



Prize Winner

Models & Inventions

Year 7-8

Sophia Lennard

Mitcham Girls High School



Oliphant

The scientific method behind my model.

My model is an articulated human hand. The scientific principle of my model is to show how the Human tendons pull to move each individual finger. My principal is show with my coloured string that are pulled to move bend and straighten the fingers, the string is tightened to either bend or straighten the finger the same as how a human tendon would.

How my model was made.

The entry was made by first measuring my own hand to create a scale to work from as I wanted my hand to be a 1:2 ratio of my own hand. After creating the scale, I marked all the measurements onto my materials and then began cutting all the fingers. Then it was time to create the palm which is where my Dad help to cut of the shape with a handsaw. After all the rods and boards were cut to shape, I hand to sand and place and screw in the eyelets. To hold the two halves of the fingers together I placed and glued a ribbon between the two halves. The with all fingers cut, glued and with the eyelets I was able to glue the two halves of the palm with the fingers attached. With the hand done I moved to the board it is standing on. I cut two dowels to the same height and the stick them to the board with the labels. After all of hand was done, I rigged to string through the eyelets and attached all the loose ends with glue.

Problems that I faced

My model had no problems during the making of it as before making I had spent two weeks planning the making.

How to operate my model.

To operate my model, you can either pull the big ring to move all of the fingers at once or each indivial string to move a single finger.

RISK ASSESSMENT FORM

Models & Inventions

This must be included with your report, log book or entry

NAME: Sophia Lennard ID: 0380-011

SCHOOL: Mitcham Girls High School

Activity: Give a brief outline of what you are planning to do.

I plan to create an articulated model of a human hand. I will cut wooden poles and boards to create the shape of the hand and then rigging strings and eyelets.

Are there possible risks? Consider the following:

- Chemical Risks: are you using chemicals? If so, check with your teacher that any chemicals to be used are on the approved list for schools. Check the safety requirements for their use, such as eye protection and eyewash facilities, availability of running water, use of gloves, a well-ventilated area or fume cupboard.
- Thermal Risks: are you heating things? Could you be burnt?
- Biological Risks: are you working with micro-organisms such as mould and bacteria?
- Sharps Risks: are you cutting things, and is there a risk of injury from sharp objects?
- Electrical Risks: are you using mains (240 volt) electricity? How will you make sure that this is safe? Could you use a battery instead?
- Radiation Risks: does your entry use potentially harmful radiation such as UV or lasers?
- Other hazards.

Also, if you are using other people as subjects in an investigation you must get them to sign a note consenting to be part of your experiment.

Risks	How I will control / manage the risk
<u>Cutting my self with the tools. some of my tools are electric.</u>	<u>wear protective gear or get adult supervision. I could try to use tools powered by battery.</u>

(Attach another sheet if needed.)

Risk Assessment indicates that this activity can be safely carried out

RISK ASSESSMENT COMPLETED BY (student name(s)): Sophia Lennard

SIGNATURE(S): _____

by ticking this box, I / we state that my / our project adheres to the listed criteria for this Category.

TEACHER'S NAME: _____ SIGNATURE: _____

DATE: _____