

**Dentures:**

Dentures (also known as false teeth), are a device that replace missing teeth. It's believed that dentures have been used for hundreds of years. Early false teeth were made from other human teeth, or animal teeth carved to look like human teeth. Wooden teeth were also used, patients had a cast made of their mouths, wooden replacement teeth were then carved to match the cast. More recently (1700's), porcelain teeth were created, sometimes mounted on gold fixtures. Modern day dentures are made from acrylic (PMMA). (<https://en.wikipedia.org/wiki/Dentures>)

**Prosthetic leg:**

Prosthetic legs are available in a range of shapes and sizes. The form of prosthetic can depend on the proportion of leg that is being replaced (i.e. knee, hip, ankle) and the size / needs of the user. Prosthetic generally need to be strong and lightweight, making them commonly made from polymer, aluminium and composites (such as carbon fibre). (<https://en.wikipedia.org/wiki/Prosthesis>)

**Prosthetic hip:**

Hip replacement surgery involves replacing the joint at the end of the femur and the pelvis with a prosthetic hip ball and socket joint. The replacement joint is often made from a combination of ceramics, metals and polymers. (https://en.wikipedia.org/wiki/Hip_replacement)

**Prosthetic / bionic eye:**




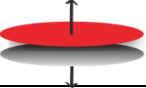
A prosthetic / bionic eye is designed to restore or partially restore vision to people who have lost their sight.. There are a range of different technology systems being used to create new bionic visual aides. Some require surgical implants to stimulate existing visual systems inside the body, others use external hardware to send additional signals to the brain, stimulating partial vision. (https://en.wikipedia.org/wiki/Visual_prosthesis)

**Prosthetic knee:**

Knee replacement surgery involves replacing the joint at the end of the femur and tibia with a prosthetic knee hinge joint. The replacement joint is often made from a combination of ceramics, metals and polymers. (<https://en.wikipedia.org/wiki/Dentures>)

Extension activity #1

Hook and Loop provides a non-permanent way of 'sticking' two things together using two sides – a hook and a loop. Four performance measures characterize the strength of the hook and loop bond:

<p>Peel strength</p> <p>This is a measure of the force required to separate the hook from the loop when peeling two pieces apart at a 90-degree angle.</p> 	<p>Shear Strength</p> <p>This is a measure of the force required to separate the hook from the loop, when pulling two pieces 'across' each other in opposite directions- i.e. sliding one section across the other. This measure is a good indication of the ability to resist separation in applications such as cable ties, shoe closures and armbands.</p> 
<p>Cycle Life</p> <p>This is the number of times the fastener can be opened and closed before the fastener loses half of its original closure strength.</p> 	<p>Tensile Strength</p> <p>This is a measure of the force required to separate the hook from the loop when pulling two sections apart perpendicular to the joined plane. Think of separating two rigid boards, joined with VELCRO® by pulling them apart. This measure gives a good indication strength in various mounting applications, such as sanding pads.</p> 

Take different samples of hook and loop materials and design a test for each performance measure.

Use a table like the one below to record findings:

Material	Peel Strength	Sheer Strength	Tension Strength	Cycle Life
A				
B				
C				
D				