



# GUARDIAN ANGELS

*A zero-waste upcycling program that donates clothing, backpacks, toys, and an annual monetary donation to the Floyd County Department of Social Services to help families and children in need.*



A person's hands are shown sorting through a pile of folded clothes. The person is wearing a watch on their left wrist. The clothes include a white t-shirt, a blue long-sleeved shirt, and a blue pair of jeans. The background is a light-colored surface.

In the United States only 15% of clothing and textiles are collected for repurposing.

The remaining 85% is landfilled or incinerated.

# Textile Waste

## *Where Will It All Go?*

Although we know textiles and fabrics are not being reused, recycled, or donated at a high enough rate, there are still second-hand stores throughout the nation that are facing extreme amounts of donations and struggle to have the time and staff to keep up.

There is more and more education surrounding the importance of donating versus discarding usable items, which means the amount of donations we see are projected to rise. How will the second-hand stores succeed?

The photo on the right is from the donation center of Angels In The Attic, a donation fueled second-hand group of stores in Floyd, Virginia. They often times have to close the accepting of donations due to the overflow of they receive.



# Pain Points

## *Angels In The Attic Warehouse Visit*

I had the opportunity to visit the donation center and warehouse where I found some issues that Angels in the Attic was running into.

### **Damaged Clothing**

An extreme amount of damaged and unsellable clothing was being donated, with nothing left to do other than further donate them hoping a different stores customer will purchase and use them one day.

### **Excess of donations.**

They have boxes and boxes filled with extra clothing that sometimes never hits the racks. Many times these will stay for months and even years sitting in the warehouse.



excessive donations



warehouse at full capacity



sorting bins overflowing

*OVER 50% CLOTHING DONATED TO ANGELS IN THE ATTIC IS NOT ELIGIBLE NOR SELECTED FOR SALE*

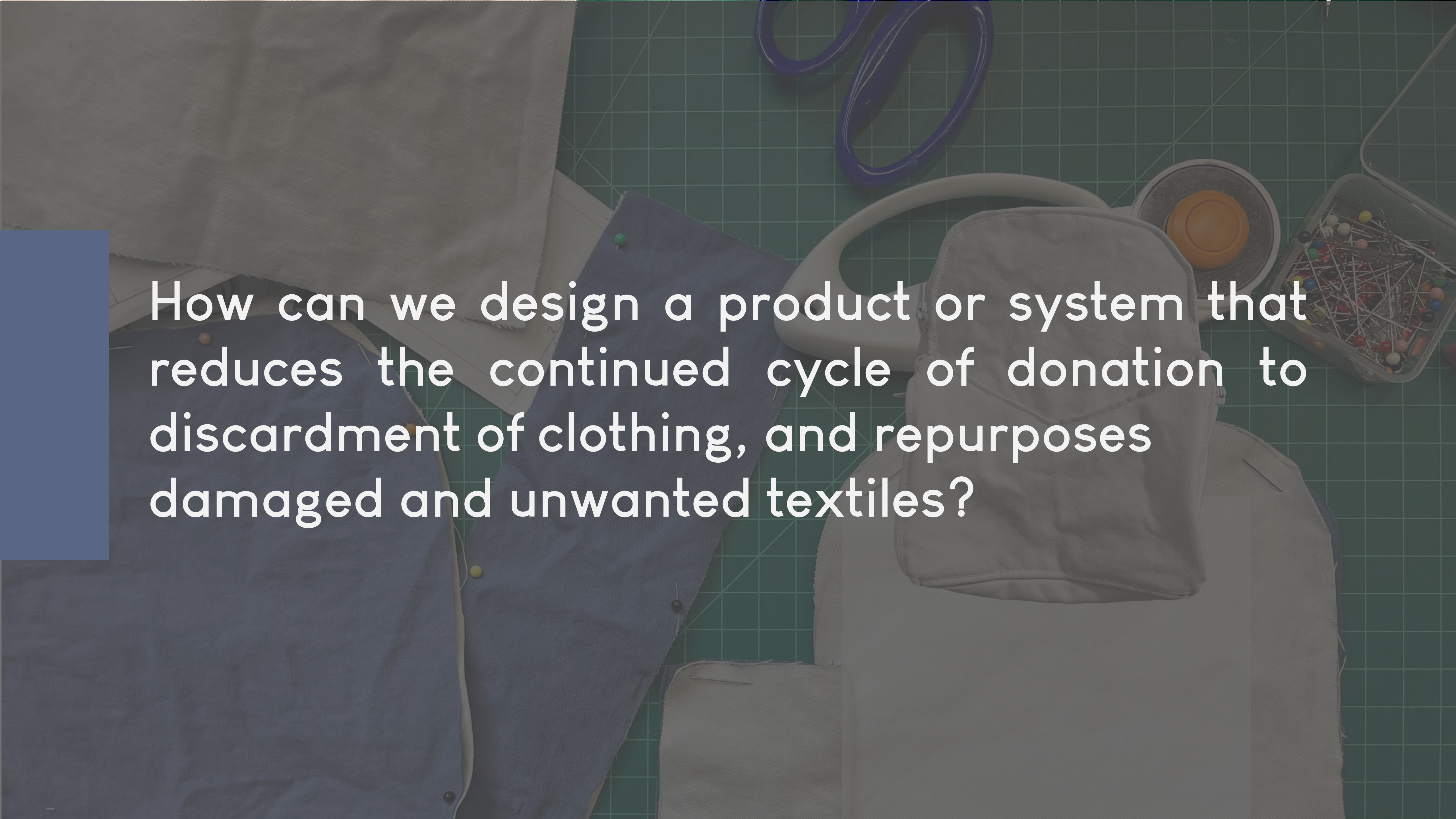
# Unsellable Clothing

## Examples From Thrift Stores

We asked Angels In The Attic for examples of clothing they would pass on and would not select for sale. One example from that batch would be the tshirt on the right. There are multiple stains throughout the shirt specifically around the torso and underarms and permanent discoloration.

I also went to the Goodwill Bins which are the last stop of Goodwill clothing before they are thrown away or sold in bulk to overseas merchants. The shorts on the right are from the Salem, VA Goodwill Outlet Bins and are ripped.





How can we design a product or system that reduces the continued cycle of donation to discardment of clothing, and repurposes damaged and unwanted textiles?

# Guardian Angels

## *How Does It Work?*

Angels In The Attic will create backpacks, tote bags, and stuffed toys from upcycled donations that are damaged. Each year they will donate the backpacks filled with **clean and good quality donated clothing**, and **stuffed toys** to the Floyd County Department of Social Services for them to distribute to families and children who need them.

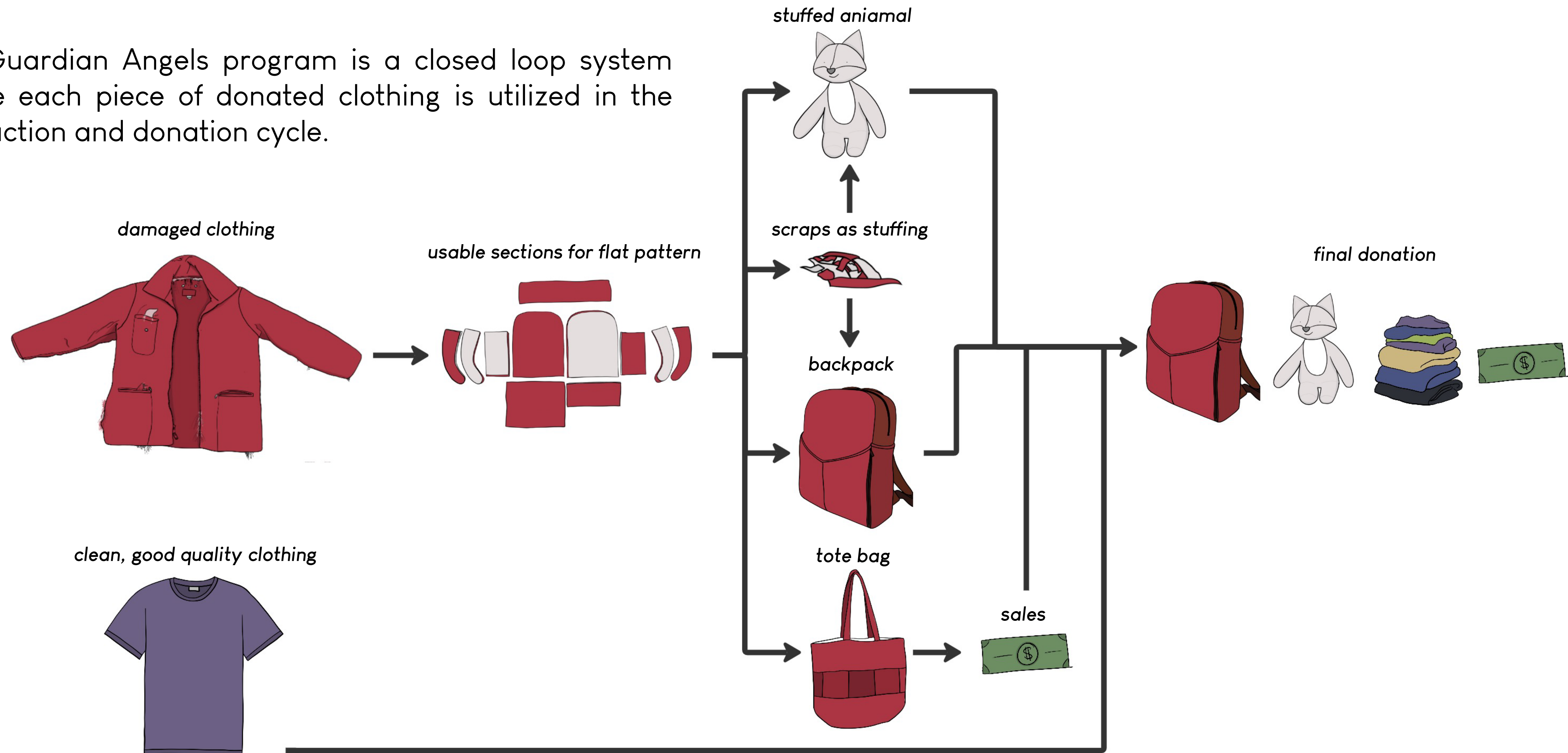
In addition to these physical donation, there is a monetary donation that includes the annual set percentage of Angels In The Attic's profit, in addition to the **profit of the tote bag sales** from being sold in Angel's stores.



# Developing the System

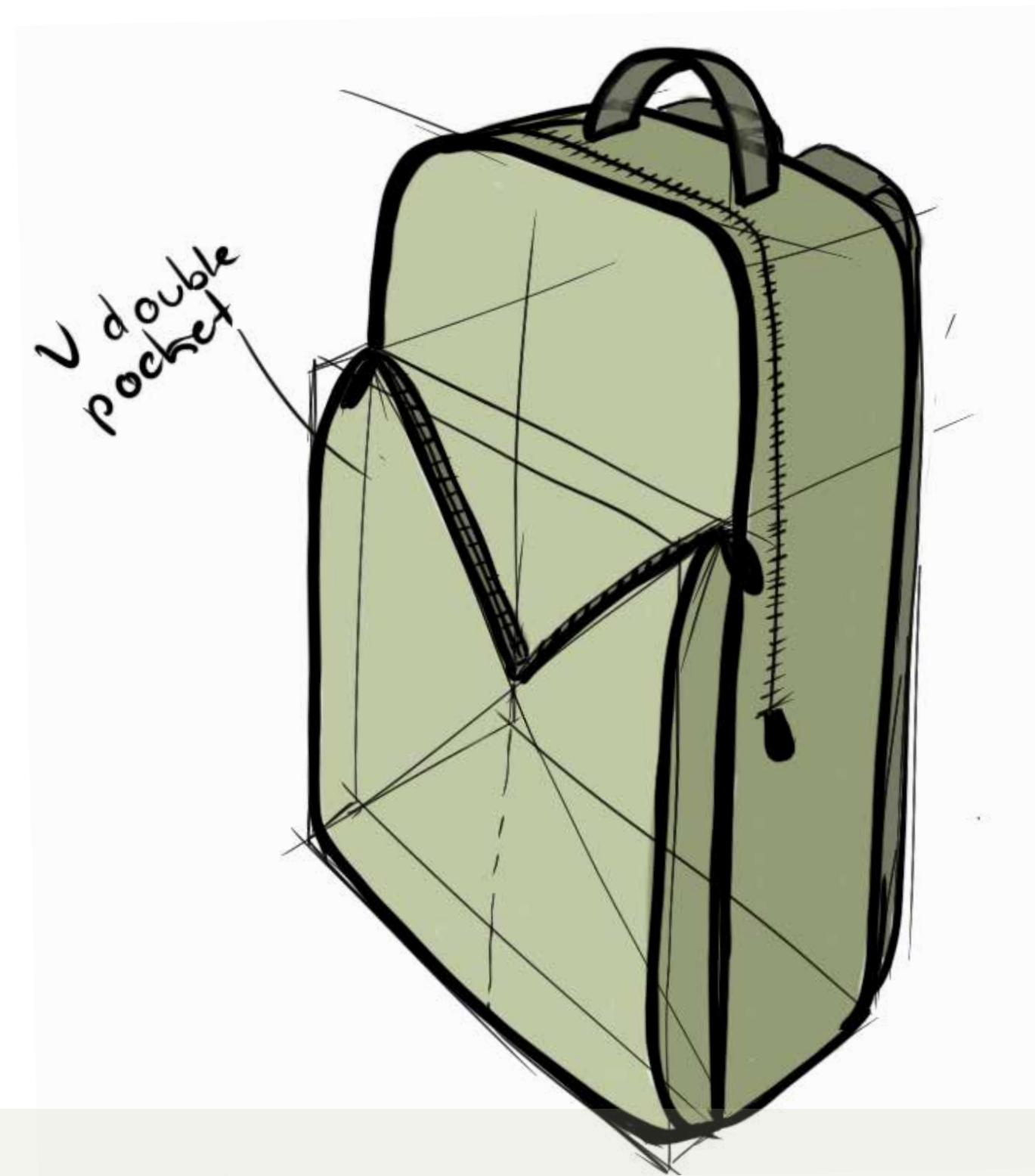
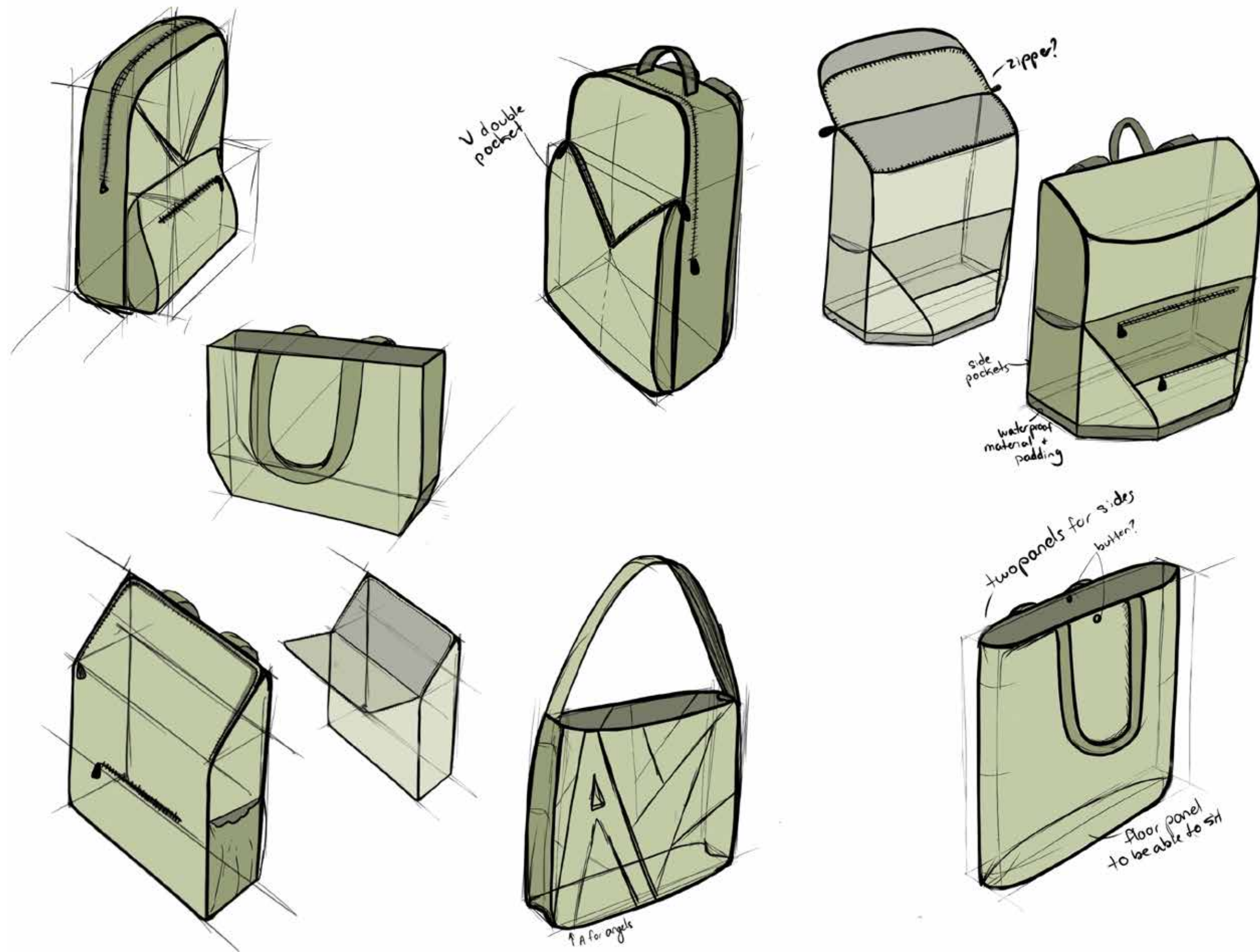
## Zero Waste Process Flowchart

The Guardian Angels program is a closed loop system where each piece of donated clothing is utilized in the production and donation cycle.





# Bag Ideation



For the backpack's design, I wanted something minimal, and unique. The original design has the front angled pockets as zipper openings from the top.

The tote bag would be a simple design, seeing as they would be sold and made by Angels in the Attic. It would be most cost effective to use less fabric and a shorter process.

# Size and Scale

## *Paper Prototype*

After receiving feedback during the desk critiques, I came to the conclusion that the bag was slightly too large. The main recipients would be children, and although it is meant to be a bag that lasts and that they can grow into, it should be a comfortable size when they first receive it.

I decided to lower the height by 2.5" and to take in the width by 0.25".

This model made me realize the zippers should be on the sides of the front pocket rather than at the top, for easier access. During the critique I asked people how it felt to reach in from top and was told that because of how deep it is, and the angle, it was uncomfortable. I also lowered the v shape slightly.

12.75" x 18" x 5"



12.5" x 16.5" x 5"

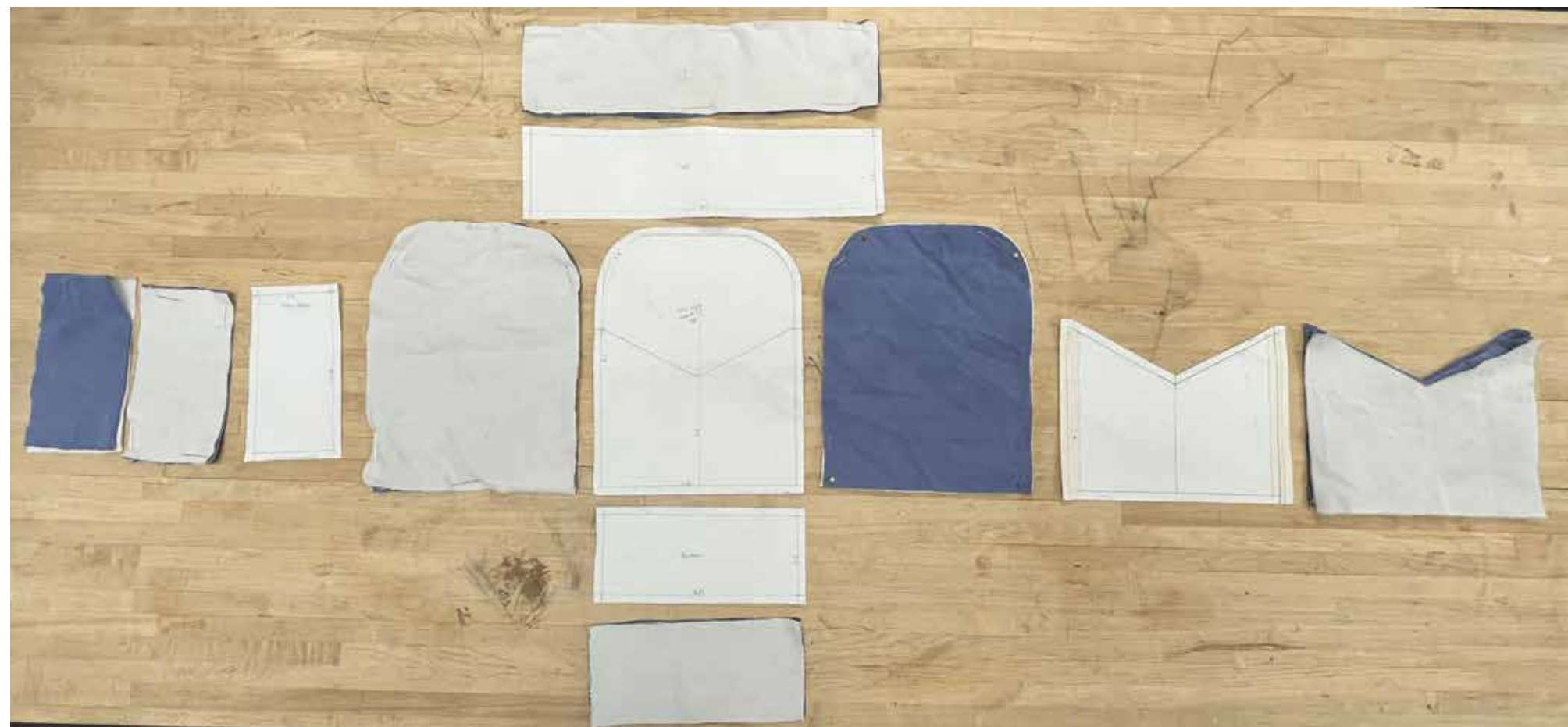


# Learning the Process

## *Half Scale Backpack Model*

I created the half scale model in order to learn what the process of putting together the backpack would be like. There are many details in planning the creation of the bag and I wanted to be confident in my ability to create the final with no major mistakes or mishaps.

I learned the lining would need a different process, as the original pattern did not account for the layer of padding.



6.25" x 8.25" x 5"

# Backpack Fabric

## *Damaged Thrifted Jacket As Material*

This jacket was donated to Goodwill and aquired from the Salem, VA Goodwill Outlet Bins.

Body: 100% nylon

Interlining: 100% polyester

Lining: 100% nylon

The majority of the damage on this jacket was **rips** and **stains**. After a few washes, most of the stains were removed. Fortunately, the rips allowed for an easier separation process of the different layers.

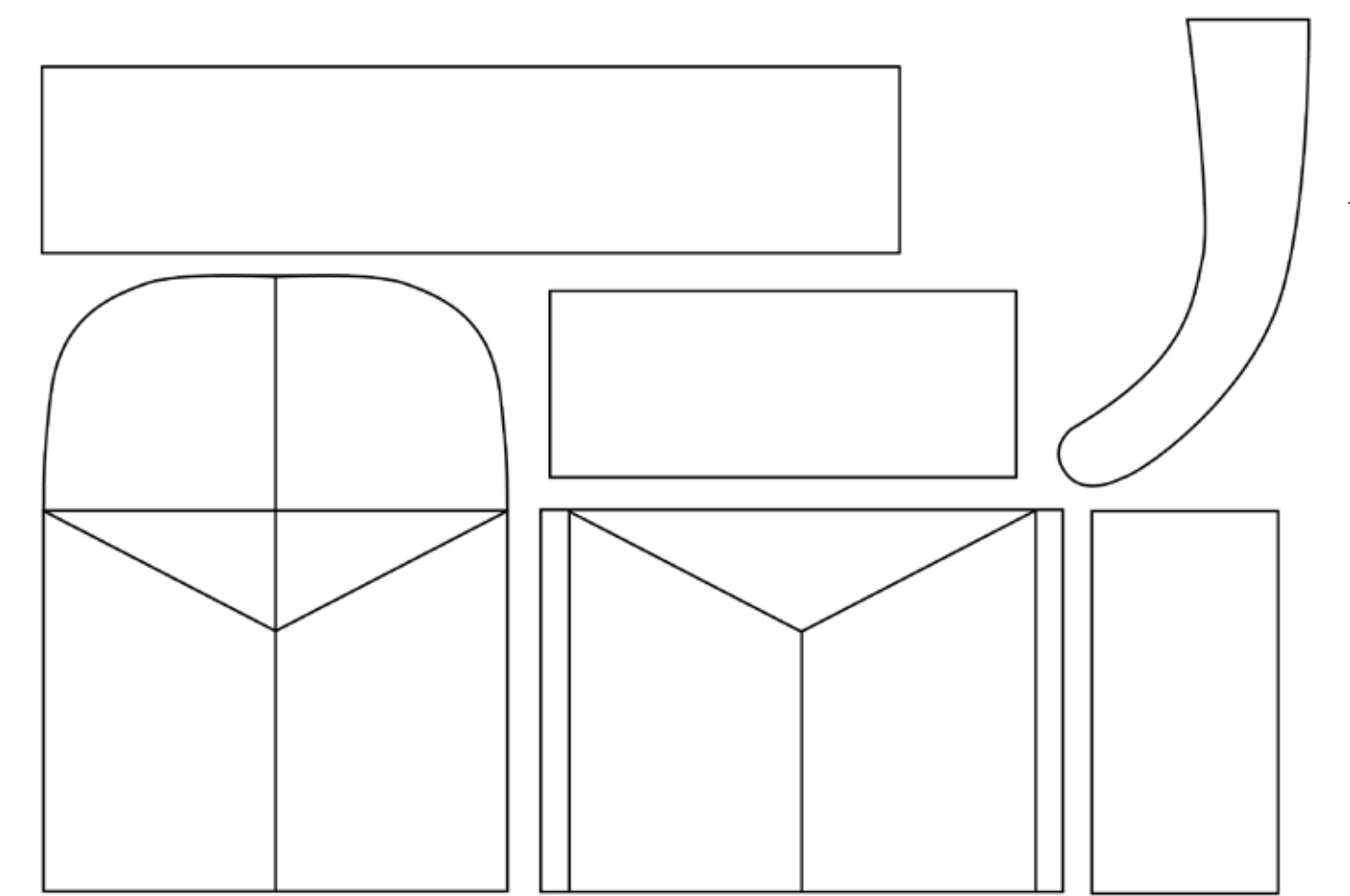


# Making Process

## *Full Scale Backpack Model*

This process was slightly adjusted because there were two lining layers, one that would be seen, and then the internal padding .

The panels with attachments were done first, such as the front zipper pockets and the backpack straps, then they were sewn to their respective panel (front/back). Then the outer shell was sewn together. Finally the lining shell and outershell were attached, with the last step being attaching the top zipper panel.

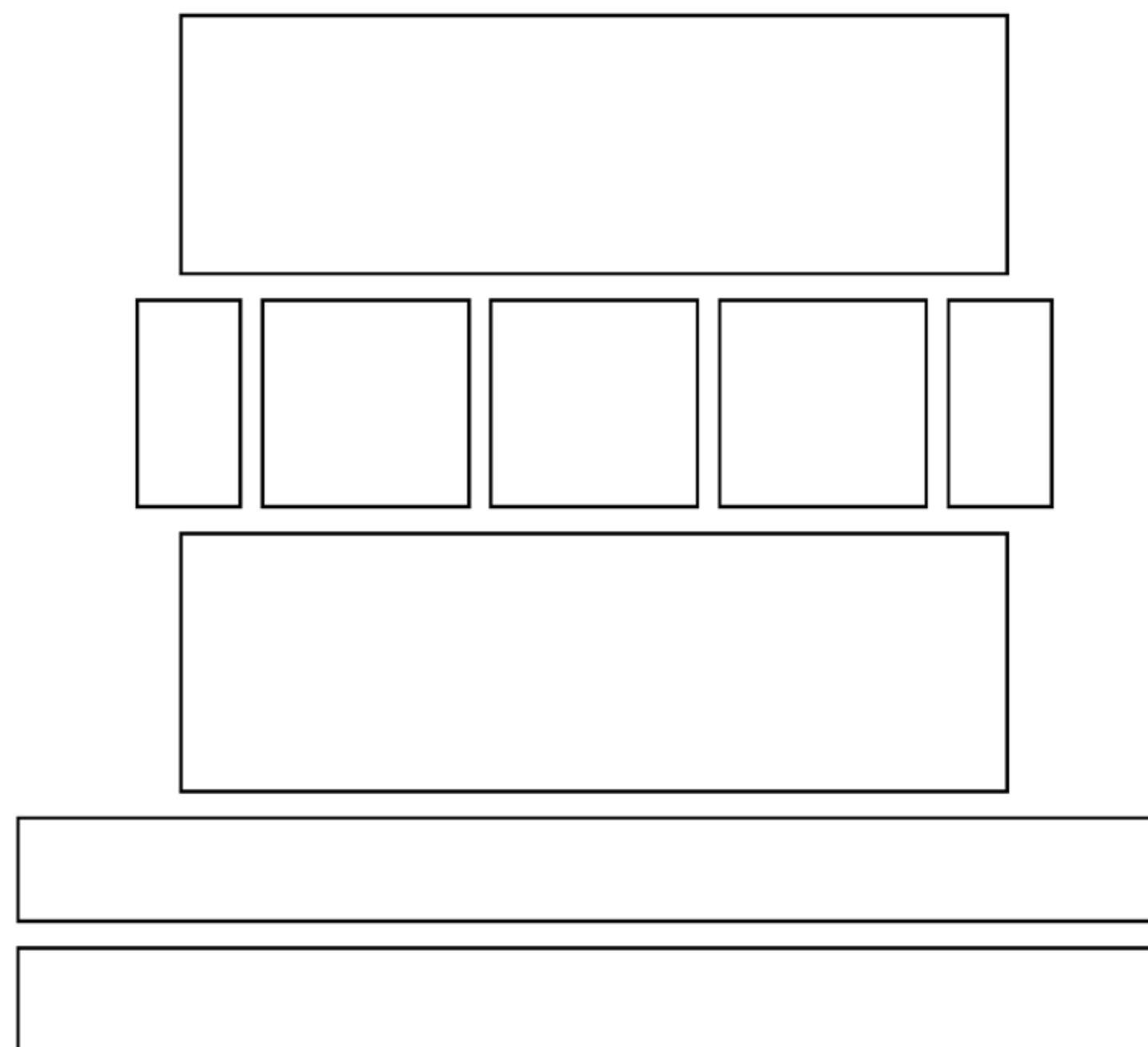


*final flat pattern*

# Making Process

## *Full Scale Tote Bag Model*

The Guardian Angels Tote is made of multiple panels and has an interior liner. The patch like design is useful in order to use more pieces of fabric, as it requires smaller areas of undamaged or stained material.



*final flat pattern*



# Backpack Features

*Final Model*



*zippered main compartment*

*lined and padded interior*

*padded and adjustable straps*

*two zippered front pockets*



# Each Bag Is Unique

*Patterns, Colors, Textures!*



Nylon and polyester are the most common materials for backpacks as they are durable, breathable, and are relatively water resistant. However, the materials of the backpacks are dependant on the donations recieved. Some other materials that can be used include leather, canvas, cotton, denim, and vinyls.

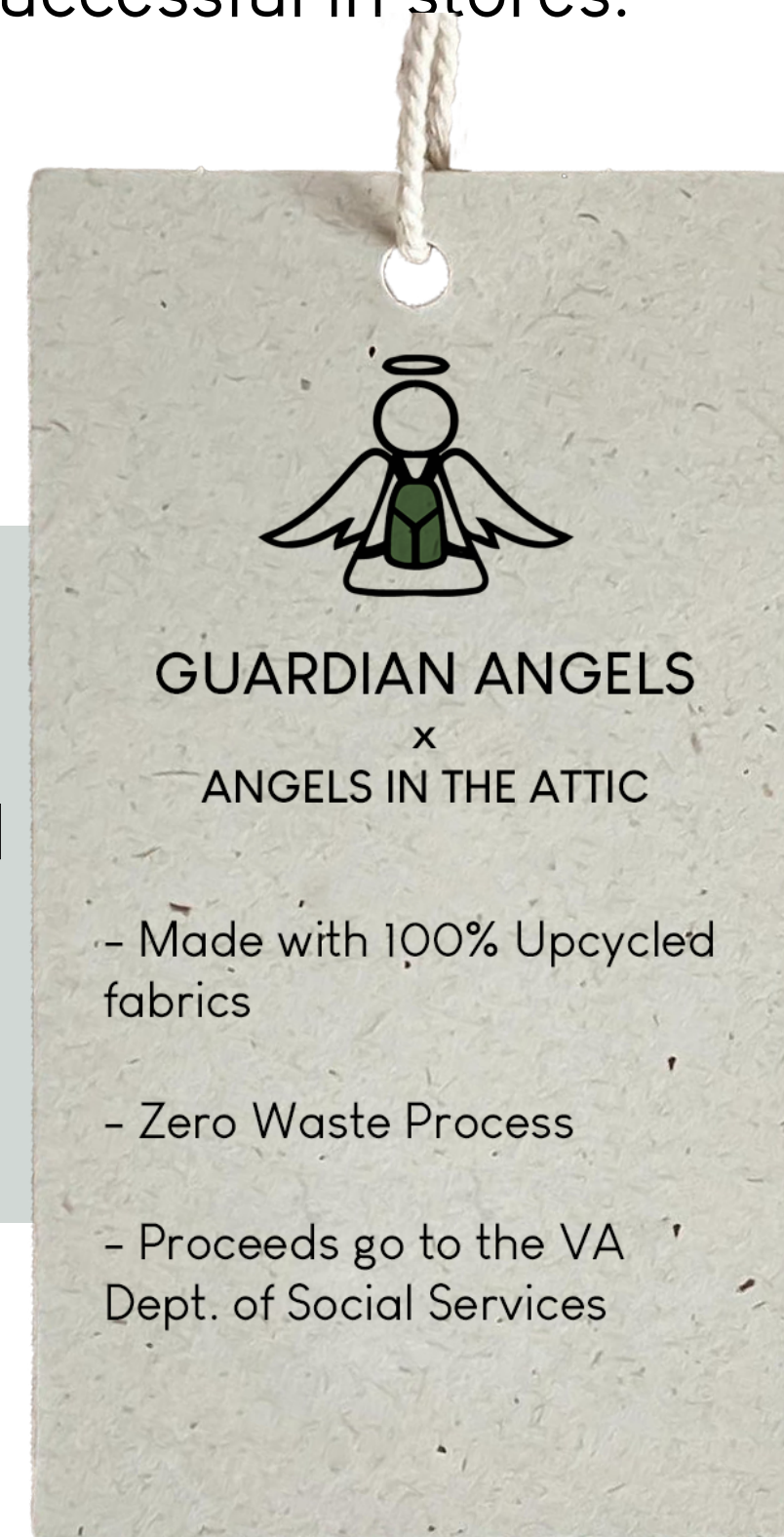


# Guardian Angels Tote

## *Full Scale Tote Bag Model*

The tote bags will be sold in the Angels In The Attic store and boutique. Many shoppers who value second-hand items and reusing, use reusable bags or tote bags which means this type of bag is likely to be successful in stores.

The tote bags will be sold in store, and offered to each shopper at checkout.



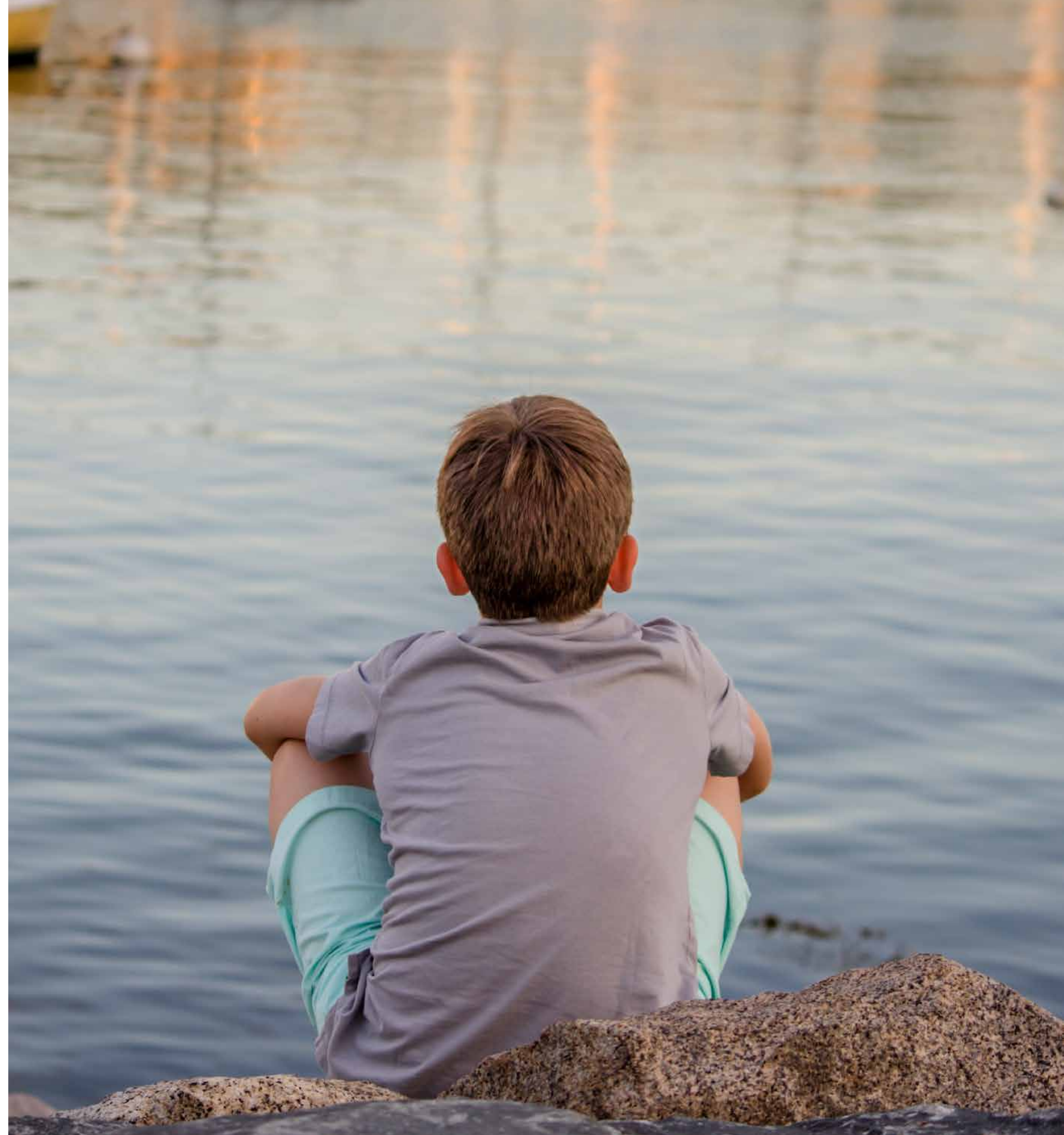
# Benefits

## *How Does This Help?*

Angels In The Attic has an established relationship with the Floyd County Department of Social Services, as they donate an annual percentage of their profits to them. This connection between the two makes Guardian Angels a feasible and realistic opportunity to help local families and children in need.

Angels In The Attic, along with many other second-hand stores across the nation, struggle with an excess of donations, and not enough space, time, or staff to take care of it. With Guardian Angels, if they invest in staff to work on bag production, the excess of donations will reduce and Angels In The Attic can intercept clothing before it is further donated or landfilled, and utilize it.

With donating some of the good clothing that fills their warehouse and donation center, that clothing is now functional and appreciated rather than sitting for months or years waiting to be pulled for the storefront.





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