ES					
	TECHNOLOGY	**Knowledge & understanding**	**Needs**	**Resources**	**Processes**
	TECHNOLOGY	**Skills in designing & making**	**Preparing**	**Carrying out**	**Reviewing**
	SCIENCE	**K & U - Energy and forces**	**Properties of energy** *Sound vibrations*	**Conversion of energy**	**Forces** *unbalanced, levers, gravity, friction*
	SCIENCE	K & U - Earth & space	Materials from Earth	Changing materials	

The small hammer on the opposite page might be quick to make, but it is also fragile. Mentioned on that page is the fact that if you turn the crank handle the wrong way, the machine will break. Can you think of any way to solve that problem?

When you turn the crank once, the hammer rises and falls once. If we had used a symmetrical trip, the hammer should have operated twice. If we stood two hammers side by side - and allowed the crank shaft to pass through both, we could operate them both at the same time.
This means that we could design a machine that could produce a wide variety of tapping rhythms.

STAGE ONE
We could have more than one hammer (the one shown below has four).
Do they all need to be the same size? Do they have to make the same sound? What if one had a wooden head and one a metal (drawing pin?) head? Or if one tapped a tin lid and one an upturned plastic tub?
Should we be able to disconnect various hammers? Could we design a 'three-tap' trip?
(Could we drive it with an electric motor?)

STAGE TWO
Design and make a prototype machine. Try to design it so that it can be altered or rearranged it something doesn't work.

STAGE THREE
Does it work?
Have other children built different versions. Try creating a percussion composition - "Etude pour trois marteaux mechaniques".
The sound produced might not be very loud (even if irritating!) so how could you amplify it?