



HE 5007: Sustainability in Action, Radical Reuse Final Presentation

Group Topic: Adolescent Sense of Purpose

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Introduction

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Team One-eyed Greek Pete

We came together from different backgrounds and areas of study at Cornell.

Out of our introductory mattress materials, Pete was born!





Product Ideation Process



Adolescents' Sense of Purpose – Data Collection

Existing Research on adolescents' sense of purpose:

Expert Interviewees:

- Dr. Tony Burrow
- Kristen Elmore

Adolescent Interviewees:

- Adam, age 13
- Sofia, age 13
- Serina, age 16



Adolescents' Sense of Purpose – Brainstorming

During the brainstorming process, we homed in on the following:

- Younger adolescents are developing a sense of purpose early on
- Don't just want to acquire things but help make them
- Learning to love the process of creation, not just the final outcome
- Self-discovery & actualization
- Make a positive impact and help others
- Recognize their purpose inside of themselves





Adolescents' Sense of Purpose – What to build?

Stripping the mattress into its components

Getting a sense of the materials

Some ideas:

- Some kind of jewelry or emblem to wear as self-expression
- Landing mats for gyms, high jump
- Balls for sports/juggling
- Wallet/handbag kit with fabric
- Supplies to teach CPR
- Destruction/re-creation as process – to teach the importance of waste, environmental stewardship

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Tinkering!

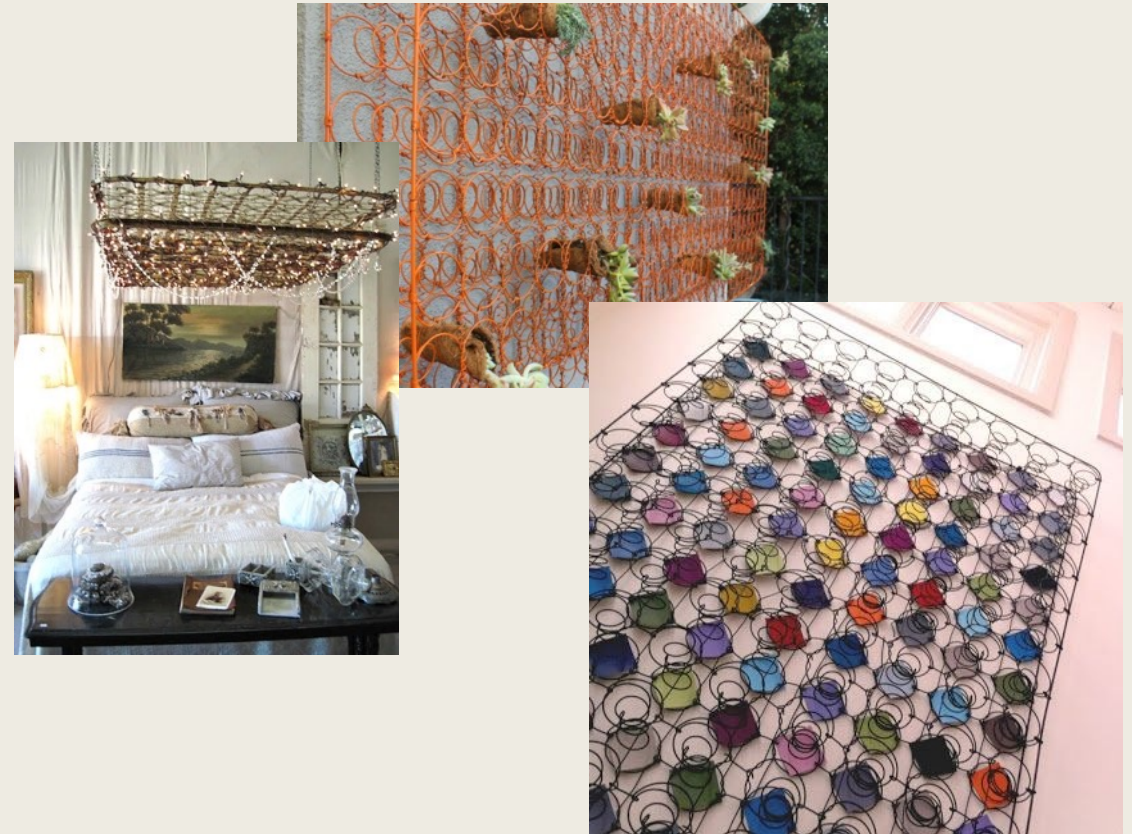


Adolescents' Sense of Purpose – Aha Moment

Searched for creative use of mattress coils on the web

What if each adolescent could make their own inspired product from the coils?

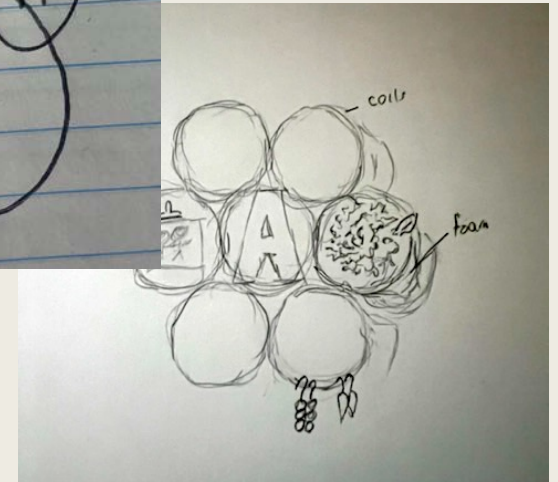
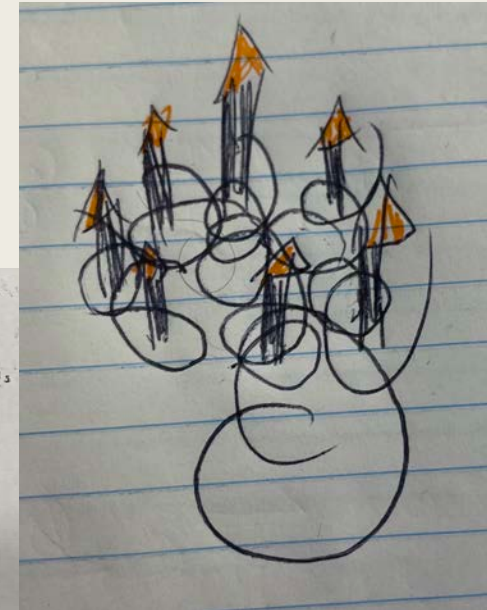
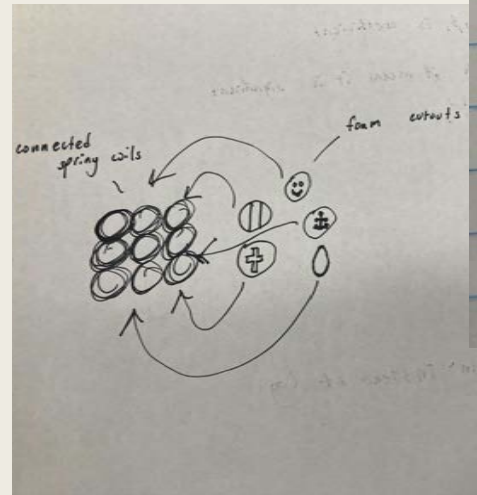
Each of us decided to make our own product from the coils and foam





Adolescents' Sense of Purpose – A Few Sketches

Each of us got inspired to make a product from the coils and foam that would represent our sense of purpose if we were young again.





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Final Product

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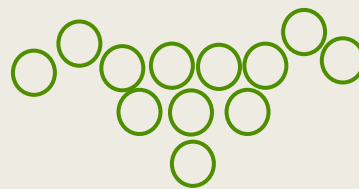
A customizable kit for teens to upcycle used mattress parts to create their own product and express themselves



Start from a pre-fabbed shape



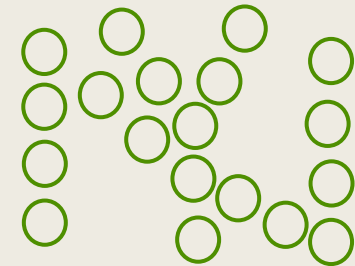
Order a kit to make your own shape



Final Product



Customize with your own ideas



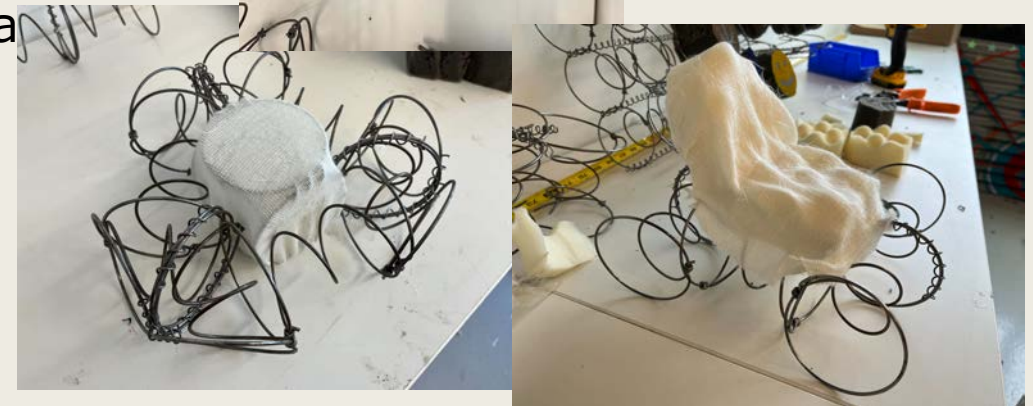
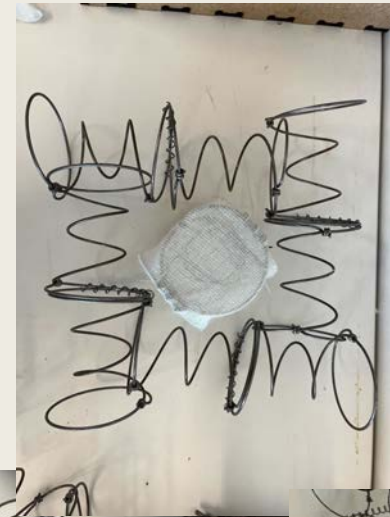


Andy's SpringIt!

I was inspired to make a couple of examples of what adolescents can create with the toy kit

The first is a light box desk decor, with both triangular and square variations. If you put a light inside the cloth, it should make some cool shapes with the shadow from the wires

The second is a chariot, perhaps to serve as a throne for a favorite action figure or stuffed animal





Anne's SpringIt!

I made a flower shape using seven of the coils and the tighter springs to hold them together

Two of my frames use some of the foam to hold a silk flower and some crocheted flowers I made

The rest of the frames serve to represent me:

- Crochet hooks & Yarn
- Ampers"Anne"
- Photo clip
- Earring holder
- A suede lariat





HsinHuey's SpringIt!

This design was meant to be a desktop accessory, meant to elicit emotions surrounding a sense of purpose as I work at my desk.

My design highlights my love for engineering and robotics (Arduino Nano and ultrasonic sensor), creation (origami bird and frog), desire to never stop trying, even if it means failure (jar of failed 3D prints), a ceramic shard and safety glasses reminding me of a new experience that scared me, and someone close to me (drawing on foam).

When the three springs are combined in this orientation, the center slot was the perfect spot for a small mason jar, offset by using the insulation fabric tensioned to the bottom of the base spring.

SpringIt!





Shane's SpringIt!

I made a circular-shaped, seven-branched candelabra candle holder, similar to the design of a traditional menorah.

This design was inspired by my deep connection to my faith and my desire to reflect upon life's important moments through spirituality, which I believe would be a positive practice in adolescence.

This structure consists of...

- One foundational coil

- Six coils with one apex coil

- Attached via the small mattress springs



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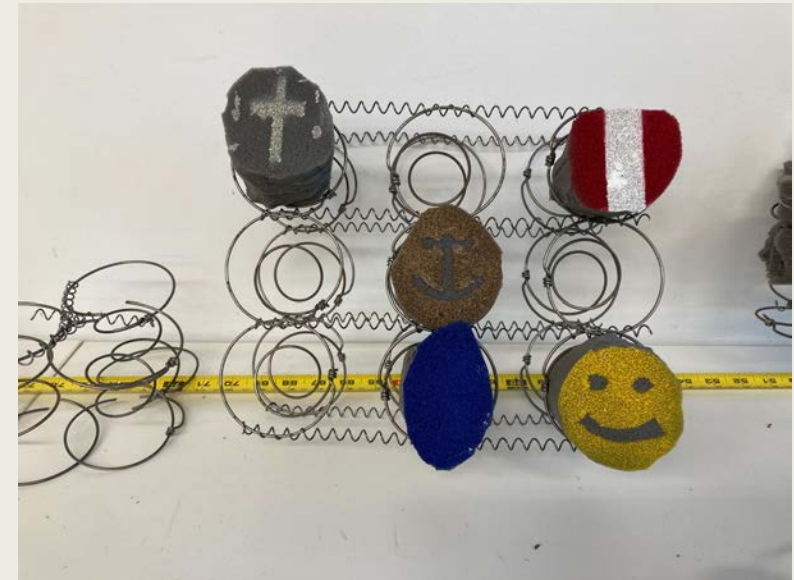
Simon's SpringIt!

My invention is a board of that can hang on walls vertically, horizontally, etc. The frame is taken in one 2x3 piece from the mattress coils

Within the springs of the wall board I squeezed foam cutouts into place. I then painted the foam, with the idea that adolescents can paint the things in their life that they think give them purpose (or just things they like in general)

Here the cutouts are related to my personal interests as an adolescent and even now

- A Peruvian flag to represent my heritage
- A water droplet and an anchor to show my love of boating and fishing
- A cross to represent my Catholicism
- A smiley-face just because





SpringIt! SWOT Analysis

Strengths:

- Plays into upcycling/DIY trend
- Uses a significant portion of the mattress (coils and foam)
- Multiple product types allow for customization & personalization
- Allows for complete autonomy and creativity

Weaknesses:

- Disassembly of mattresses is manual and time consuming – perhaps proving too costly
- Reassembly of coils is also manual
- Raw wire can cause injury
- Foam is flammable

Opportunities:

- Viral trending on TikTok, Pinterest and other influential social media
- Partnerships between colleges and middle schools to teach upcycling
- SpringIt! hall of fame – users vote on their favorites

Threats:

- Costs to product outweigh the upcycled benefits
- Pricing to cover costs may be too high for the market
- Trends fade –how to keep the audience engaged



SpringIt! Market Sizing – Ithaca Proof of Concept

Mattress upcycling market potential in Ithaca, NY per year:

Number of recycled mattresses from Cornell:	100
Number of coils per mattress:	200
Average number of coils per product:	10
Number of young teens in Ithaca ¹ :	7236
Assume 10% market penetration:	724
SpringIt! Average sales price:	\$30
Total annual revenue:	\$21,720
Less cost of goods (donated mattresses & labor):	\$0
Fixed costs (overhead) ² :	\$12,800
Expenses (sales & marketing, legal, bookkeeping):	\$5000
Profit per unit sold:	\$5.41



1. <https://worldpopulationreview.com/us-cities/ithaca-ny-population>

2. <https://www.pyramidbrokerage.com/properties/listings/details/G5952/2150-dryden-road-freeville-ny-former-rpm-ecosystems>




Conclusion

This experience has been rewarding as well as educational.

Learning human centered design by doing it, and creating something of value from a waste product is extremely fulfilling.





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Thank You