

Week 2: Materials testing

You are going to be testing 3 different metals for hardness and malleability (how easy it is to bend).

Test 1: Hardness

- Centre Punch
- Punch hole (Whitney punch)
- Tin snips
- Scriber (can you scratch the testing material?)

Using the above materials test the hardness of aluminium, mild steel and stainless steel

Test 2: Malleability

- Mole grips

Using the mole grips test aluminium, mild steel and stainless steel to see how easy they are to bend

Results

Material	Centre punch (hardness)	Whitney punch (Hardness)	Tin snips (hardness)	Scriber (Hardness)	Mole grips (malleability)
Aluminium	easy	easy	easy	easy	10
Mild steel	easy	easy	medium	medium	23
Stainless steel	difficult	difficult	difficult	difficult	100

Analysis

Which materials are best for the railcar? Explain why