Making a prosthetic leg

Materials

- shoes
- cardboard tubes/boxes
- lengths of wood
- Hot glue, tape, scissors
- PVC piping
- unused plungers
- bubble wrap
- ice cream sticks

Original source link: teacherengineering.org

Instructions

Part of biomedical engineering involves making prosthetics to structurally replace a part of the body, so that people with missing limbs can live full lives without requiring constant assistance or being limited from some activities.

Students are grouped into teams and asked to assemble prosthetic legs. They should use a shoe each, lower 'leg' and a way to secure it to a knee/upper leg. Students might need to look at how legs work while walking to see what movements are needed and where the legs are strong.

1. Each group will get a shoe and secure a 'leg' to it – this can be a cardboard tube, a pipe or a piece of wood. The pipe should be attached to the shoe securely but still allow some flexibility.
2. The next step is to create a way to attach the prosthetic to the upper half of a leg. This may be difficult to test, but there should be an easy way to mount or remove the prosthetic to a knee joint or upper leg, and it should be comfortable.
3. Each group will present the prosthetic, demonstrating the device and considering the pros and cons of each device.

    - How easy is it to use?
    - Is it heavy or light?
    - Would it wear out quickly?
    - Would it be comfortable?