

# Pyramid Hope

## The Workshop

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### Project 1

The winning design idea is a basic pyramid in two sizes. One is a table-top version and one is small with attached keychain. Keychain picture in the Gallery.

There were multiple requests for a White, Blue, Red pyramid so those are the colors of plastic ordered. I also have Black and Yellow available. Pictures of plastic in the Gallery.

Question 1: Should the large pyramid have simple flat sides and be divided into the three colors by 1/3? Or should the the sides have a pattern on them? Possibilities are a wavy line where the color changes, or some other pattern embedded into the plastic. Patterns would be done as indentations in the plastic, the 3D printer here is not the type that can change colors constantly while printing.

Question 2: Should the small pyramid for the keychain be all one color or also 3 colors?

Question 3: Do you have any comments or questions? This is YOUR project so please make your thoughts known.

Question 4: Should we offer these pyramids (the large and small) in all one color for people who might want it?

### Some notes on 3D printing

- There are different types of 3D printers. The one we have here is an FFF type (Fused Filament Fabrication). It works by melting a plastic filament like fat fishing line and squirting it in a controlled manner to build up the desired object.
- All 3D printed objects are made in layers, the more (much more) expensive machines can make layers so thin you don't even notice them. Our printer makes layers 0,2mm thick so you will see a ripple in the sides and the top and bottom will have a definite grain to them.
- Our 3d printer only prints with plastic. While we can use a wide range of plastic in this machine, we prefer to stay with PLA (made from corn or tapioca starch) for general items and PETg (the same plastic as clear soda bottles, made from petroleum or methane gas) for items used with food/drinks.
- Most 3D printed items are made somewhat hollow to save material and time. Inside this hollow space is a web of thin strands woven to support the outside walls. Holding a 3D printed item up to bright light may reveal the inner structure.

- 3D printing is SLOW and expensive compared to mass producing an item, but sometimes you only need a few of an item or the item is too complex for mass production. Some rocket engines and airplane parts are now 3D printed with metal for both of the above reasons, limited quantity and possibly very complex shape.
- 3D printing requires careful design of the final product, you can't just design anything and they try to make it. This applies to all products, you have to know how you're going to make it before you can design it. A house made of wood may be designed very differently than one made of bricks.
- 3D printing is a very good educational tool for learning about Design For Manufacturing as well as setting up and maintaining precision machines. You soon learn about finance too, when you decide to print some large item and calculate how much plastic you have to buy.

Most of all, enjoy your project!