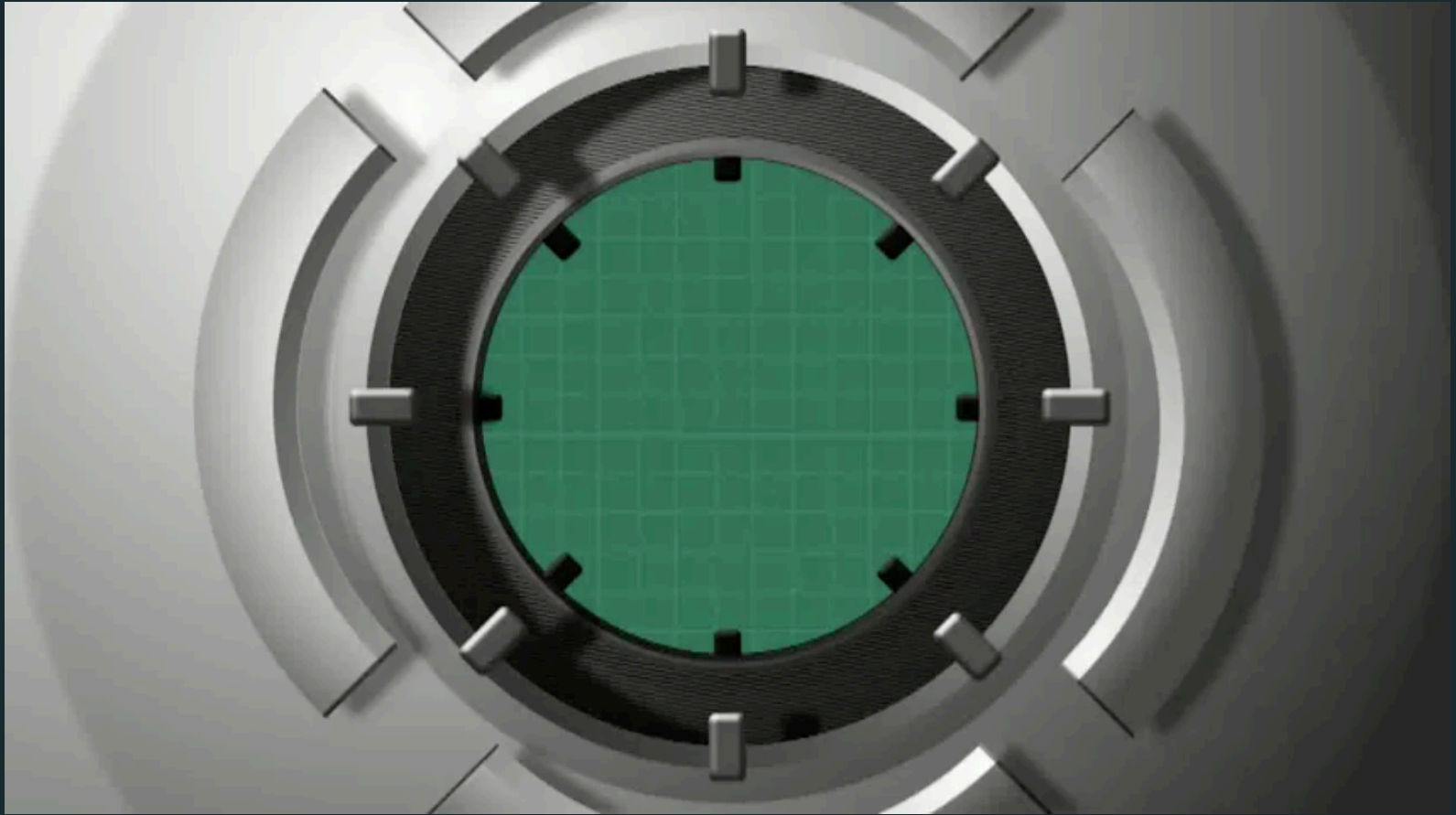


Biomimicry Design

Grade 5 Design Lab



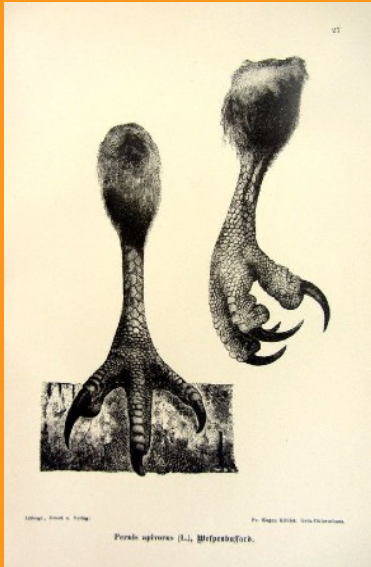
Robotic Gripper by [RobotShop.com](https://www.robotshop.com)

Inquire & Define - Turn & talk:

- **Which animals inspired the designs for robotic grabbers?**
- **What other animals might inspire new designs?**
- **What does a claw look like?**
- **How would you describe a claw to someone who couldn't see a picture?**
- **Can you name any animals that have feet that look like this?**

Inquire & Define: Birds of prey claws

- What basic shapes and parts do they have in common?
- What do these animals do with their feet?



Source



Source



Source



Source

Let's make an eagle TOE!



Steps:

- Cut 3 1 inch pieces of plastic straw
- Tape the straw at 3 evenly spaced locations
- Insert the paper clip at the end of the plastic tubing
- Thread the elastic cord through the straws and attach to the paper clip
- Insert the wooden dowel into the plastic tubing by 1 inch



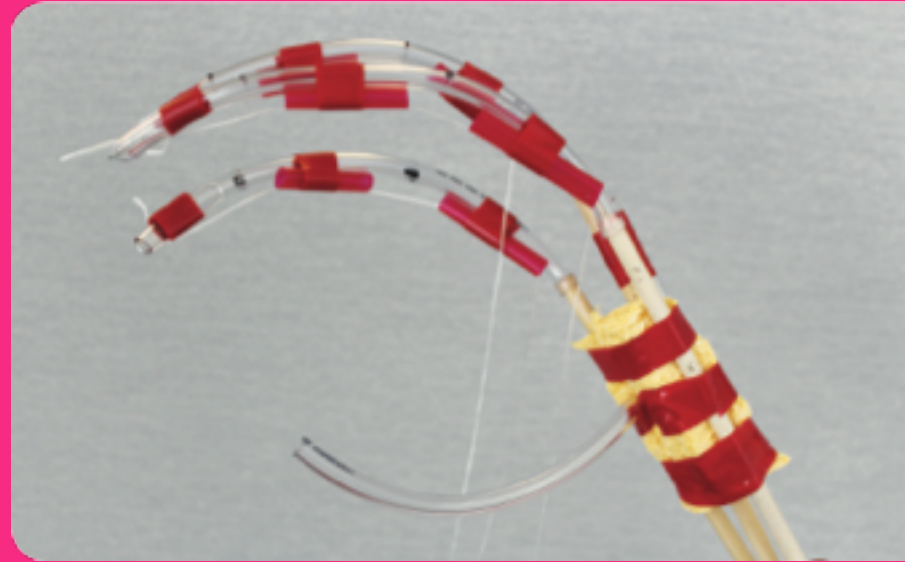
Make & Improve:

- Test the strength of your design by flicking a ball
- Can you use the “toe” to pick something up?
- How does your design need to be improved?
- Which students’ design worked best and why?
- Tip: tie a popsicle stick to the end of the elastic cord!

Let's make an eagle CLAW!

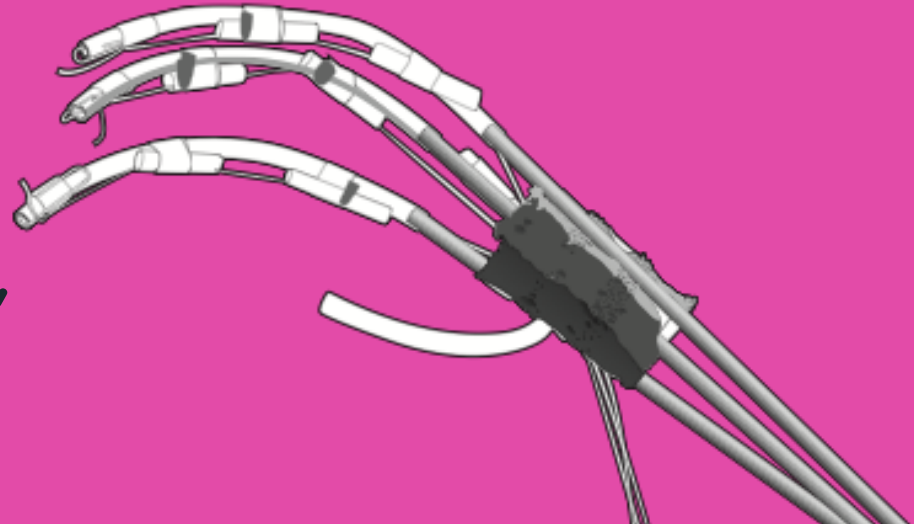


[Source](#)



Steps:

- With your group, make at least 3 toes
- Place a piece of foam between each toe to separate the dowels (this allows free movement)
- Squeeze the foam in place and wrap tightly with electrical tape (this is the "skin")
- Make the 4th opposing "toe" (like a thumb)



Make & Improve:

- Test the strength of your design by picking up a ball
- Can you carry it to another table?
- What other objects can you pick up?
- What needs to be improved?
- How would you improve it?

Reflect:

- Take a photo of your team's claw design
- What worked well in your process?
- What would you do differently next time?
- What improvements would you make to your design & why?