

Designing

Ergonomic	An ergonomic design is safer and more comfortable to use. Add softer or rounded edges to make your speaker more ergonomic to handle
Chamfer	You can add a chamfer to the edges of your speaker by filing or sanding an angle on each edge
Precision	You will need to be precise in measuring your template, to allow the sound to reverberate through the speaker
Upcycling	You will be upcycling hardwood for your speaker. The Iroco was once a science worktop!

Materials

Hardwood	Dense wood, taken from slow growing deciduous trees. These trees lose their broad leaves in winter.	
Softwood	Lighter, less dense wood taken from fast growing conifers. Conifers are ever-green trees that have needle-like leaves	
Iroco	A dark reddish brown hardwood. Often used for worktops and benches it has a close grain	
Pine	A yellow-coloured softwood. Pine has a clearly visible and attractive grain pattern	
Grain	The pattern of lines in wood. Grain is caused by slicing through the growth rings in trees	

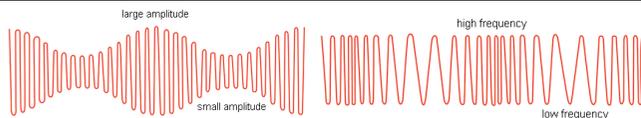
Manufacture

Wasting	Shaping by wasting is removing material by cutting, filing or drilling. The material removed is 'wasted'
Bespoke	A one-off product designed and made for a specific purpose or client. Often a bespoke product is 'made to measure'
Template	You will create a template that fits your own smartphone. Your template needs to make allowances for the speaker holes in your phone
Cone Drill	You will use a cone drill to make conical holes for your speaker. This will help the sound reverberate and project forward



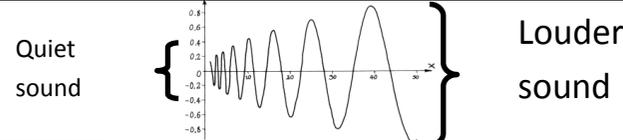
Explore—STEM links

Amplitude	The height of a sound wave. The loudness of a sound signal depends on the height of the amplitude
Frequency	The number of sound waves per second is measured in Hertz (Hz). 1Hz is equal to one complete sound wave cycle per second
Pitch	The pitch of a sound signal is determined by the frequency or number of cycles per second. Higher pitch sounds have higher frequencies



Functionality

Acoustic	A non-electronic way of transmitting a sound. Any instrument that doesn't need to be plugged in is an acoustic instrument. Examples include brass (saxophone), guitar, cello or drums
Amplifier	A system that makes sound louder. Amplifiers are normally electronic, boosting a sound signal's amplitude.
INPUT	The sound signal going into the speaker
OUTPUT	The louder, amplified sound coming out



Critique

ACCESSFM	An acronym which designers use to evaluate products. Each letter stands for a different aspect for evaluation
	A = Aesthetics; how the product looks
	C = Cost; how much to make or buy
	C = Customer or client; who the product is for
	E = Environment; is the product harmful to the planet?
	S = Safety; is the product safe to use
	S = Size; Is the product the right size
	F = Function: how does it work, how well does it work
	M = Materials; what is it made from, is it a good use of materials

Vocabulary used in materials—Hardwood Softwood safety goggles apron pillar drill cone drill adhesive template sanding sealer wood finishing vice
 Health and Safety - Wear protective clothing. Tie long hair back. Listen to instructions. Use the correct technique. Stay calm and sensible at all times. Tidy up after you have finished. Use the correct equipment safely