

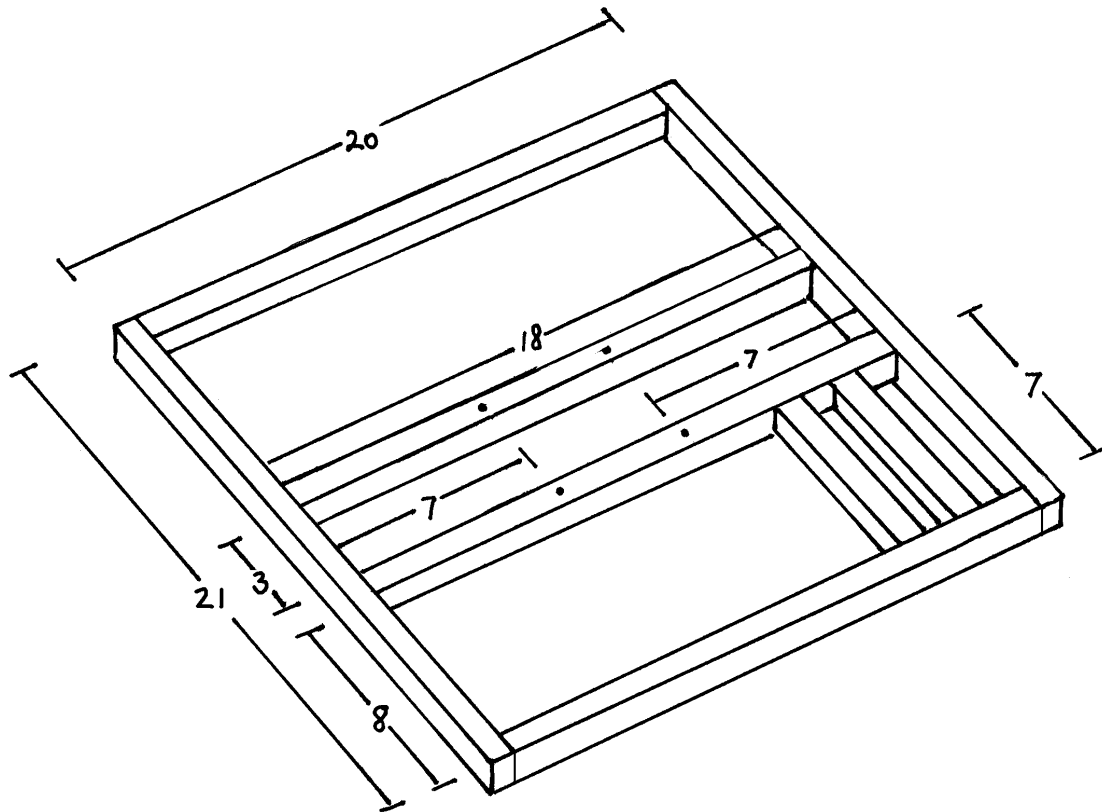
Grade 8: TASK FOR EACH TEAM AFTER WORKSHOP

Objective:

This task is to be completed after the workshop and before the competition day. The construction will be required at the competition.

The purpose is to construct a platform upon which a structure can be added.

A 30 ml syringe that will be mounted on the base can rotate the platform.

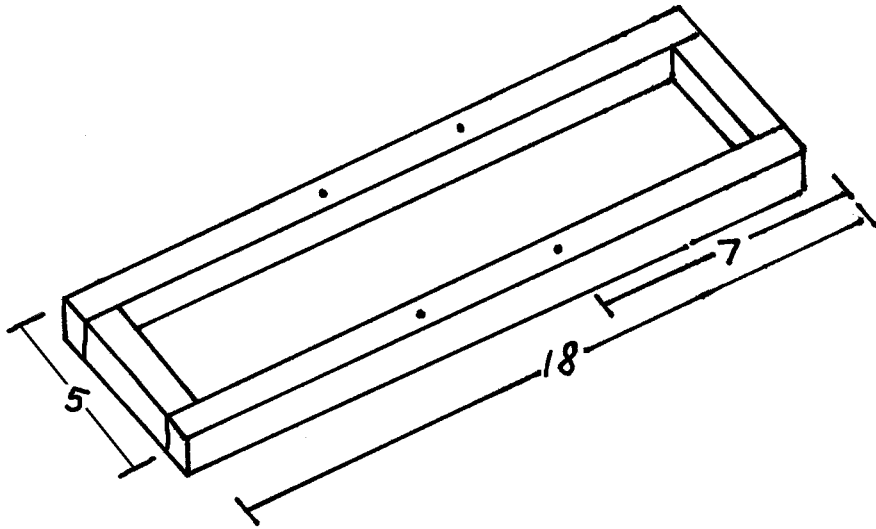


Construct the basic frame from 1cm-squared wood. The dimensions of the frame are 20 cm by 21 cm. On the diagram the corner gussets are not shown. Cut the two cross members, 18 cm in length and, before gluing them into place drill four $\frac{3}{16}$ " holes in the exact positions shown in the diagram (7 cm from each end). Once the cross members are in place, insert two strips each 7 cm in length in the position shown above. All members can be glued using gusset corners.

Using diagram 2 construct a second frame 18 cm by 5 cm after drilling four $\frac{3}{16}$ " holes as shown. Once again the gusset corners are not shown.

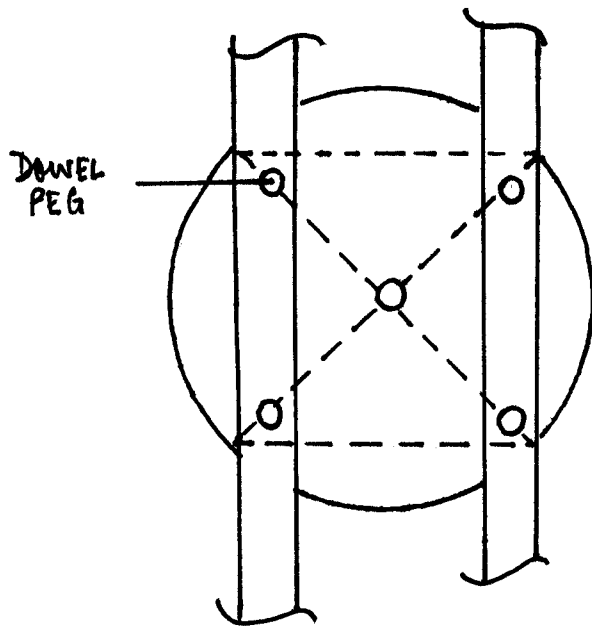
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Diagram 2:



Connect the structure in diagram 2 to a large MDF wheel. The positioning is critical. The drill holes in the wheel are located according to diagram 3. The drill-bit size is $\frac{3}{16}$ ". Four short $\frac{3}{16}$ " dowels are required to connect the structure to the wheel. Use wood glue to ensure that the structure and wheel is firmly connected.

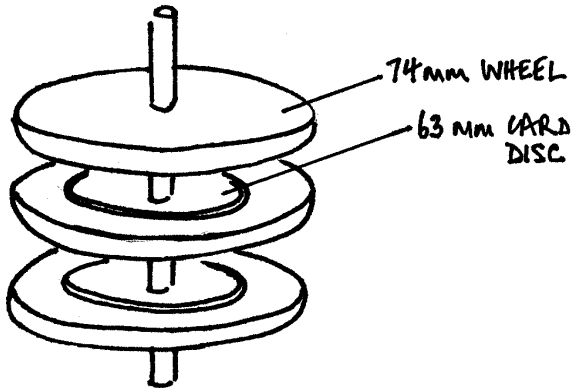
Diagram 3:



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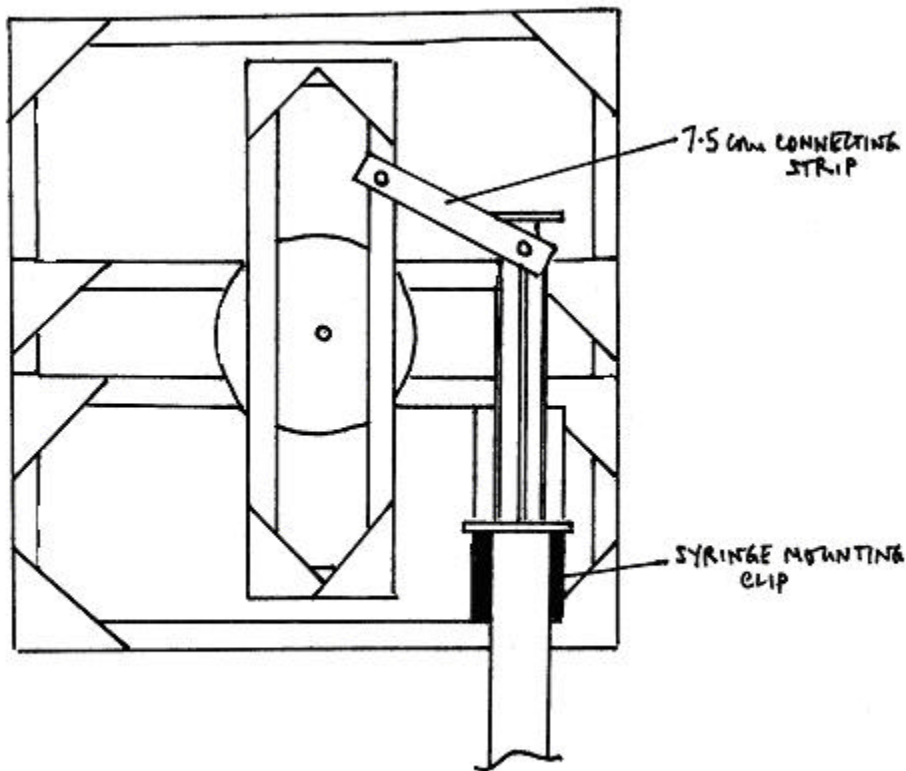
Diagram 4:

The pinned wheel sits on two other wheels with two card discs in between. Make sure that the dowelling on the underside of the platform in diagram 3 is sanded and smooth so that it will rotate with as little friction as possible.



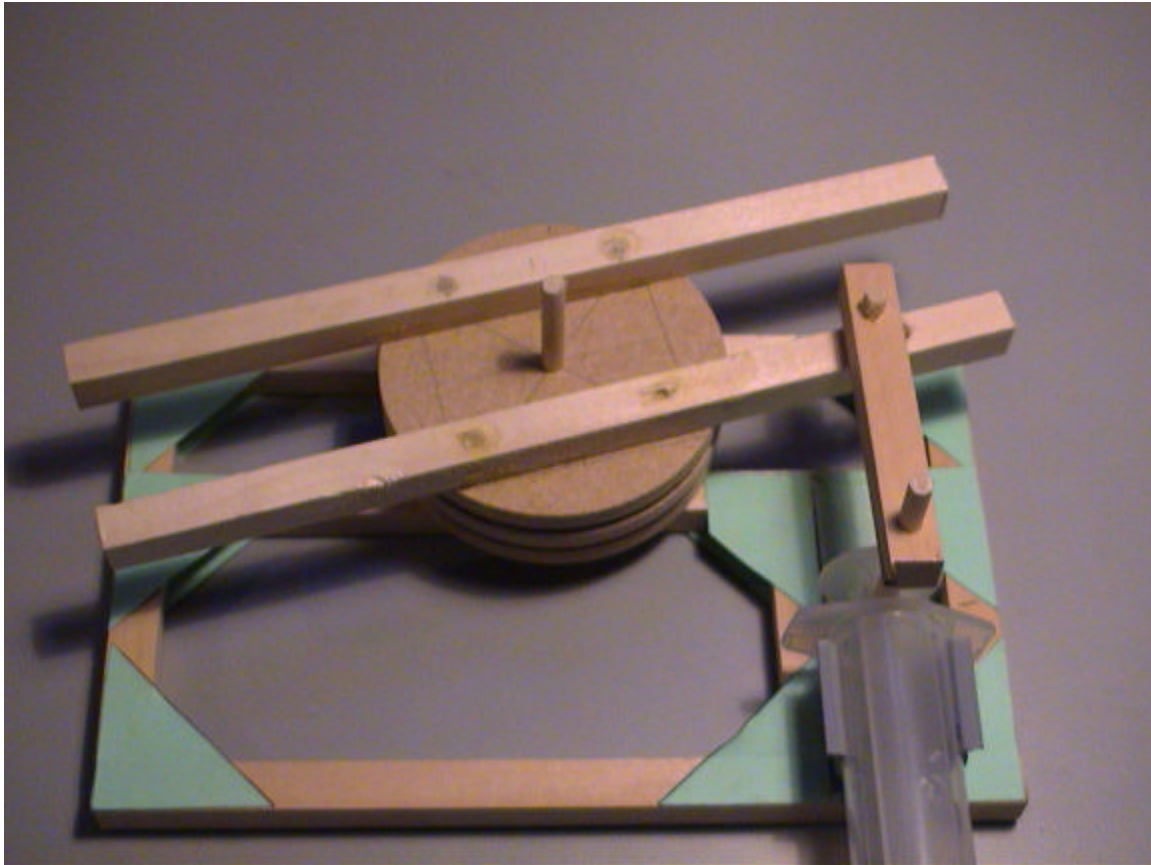
The card discs in between the wheels reduce the friction between the wooden wheels and raise the platform to the required height.

Diagram 5:



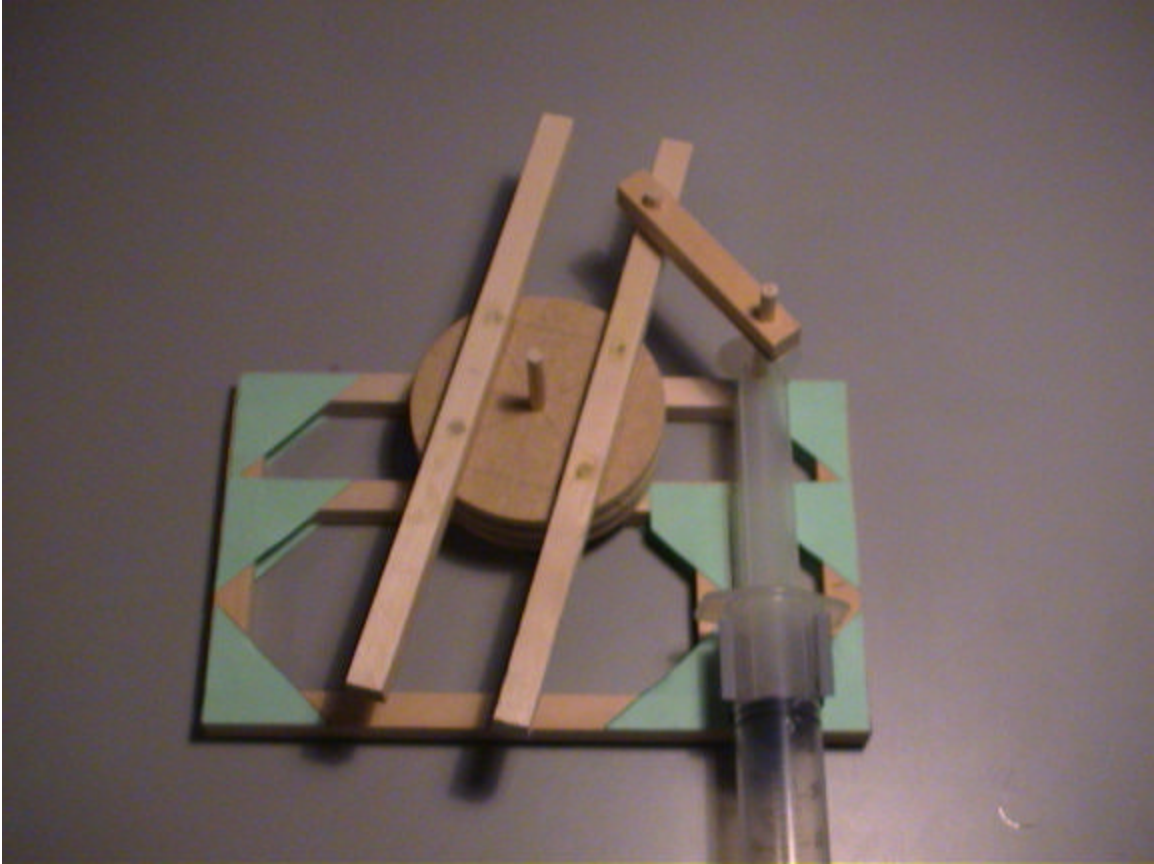
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The 7.5 cm-connecting strip needs to be located correctly. Its purpose as a linkage is to rotate the base as much as possible when the actuator (plunger of the syringe) is extended and contracted. Once positioned, drill and connect the linkage to both the plunger and the rotating base. Be careful when you drill the hole in the base. Be sure that the syringe stays in the syringe-mounting clip and does not twist when it is fully extended. You should be able to achieve a 75-degree rotation.



Note in the above diagram the base is a reduced size.

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Note in the above diagram the base is a reduced size.