

## Rational Science

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***Purpose of design.*** The purpose of this design was to create a garment that features recycled design as well as wearable technology such as light-emitting diode (LED). The overall design was inspired by geometric minimalism. Flashing and constant LED dots were used as wearable technology. Cross-stitch squares were used as recycled design.



***Design process.*** To create a geometric focus, the pyramid shape was chosen. The pyramids were made with recycled cross-stitch squares that were cut into triangles and woven and knotted together to create a three-dimensional structure. They served as a transparent medium for the white and blue LED lights to shine through, which highlighted the geometric structures. The LED dots were attached to the inner top magnetically. The inner top was

***Techniques and materials.*** Draping and flat pattern methods were used. The inner top and bottom were flat patterned and the collar was draped. The pyramid outer shell was created by cutting cross-stitch-squares into triangles, weaving and knotting them together with embroidery thread. Once the structure was created, it was painted with white spray paint, and sealed with a clear coat. Hand and industrial sewing techniques and surface embellishment were used. The materials used include 1 ½ yards of 100% polyester white gabardine for the shell and lining of the top, ¾ of a yard of 100% polyester white faux suede for shorts, 120 pieces of 4-inch by 4-inch cross-stitch squares, white embroidery thread, 2 pairs of shoulder pads, one 22-inch white separating zipper, white gloss spray paint, and a mix of blue and white flashing/constant LED dots.

***Contribution.*** The contributions of the overall design to the field of textile and apparel design are twofold. First, this design provides a three-dimensional geometric surface design with recycled materials. Second, this design emphasizes incorporating LED lights into recycled design, which leads to innovative design originality.