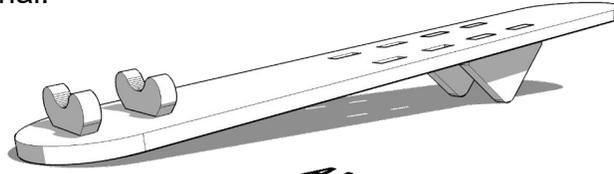




SUMMARY:

'Educational FlingThing kit' by AJBOX is an educational STEM focused mechanical kit which is supplied as a set of 12 kits, pre-cut out of Plywood. The individual kits can easily be snapped out and each one is for students building individually or in pairs.

Each kit is complete and just popping out and assembling by hand without needing any tools, gluing is optional.



HOW TO USE THE KITS:

You can use them in a variety of educational approaches, or as a standalone STEM activity.

1. History - Catapults and trebuchets, used in ancient times and until the 17th century
2. STEM - Classes of levers. How levers magnify forces, relationship between input and output forces. Accuracy of catapults as compared to manual throwing.



HEALTH AND SAFETY:

The laser cutting process produces a small amount of fine dust which is the smoke produced by the laser burning out the shapes in the kit. Like any fine dust, rarely somebody may be sensitive to it. It is not recommended to wash the kits because the wood will swell and distort, but you can use any brand of spray furniture wax to seal the dust in if you believe it may be a problem.

Some students find the unique burnt Plywood smell attractive and you may need to discourage them from sniffing the pieces. Regular hand washing is recommended. The Plywood is made from thin layers of wood glued together and there is a small chance of splinters. The glue used in the Plywood is PVA based and the birch wood is non toxic. The Plywood used can be composted like regular twigs.



BEFORE YOU START:

I urge you to build a kit yourself and practice with it before you work with a class so you are familiar with the pieces, the order in which they are assembled and how use it effectively. The assembly video is a good place to start as it shows how to assemble and use.



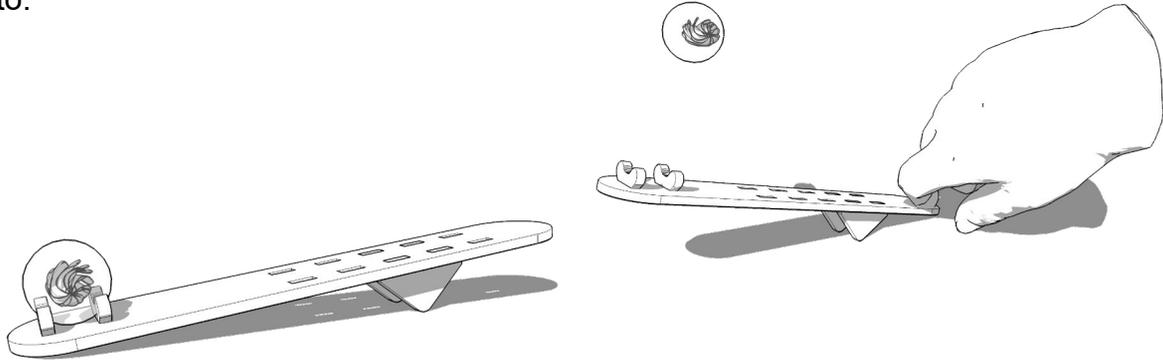


AJBOX EDUCATIONAL KITS

EDUCATIONAL FLINGTHING CAM MECHANISM

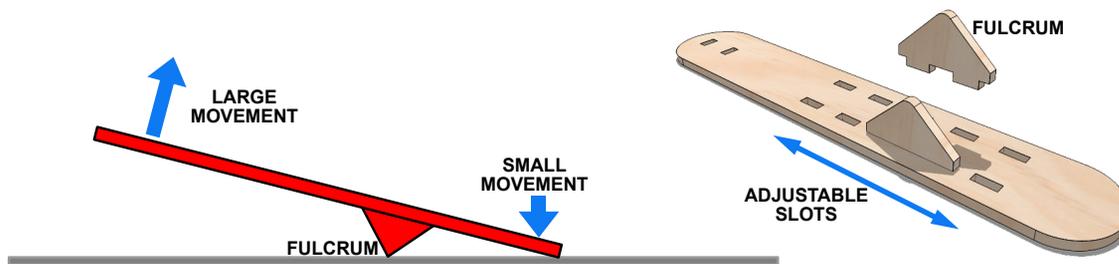
HOW THE FLINGTHING MECHANISM WORKS:

The mechanism consists of a main piece (Known as a 'load arm') and an adjustable swivel piece (Known as a 'fulcrum'). To make it easier to operate, there are also two small pieces to 'cradle' the Thing being Flung so it doesn't move until it's supposed to.



ADJUSTABLE FULCRUM:

The principle of leverage is you press one end of the load arm down and the other end lifts up, because the lever pivots round the fulcrum.



FlingThing has an adjustable fulcrum which can be inserted in different pairs of slots. The closer the fulcrum is to the end you press down, the more movement you get at the opposite end. This means a small movement at one end of the 'load arm' (Stick!) Generates a much larger movement (Extra speed) at the other end. This makes it easier to use the 'load arm' as a catapult as you can 'Fling' the 'Thing' faster.



PROBLEMS:

The Plywood kits are robust but Plywood layers can still delaminate (Split) if forced. Also occasionally a piece will not cut all the way through due to harder resins inside the plywood. This is rare but if you have this problem, just contact me with a photo of the broken piece and I will send you out a free replacement piece.

COLOURING AND DECORATING:

The surface of the Plywood takes pen and pencil well but it is recommended that any wet process, such as large glued on pictures or paint, is applied after the top is assembled so that pieces do not swell and become difficult to assemble later. Varnishing is best done after assembly as it makes pieces thicker.



**ASSEMBLY TIPS:**

- Use the 'Assembly' worksheet which is an A3 'shadow board' that students place the pieces onto, to ensure they haven't thrown anything away by accident. This can be folded up to make a pouch for storage between lessons.
- Encourage students to discard the 'sprue' (Unwanted bits) as these can have pointy edges. These can be composted or burnt like other wood materials.
- Assemble. The presentation and shadow sheet use the same stages to assemble the kit
- If some pieces do not seem to line up, check you are putting the pieces together properly
- Glue is not necessary to make a working mechanism, but it can help where students may be rough with the assembled kit. You can use Glue Sticks or standard white glue (PVA) to join the pieces together. As the Plywood pieces swell when they get damp, you need to assemble the pieces quickly after applying the glue
- Try the fulcrum in position 2 to start with, then get students to experiment with moving the fulcrum into different positions
- You can also throw marbles as the load carrier has cutouts for this
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FUTURE UPDATES

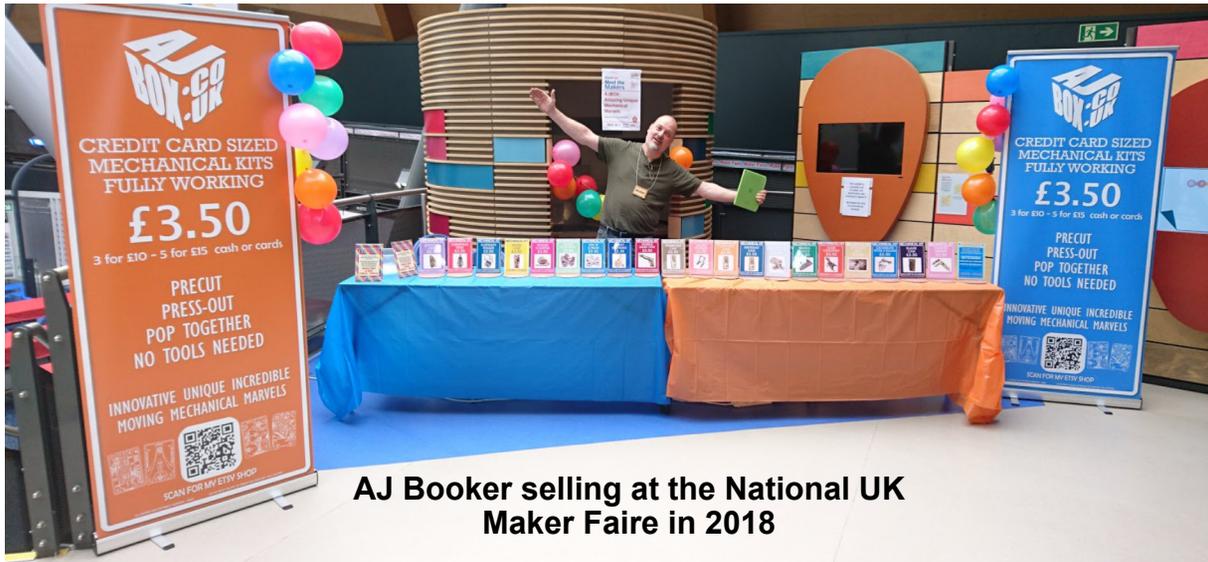
These teachers sheets will be updated during 2019 to add more lesson ideas. Please keep coming back to the website to see what's new.





AJBOX EDUCATIONAL KITS

EDUCATIONAL FLINGTHING CAM MECHANISM



**A variety of cam kits
Coffee, Blank, Shark,
Dog/Cat**



**A7 bicycle kit with
lock and stand**



**Flexible Catapult kit
that fires pennies**



**Mechanical moving
turtle kit**

As well as a range of educationally focused kits with free resources, I also sell a wide range of kits that cover many STEM areas. These are inexpensive, fun to assemble and will inspire people to take interest in the world around them.

I am available for staff training days, as a key speaker at your events and as an Educational Consultant to help you develop your STEM offering.

