



SUMMARY:

EduCam kit' by AJBOX is an educational STEM focused mechanical kit which is supplied as a set of 12 kits, pre-cut out of MDF. The individual kits can easily be snapped out from its background sheet and can be used for students building individually or in pairs.

Each kit is complete and just needs 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. Here are two suggested ideas for using EduCams

1. History - How mechanisms using Cams automated many tasks in steam and water powered factories in the early Industrial Revolution.
2. STEM - Cams as a form of programming movement. Cams in Car Engines, locks and other common mechanisms.



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 MDF smell attractive and you may need to discourage them from sniffing the pieces.

The MDF is made from thin layers of wood glued together and there is a small chance of splinters. The glue used in the MDF is PVA based and the birch wood is non toxic.



BEFORE YOU START:

I urge you to build an EduCam 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 the effect of the three different cam profiles.

The assembly video is a good place to start as it shows how to assemble and use it. The presentation contains details of 3 different ideas for personalising EduCam using the different movement from the 3 cams to animate designs.



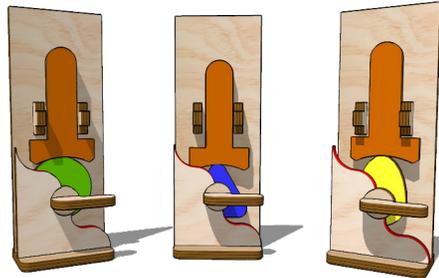


AJBOX EDUCATIONAL KITS

EDUCATIONAL EDUCAM CAM MECHANISM

HOW THE EDUCAM MECHANISM WORKS:

The mechanism consists of a base design which incorporates one of three supplied cam profiles. Each profile, when rotated by the handle, causes the stick (Follower) to move in different ways lending its use to a variety of designs the student can develop. The free presentation contains more details.



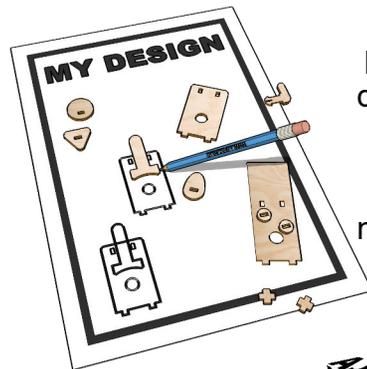
DIFFERENT CAM PROFILES:

There are three cam profiles provided.

Offset Round - A circle which has its rotational centre to one side. Gives a smooth rise and fall when the handle is turning

Egg - Gives a smooth rise and fall for half the rotation, and a fixed height for the other half of the handles rotation

Square - Gives a wobbling jerky movement when the handle is rotated



EduCam can be used as drawing templates to help students develop their unique ideas, using the EDUCAM as a base mechanism to build upon.



PROBLEMS:

The MDF kits are robust but MDF is made of something like compressed paper so you may find edges crumbling away. 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 MDF 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:**

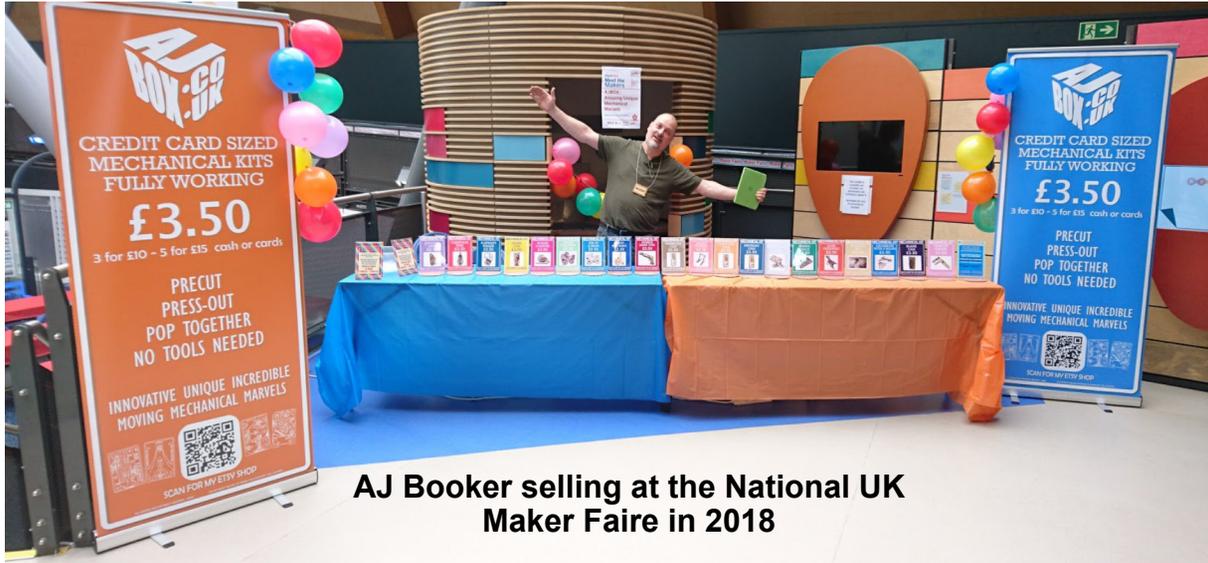
- Use the 'Assembly' worksheet which is an A3 'shadow board' that students place the pieces onto, to ensure they haven't thrown anything away by accident. This can be folded up to make a pouch for storage between lessons.
- Encourage students to discard the 'sprue' (Unwanted bits) as these can have pointy edges. These can be composted or burnt like other wood materials.
- Assemble in the correct order. There is a diagram of what order to assemble the pieces on the 'Assembly' worksheet and also in the presentation and the video guide
- Use an (unlit) candle rubbed on pieces that rub together to reduce friction
- 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 MDF pieces swell when they get damp, you need to assemble the pieces quickly after applying the glue. Clearly you will not be able to change the cam profile if you glue the mechanism together!
- An extra large version of the EduCam for class demonstrations, standing around 400mm high, is available by special order from www.ajbox.co.uk
- There is around 1mm 'clearance' between the follower and the surrounding mechanism front and back plates. Ensure students designs added to EduCam do not block this or the mechanism will not work smoothly
- EduCam uses Gravity so will not work sideways or upside down





AJBOX EDUCATIONAL KITS

EDUCATIONAL EDUCAM CAM MECHANISM



AJ Booker selling at the National UK Maker Faire in 2018



**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.

