

Lending a Hand Activity – Problem Statement Worksheet – Example

Client Statement

I am a doctor who works with children who are diagnosed with cerebral palsy—a disorder that affects the fine motor skills. I am currently treating a 12 year-old boy who is struggling in conducting everyday activities. The genetic disorder prevents my patient from being able to fill his water bottle; a task that is important in order to stay hydrated and focused. Julius, my patient, needs an assistive device that can be manipulated with his hands. He would also like this assistive device to look somewhat similar to the structure of a human hand. *The less this assistive hand device costs, the better.* The development of this device must not go over a budget of \$50.00. Currently being home schooled, Julius hopes to attend a public school in two weeks. You need to design, build, and test this device within 5 days, so that we can deliver it to Julius before his school year starts. In order to make sure this assistive hand device is ready to be mailed to our user (Julius), you should test the device by having the prototype hold a cup that will increase in weight. In order to perform successfully in the test, your prototype must be able to grip a cup containing a minimum volume of 200 ml of sand.

Problem Statement

Use the information from the client statement above to write a problem statement. In your own perspective, and acting as a *biomedical engineer*, write 3-5 sentences that address the following:

1. Describe the problem/need that you must solve.
2. Describe how you can identify if your prototype solves the problem (that is, what is needed to determine if your prototype is successful?).

The doctor hires me to design and build an assistive device for a 12 year-old boy's hand (s). Suffering from cerebral palsy, this boy has difficulty conducting everyday activities.

The device must grip a cup that increases in weight, holding 200 ml of sand.