are a textile designer.

Goal: Your goal is to **design** and **describe** a polygonal tiling pattern for a fabric to be used for clothing or home furnishings.

Audience: Your audience is the printing technician who will need to translate your design into a printed product.

Situation: You are designing a tiling pattern for a company. You will need to write a report describing the form of your pattern in detail so that an exact copy can be reproduced by the printers.

Product: Your product will be a **sample of your fabric**, along with a **diagram of the tile** used to produce it. You will write a report **describing the form** of your design, including the shape and organization of the work, so that the pattern can be reproduced by the printers. To describe the form precisely, you will **decompose your unit tile into triangles and parallelograms, and provide measurements** of these polygons.

Standards: You will be assessed by IB MYP Mathematical Assessment Criteria A and C.

Materials needed: Blank piece of paper, Blank piece of square cardstock, Pencil, Scissors, Tape, Ruler, Markers or Colored Pencils

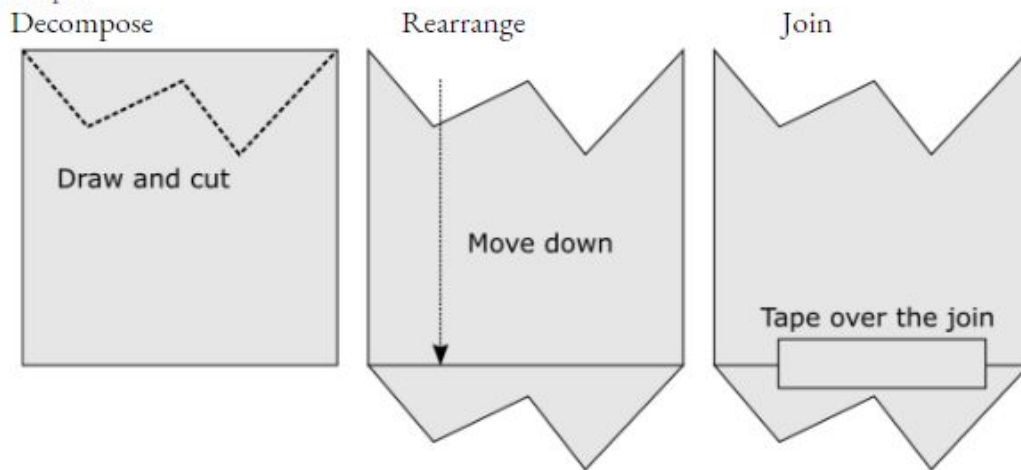
Task #1: Find the area of your square tile

Determine the area of your square piece of cardstock by measuring relevant lengths and using the appropriate method to compute the area.

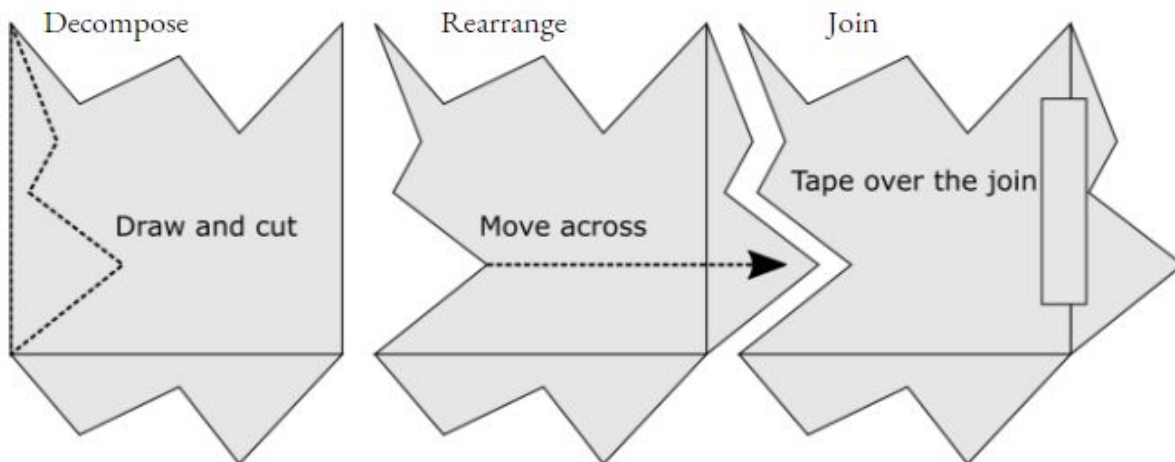
Task #2: Construct a tile using three operations

1. **Decompose:** separate or break down into parts.
2. **Rearrange:** change the position, time, or order of something.
3. **Join:** link or connect parts.

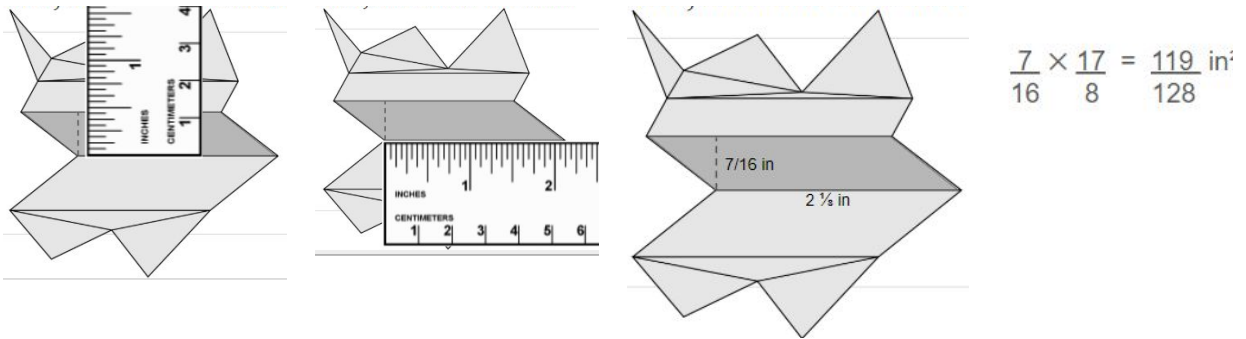
Step 1: Plan the first cut out of your tile by drawing a straight line segments that start and end on the top of your square card. **Decompose** the tile into two parts by cutting along these lines. Then **rearrange** the parts by moving the cut out piece to the bottom of the square. **Join** the pieces with tape.



Step 2: Repeat the process with the sides. Plan your second cut out by drawing lines that starts and ends on the same side of your square card. **Decompose** the card into two parts by cutting along the lines. Then **rearrange** the parts by moving the cut out piece to the other side of the square. **Join** the pieces with tape.



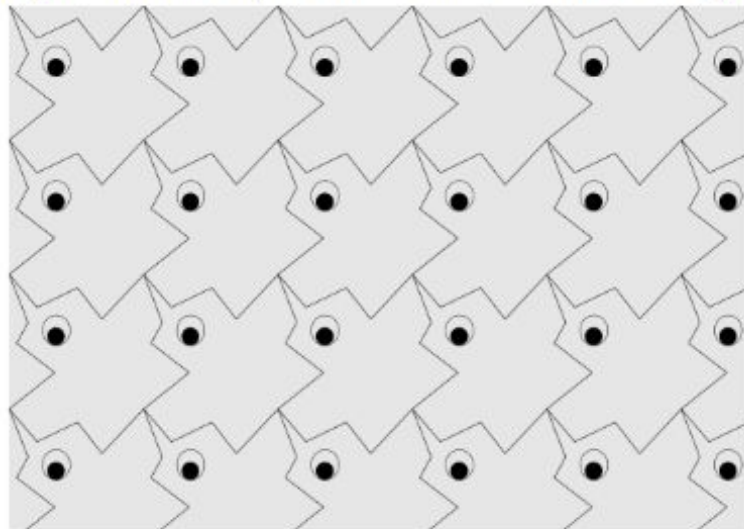
Task #3: Decompose the tile, determine its measurements, and find the area



Repeat for each part!

Task #4: Create your tiling

Your tile is now ready to go! Take a blank piece of paper and use your tile as a stencil to draw around, making a beautiful pattern! You may use markers to decorate or color your tiles.



Task #5: Write a report for the textile printer

You will **write a report** describing how you decomposed the tile, and how you measured your polygons. You must provide all measurements needed to compute the area of each part. Make sure you specify what units you used, and make sure to draw the segments that you measured on your tile. Also, make sure that you label the segments with the measurements that you found and explain how you computed the area of each part, as well as the area of the whole tile.