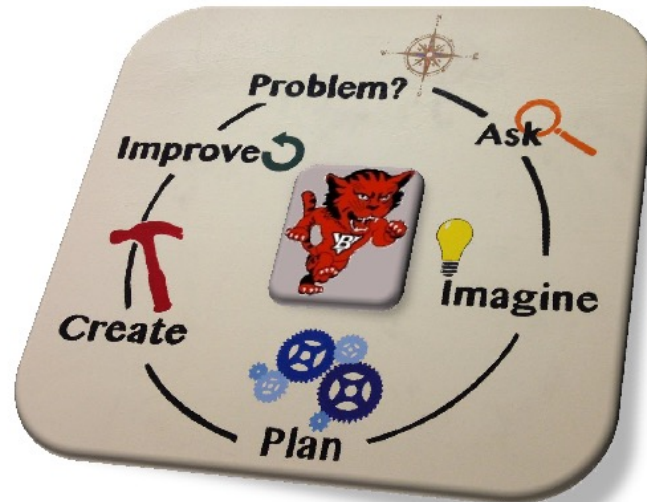


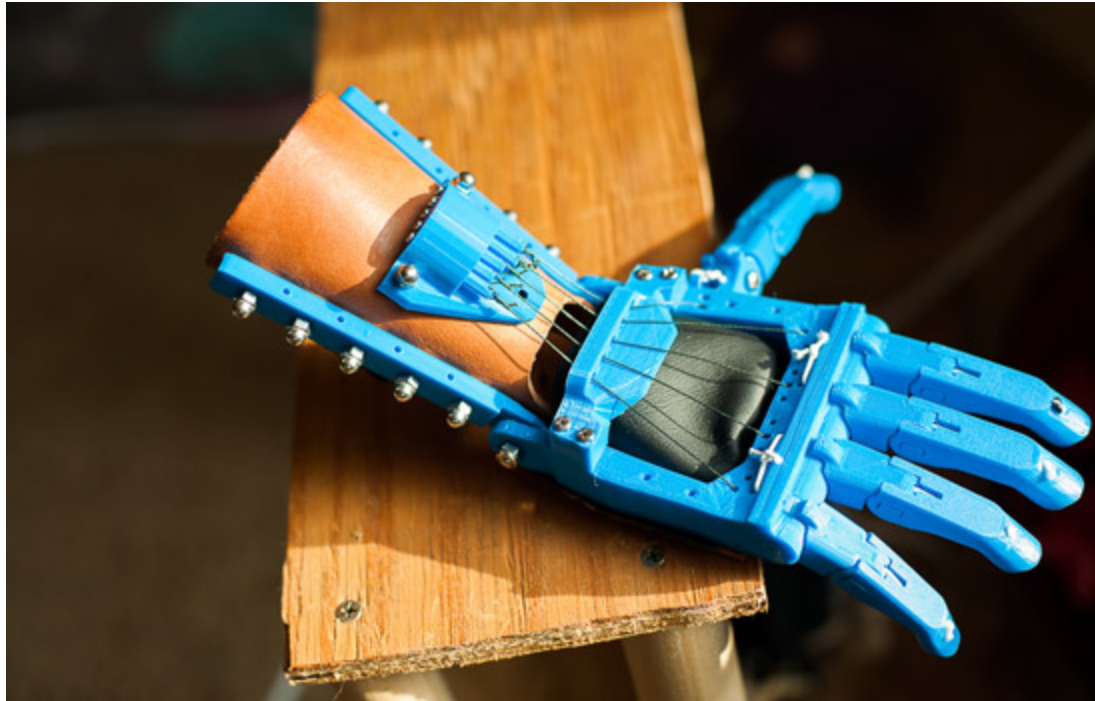
# Design Education



# Where Design Comes From?



# Creating a Prosthetic Hand and Arm

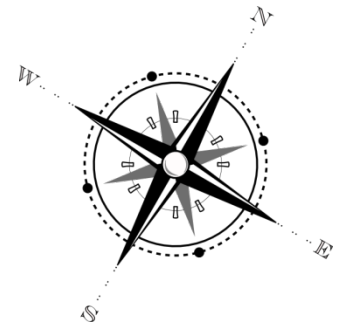


# Learning Intention and Success Criteria

- We are learning to design and create a plan for a **solutions to complex real world problems that can be solved through engineering.**
- You are successful if you can explain how you would take your plan and prototype and set the next steps for making your plan a reality.

**(Working with a theme, CBCI)**

# Problem



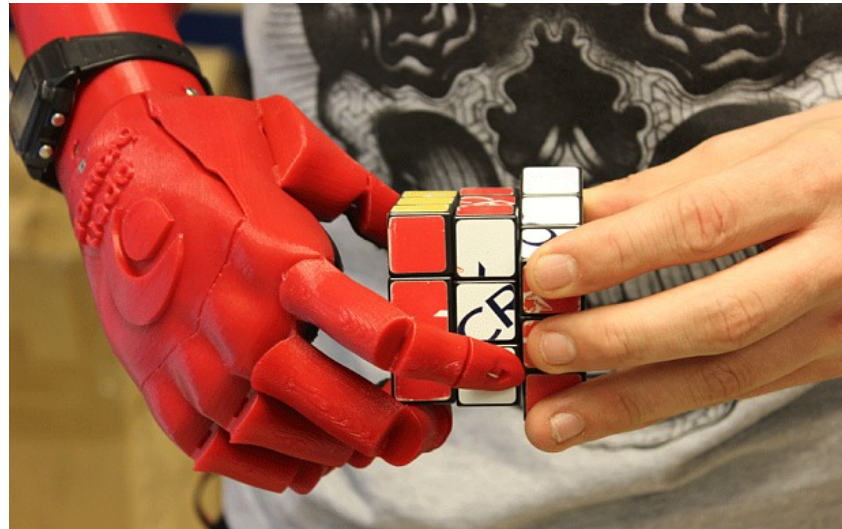
- A robotics graduate has won the James Dyson Award for a 3D-printed prosthetic hand that costs a fraction of current artificial limbs.
- Joel Gibbard, a robotics graduate from Plymouth University, has designed a prosthetic hand that can be produced in 40 hours; and with a price tag of less than £1,000, it is seen as an affordable alternative to [more advanced robotic prosthetics](#), which can cost between £30,000 and £60,000.
- The 25-year-old said he was inspired by a six-year-old girl who lost all her limbs to meningitis and wasn't using any hand prosthetics because she found them too "ugly" and "heavy".
- "The problem of current robotic prosthetics is their financial barriers. The only alternative to a robotic prosthetic is a cosmetic hand that is functionless and heavy, or an alienating hook," said Bristol-based Mr Gibbard. "I can 3D print a robotic prosthetic hand inspired by comic books and superheroes that hand amputees enjoy showing off for a fraction of the price."

(nonfiction text, opportunity to annotate)

# ASK



- What would it look like if we could create a low cost prosthetic hand and arm for a child who is in need of one?

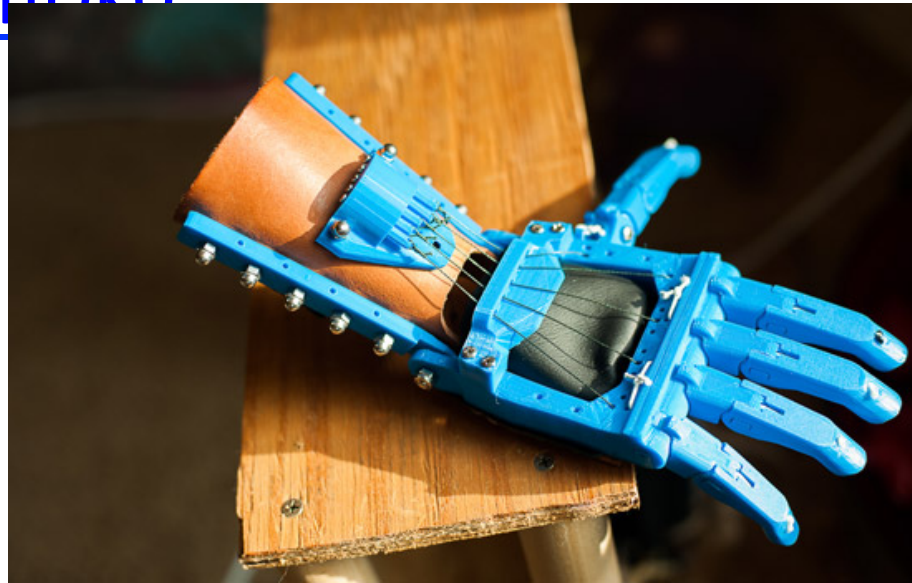


(Opportunity to write using an essential question)

# Imagine



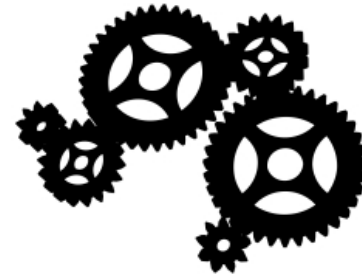
<https://www.youtube.com/watch?v=KK25aLLhDk0>



(Opportunity to research with alternative media sources, CCSS)



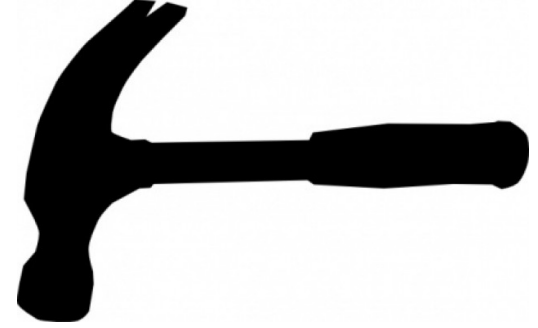
# Plan



- **Step 1:** look at and study
  - <https://www.youtube.com/watch?v=PqOetlij6G4>
- **Step 2:** Look at the materials provided for your use to build a prototype.
- **Step 3:** Think about how corrugation can help you in this design.



# Create



- Use your templates to create.
  - 3 arms and hands
  - Brace
- Assemble the fingers
- Put you layers together
- Add string and build a bridge

Keep in mine the direction of the corrugation as this will make your hand and arm function.

(CBCI)

# Improve



- Present your model and receive feed back from your peers on what would make it better.
  - What is your company name?
  - What is your moto?
  - How will your product change lives?
  - What about your product works?
  - What about your product needs to change in its next generation?
  - What would your next steps be?



(Opportunity to write based on essential question)

# Planning Using A Design Loop Supports

- CCSS
- CBCI
- Disciplinary Literacy
- Close Reading and Annotation of text
- Opportunity for authentic writing