



Prize Winner

Models & Inventions

Year 3-4

Isha Wechalekar
Maryam Cedra Sawad
Aayana Butt

Wilderness School



RISK ASSESSMENT FORM

Models & Inventions

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

NAME: Maryam Cedra Sawad, Aayana Butt and Isha Wechalekar ID: 788-005

SCHOOL: Wilderness school, Hawkers road, Medinidie 5081

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

We made a model to show how one can make their brain smarter and wiser. Brain is made up of neurons. Neurons cannot increase in number however, they can rewire, relearn, and become strong. This happens when we practice, repeat, and learn new skills throughout our lives. This process is called Neuroplasticity. Our model depicts how learning new languages, doing regular physical activities and regular reading helps the brain to make new connections!

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
1. Drilling holes 2. LED lights	Parents helped us with the drilling of the board. Generates heat if lighted for long hours increasing the risk of fire. However, in our project the lights will only be switched on for couple of minutes. Hence there are no risks of fire.

(Attach another sheet if needed.)

Risk Assessment indicates that this activity can be safely carried out

RISK ASSESSMENT COMPLETED BY (student name(s)): _____
Maryam Cedra Sawad, Aayana Butt and Isha Wechalekar

SIGNATURE(S): _____


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

TEACHER'S NAME: Mr Nathan Rice SIGNATURE: _____


DATE: 16 August 2021

Growth Mind Set (Neuroplasticity)

By Maryam Cedra Sawad, Aayana Butt and
Isha Wechalekar

Models & Inventions entry report

By Maryam Cedra Sawad, Aayana Butt and Isha Wechalekar

What is the Scientific principle behind our project?

The model demonstrates how we can make our brain smarter and wiser. Our brain is made up of neurons. Neurons cannot increase in number but, they can rewire, relearn, and become stronger.

This happens when we practice, repeat, and keep learning new skills throughout our lives. This process is called

Neuroplasticity. The model shows how learning new languages, doing regular physical activities and regular reading helps the brain to make new connections!

How did we do the entry?

The application was submitted to
Wilderness school, Hawker's road,
Medindie SA 5081

Why did we choose this project?

We learnt about the brain at school
that neurons cannot increase in
numbers, but they can only change their
shape and connections which makes one
smarter and wiser! We thought this was
amazing!

This led to the making of the model and
this is what we did.

1. Drawing the activities we did at school
and at home on paper, coloring them
and gluing on the left of the project
board.
2. Drilling holes in the center of the
board to thread the LED lights. The

switches (numbered 1-5) were placed next to the activities.

3. Neurons were made with hairy wire strips and glued to the center with lights showing synapses.
4. A story written about the neurons was pasted on the bottom of the board.
5. A string of neurons was colored and glued on the top of the story. The neurons at the right end of the string shows more spines and neurotransmitters indicating rewiring.
6. On the right-hand corner a cardboard face was glued showing the parts of the brain with woolen threads of different color. This was connected to the LED lights.

How does the model work?

First press the switch numbered '1'. A small number of neuronal synapses will light up which shows that activities performed for a short time makes fewer neuronal connections. However, pressing switches numbered from 2 to 5 shows that the more the number of times any activity is done, the greater the number of neuronal connections. Pressing the 6th switch, lights up the whole brain.

Interpretation of the model

Learning new skills and refining old skills throughout one's life transforms the brain. The transformed brain is always less likely to be forgetful!

How did our parents help in the making of the project?

They bought the material for the project, typed and printed our ideas onto the paper and drilled the holes on the board and gave lots of suggestions.