

Diameter:
0.172m
Drag Force:
54.4N



Diameter:
0.293m
Drag Force:
158N



How It Works

- The Shark Pouch is a solution that imposes drag force on the swimmer as water flows into the opening
- An adjustable belt is worn on the waist of the swimmer, and the pouch is attached to the belt on the abdomen using a carabiner
- Adjusting the drawstring changes the size of the opening, which changes frontal surface area, and thus the drag force as well

Next Steps

- Undergo another design iteration to increase stability of pouch in water
- Create a higher fidelity, to-scale prototype with the selected material (rPET)
- Perform verification testing for the range of resistance forces (current values are only based on calculations)
- Mark drawstring with quantified levels of resistance from testing data
- Test durability against forces of at least 1000N to ensure safety
- Create fun variations of marine animals for the design (e.g. whale, dolphin, etc.)

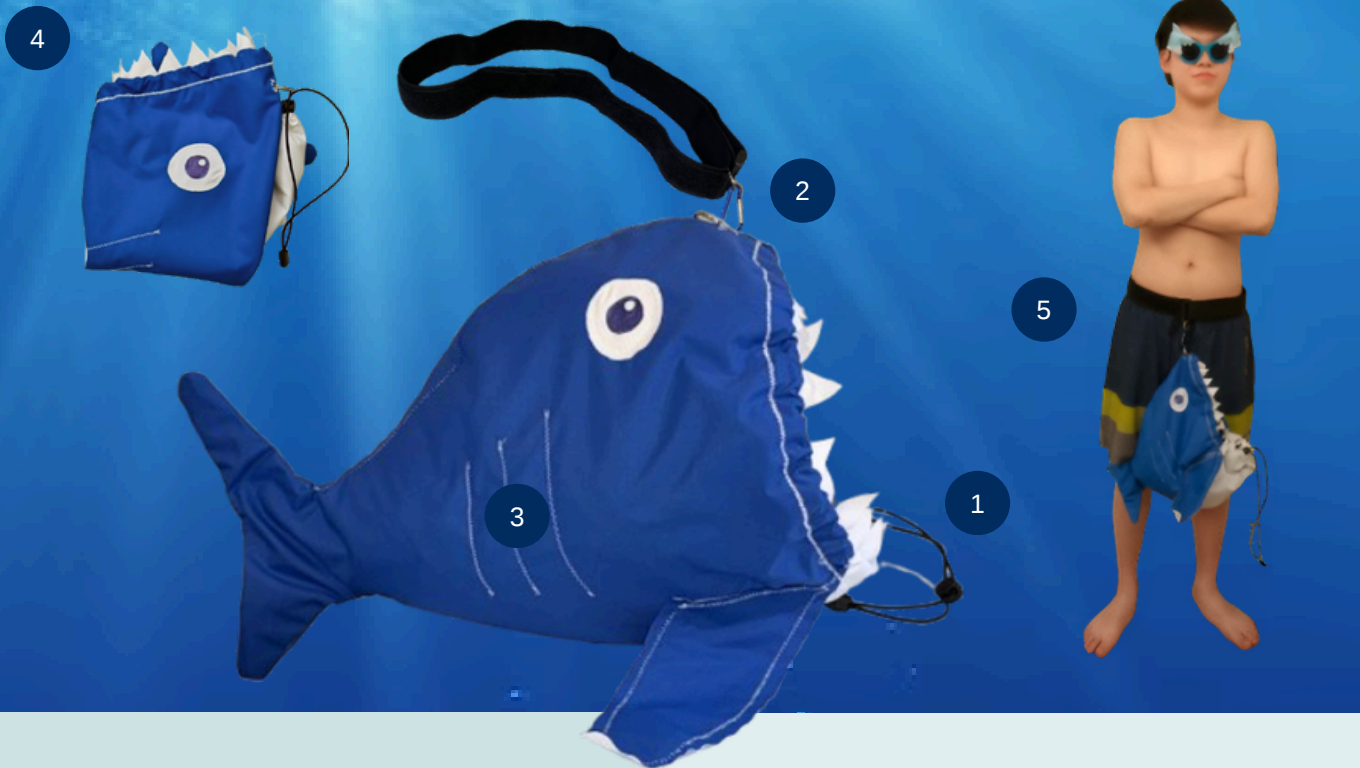
SHARK POUCH

Adjustable drag pouch for
swim resistance training

Team 7:

Arthur, Andy, Florine & Jessica





Key Features

1 Drawstring Mechanism

- Allows a continuum of resistance force levels up to 210N with largest opening diameter of ~33cm
- Increments are infinitely small for personalization and adaptability

2 Carabiner Attachment

- Easy to attach onto belt
- Use of belt instead of harness allows freedom of movement
- Short connection avoids interference with strokes or kicks

3 Material: Recycled PET

- Sustainable for the environment
- Durable and helps the pouch stay open underwater
- Chlorine-resistant and long-lived

4 Compact Storage

- Belt is storable inside the pouch
- Flexible pouch allows folding and compression

5 Shark Design

- Creative appearance enhances swimming experience
- Have a swimming buddy!

Opportunity

Community

High Performance Team of the Mississauga Aquatic Club

- Undergoes **resistance training** by using equipment that **slows them down** in the water

Opportunity

The High Performance Team needs a **resistance training** equipment that allows for **adjustable** resistance.

Current Limitations

Current designs...

- have **limited resistance levels**;
- are **not compact** nor **portable**;
- largely **interfere with movement**.

Design Goals



Have **multiple resistance levels**



Easy to change resistance levels



Safe for users



Durable



Easy to store

Design Values



Sustainability



Safety



Creativity



Ease of Use