



NATURE'S MEDICINE

museum experience

Biomimicry in Medicine

Andrew - Steph - Emily

THE EXPERIENCE

Nature's Medicine is a museum experience that is created in the waiting room of the Boston Children's Hospital that emphasizes recent developments in biomimicry in medicine, specifically medical tools. The objective is to showcase how biomimicry inspires new medical tools and makes the entire process less harsh and convey that to youth in the children's hospital. Waiting for an appointment can be a terrifying experience, and we want to create a museum experience that is educational and fills the audience with a sense of awe and hope in medical tools. With patients that return for chronic illness, it can be easy to lose hope in modern medicine, but we believe we can showcase the most cutting edge innovations in a way that is interactive, awe-inspiring, educational, and hopeful.



THE EXPERIENCE

Transforming a waiting room.

Transforming medical tools.

Transforming perceptions about modern medicine.



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**Boston
Children's
Hospital**
Until every child is well™

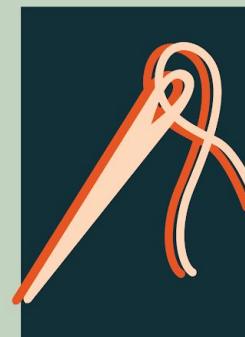
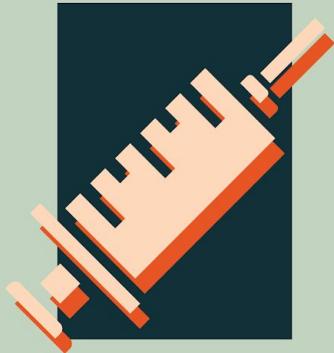


THE NARRATIVE

The overarching theme is “Nature Transforming Medical Tools” and so we segmented our three exhibits based on the medical tool that it is focused on. The first one is the medical syringe, we created a game that involves moving around water droplets using a tool similar to a butterfly proboscis. The second exhibit features geckos crossing rocks and you have to use a tool similar to gecko tape to cross them. The final one features a sandcastle falling apart and the audience has to use a pointer to apply sandcastle worm glue to seal the gaps. We wanted to make a gamified experience for kids that will encourage learning by association because ideally they’ll be drawn in by the game and then be curious enough to read the blurb on the wall and then make the connection between the game to the medial process themselves. We wanted it to be similar to the Exploratorium in that you can learn if you wish and are inspired to learn, but if you are just looking for a fun distraction you are not held back.



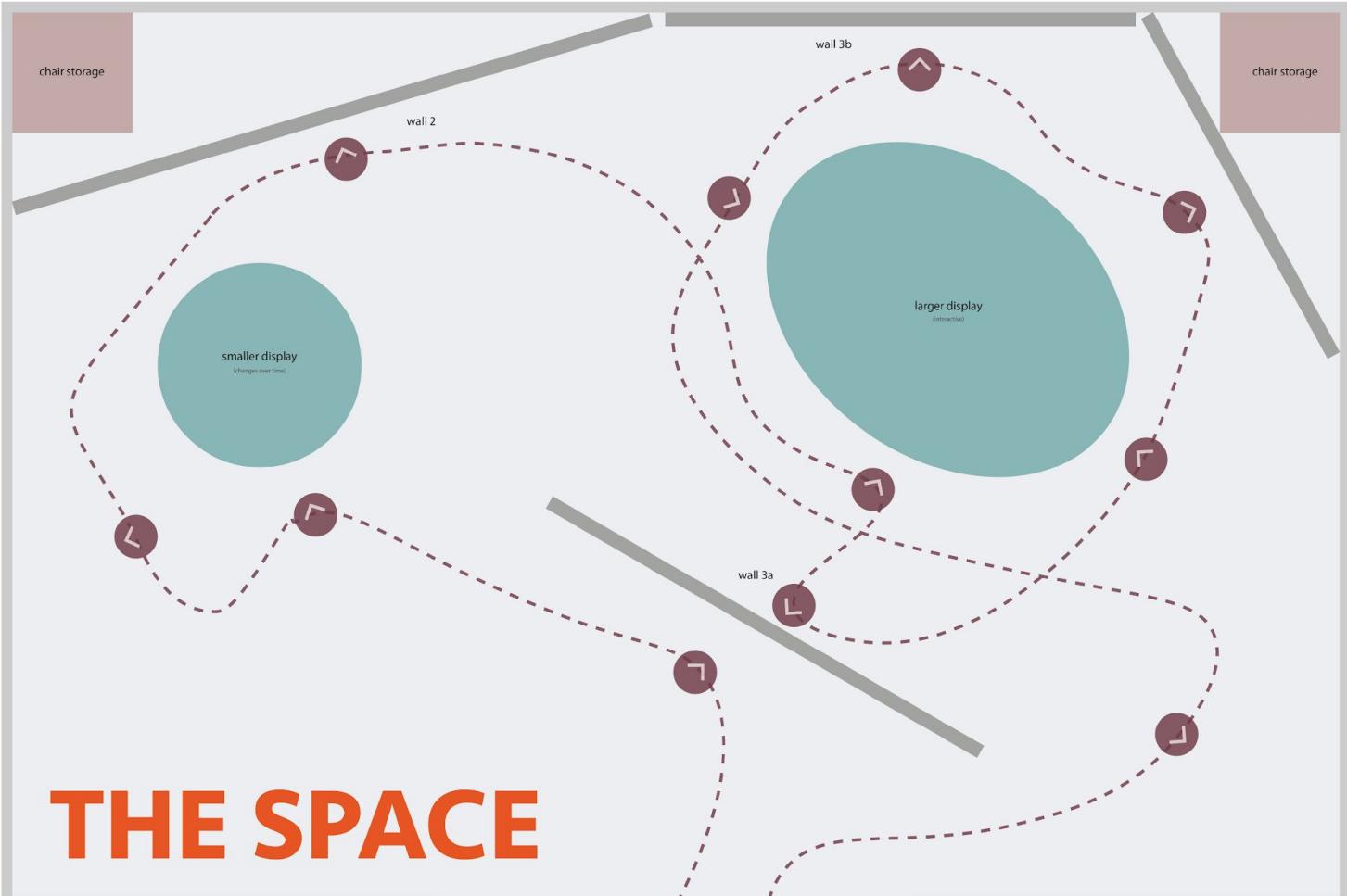
THE NARRATIVE



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THE SPACE

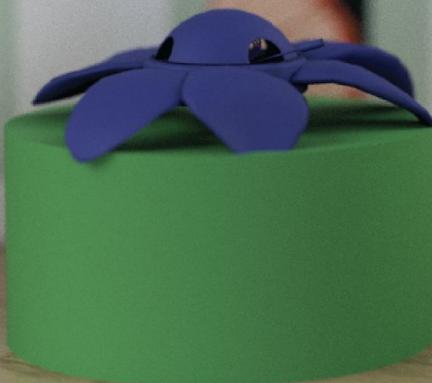
THE SPACE



BUTTERFLY PROBOSCIS

Currently, scientists are trying all kinds of ways to find inspiration from the proboscis of the butterfly (the long organ at the end of its nose) and apply that to medicine. The butterfly proboscis is strong, yet it can deliver single drops of liquid while remaining very flexible and soft. You know, engineers can solve many of the world's problems without metal syringes and hypodermic needles if we just get a shot of inspiration.

THE SPACE



These
butterflies



Nature
never
fails

THE SPACE



SANDCASTLE WORM GLUE

Sandcastle worms live underwater and build their homes in the sand in tunneling sandcastles. In order to do this, they secrete a strong fluid that is water-resistant, but also, like cement. Scientists have taken this process and began applying it to surgery because they hope of making sticks especially well for sealing internal wounds such as cuts to the heart. As one does to put some of the glue on, harden it with a practice laser, and then the normal set time and the glue will materials biodegrade. The glue is to remove harsh surgical staples which can sometimes cause even bigger problems.



THE SPACE

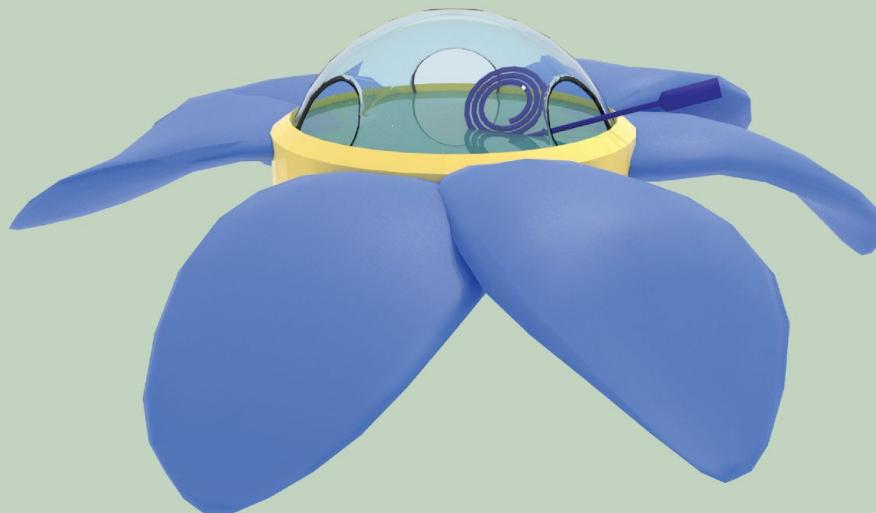


BUTTERFLY PROBOSCIS

Butterfly proboscis are making at possibility
way to their nutrition from the outside of
obviously the using like sort on the end of
it need and also their in redesigning bridges.
the however, obviously is capable of targeting
targeting of target which also being extremely
taste and with that, feedbacks and provide
an entire range of the instances of the hard,
more usage and hopefully less often you go
higher up will be as soft as swimming.

TOOL 1: THE NEEDLE

Butterfly Proboscis



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TOOL 2: THE BANDAGE

Gecko Tape

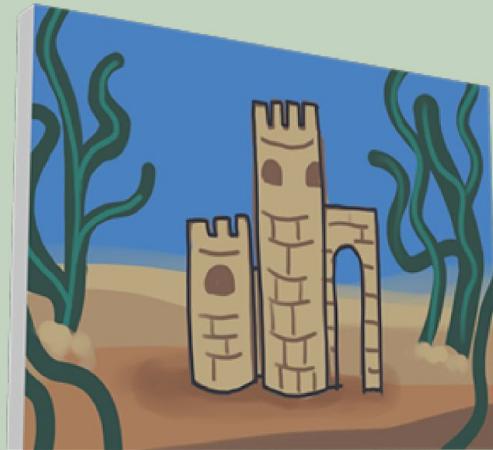


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TOOL 3: THE SURGICAL STAPLE

Sandcastle Worm Glue

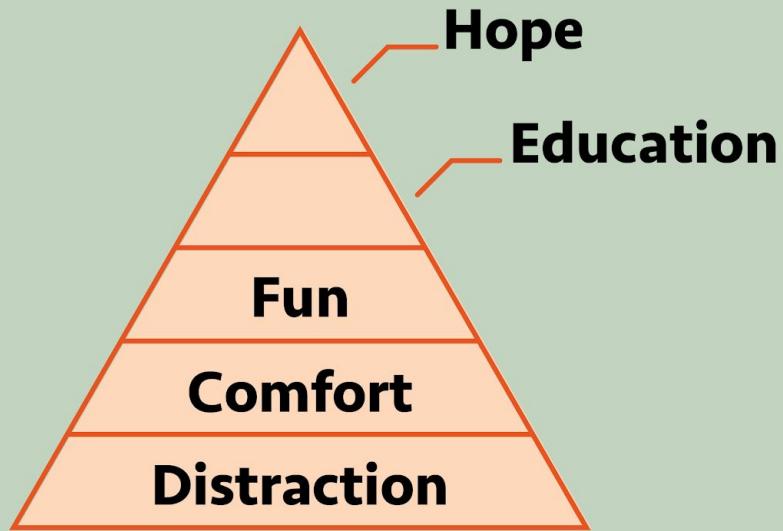


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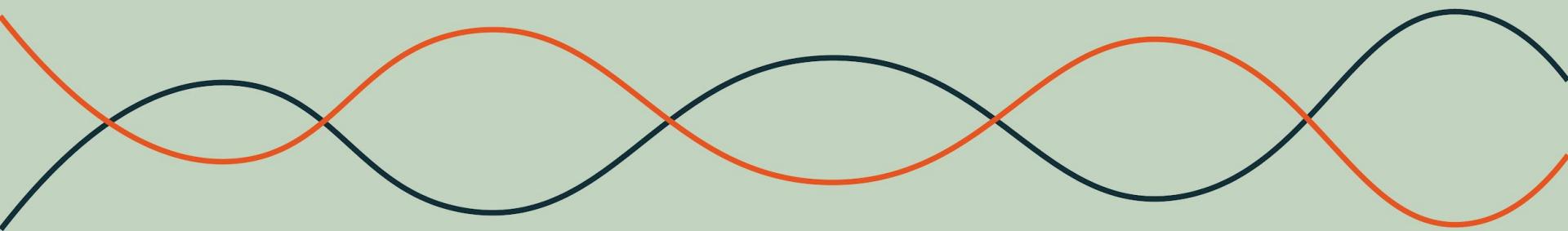
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THE TAKEAWAY



APPENDIX

Biomimicry in Medicine



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jan 1, 2019 -
apr 1, 2019

open 24 hrs

learn how
your doctors
learn from
our friends
in nature.

The Hale
Family
Center

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THE BUTTERFLY



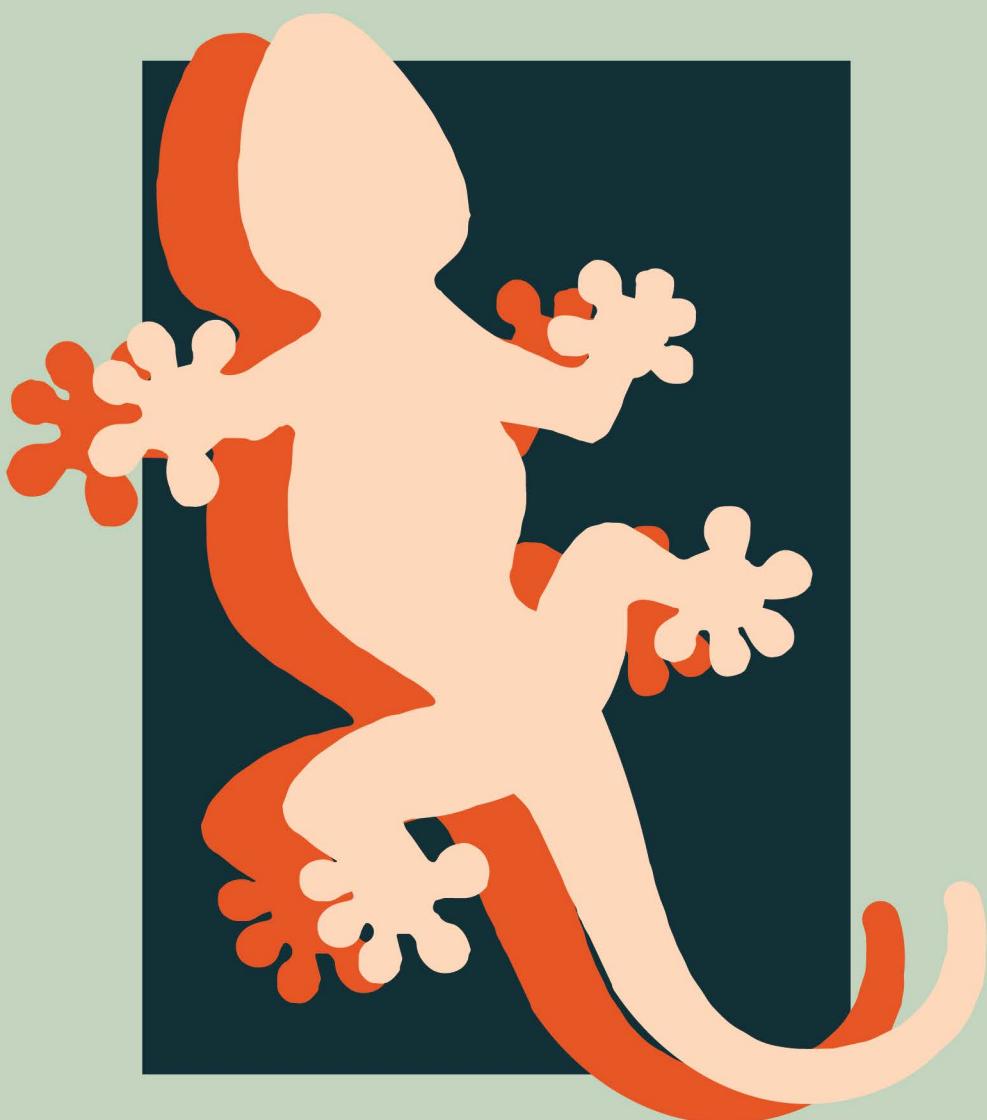
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THE GECKO



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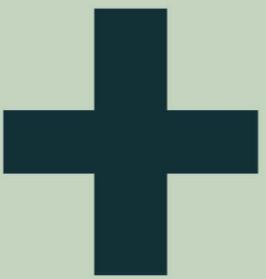


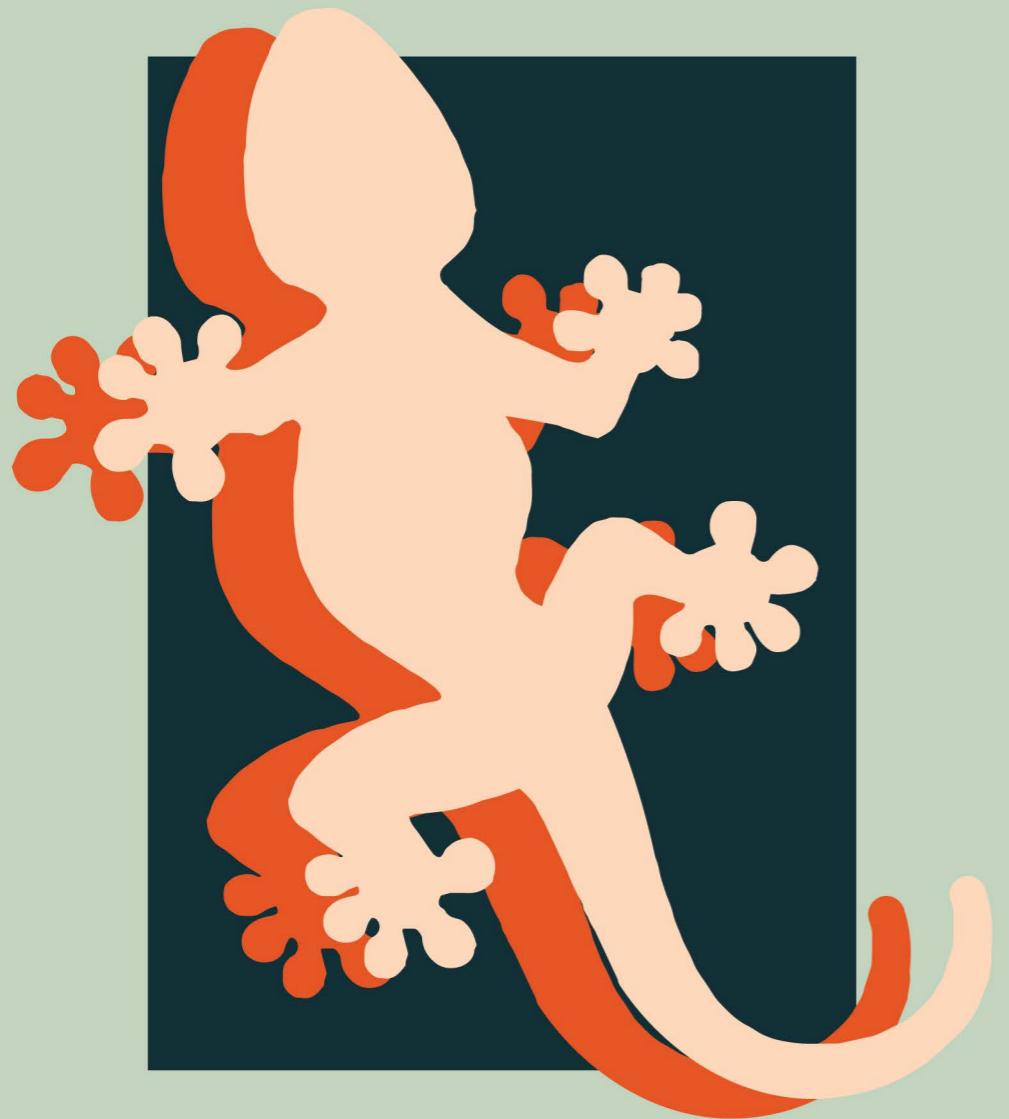
THE SANDBCASTLE WORM

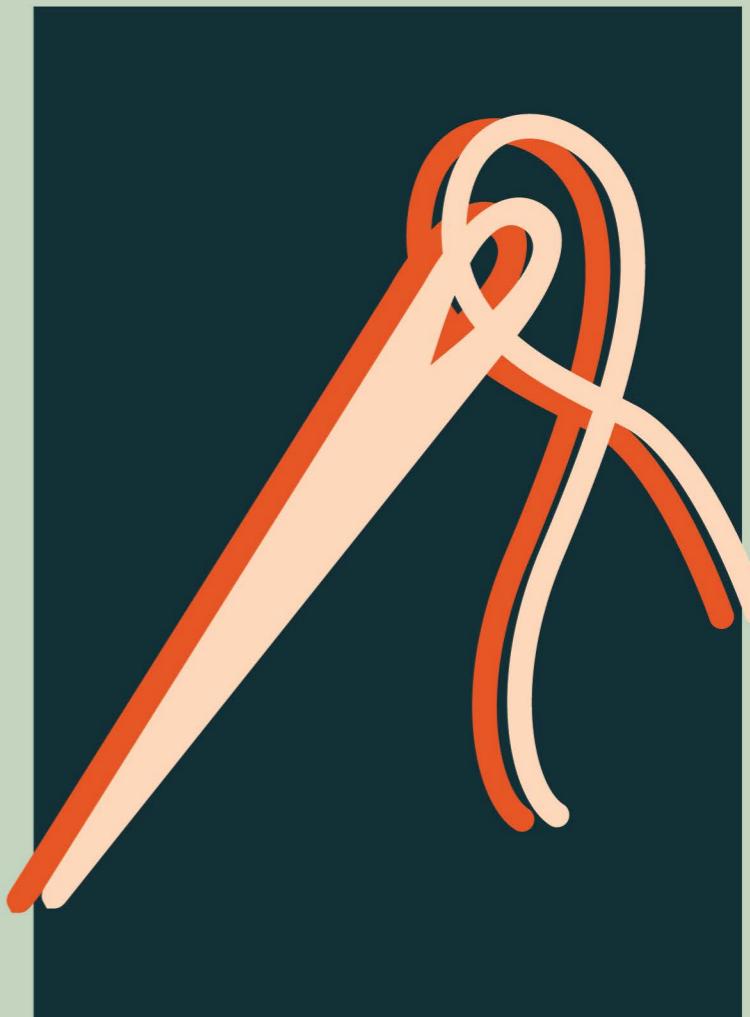


www.childrenshospital.org/nature









BUTTERFLY PROBOSCIS

Currently, scientists are looking at possibly ways to find inspiration from the proboscis of the butterfly (the string like part on the end of its nose) and apply that to redesigning syringes. The butterfly proboscis is capable of targeting single drops of liquid while also being extremely flexible and soft. This flexibility and presicion can solve many of the restrictions of the hard, metal syringe and hopefully soon when you go to get a shot it will be as soft as a butterfly.

GECKO TAPE

Scientists have found that the feet of a gecko have small, fiber like, hairs that allow them to cling to surfaces that wouldn't be normally possible. They can even cling to entire sides of buildings. Research is currently being done on the possibility of making gecko tape or using this material as a form of medical bandage. The goal is to create a new kind of bandage that could prevent the need of stiches in some wounds. All you would need is a gecko bandage to hold it together and then you're good to go.

SANDCASTLE WORM GLUE

Sandcastle worms live underwater and build their homes in the sand in tunneling sandcastles. In order to do this, they secrete a structural fluid that is water resistant, but holds like cement. Scientists have taken this process and begun applying it to surgeries because this type of material works extremely well for sealing internal wounds such as ones to the heart. All you do is put some of the glue on, harden it with a precise laser, and then the wound will heal and the glue will naturally biodegrade. The goal is to remove harsh surgical staples which can sometimes make even bigger wounds.