SASTA OLIPHANT SCIENCE AWARDS

SOUTH AUSTRALIAN SCIENCE TEACHERS ASSOCIATION

Highly Commended

Models & Inventions

Year 7-8

Saiesha Ganu

Walford Anglican School for Girls

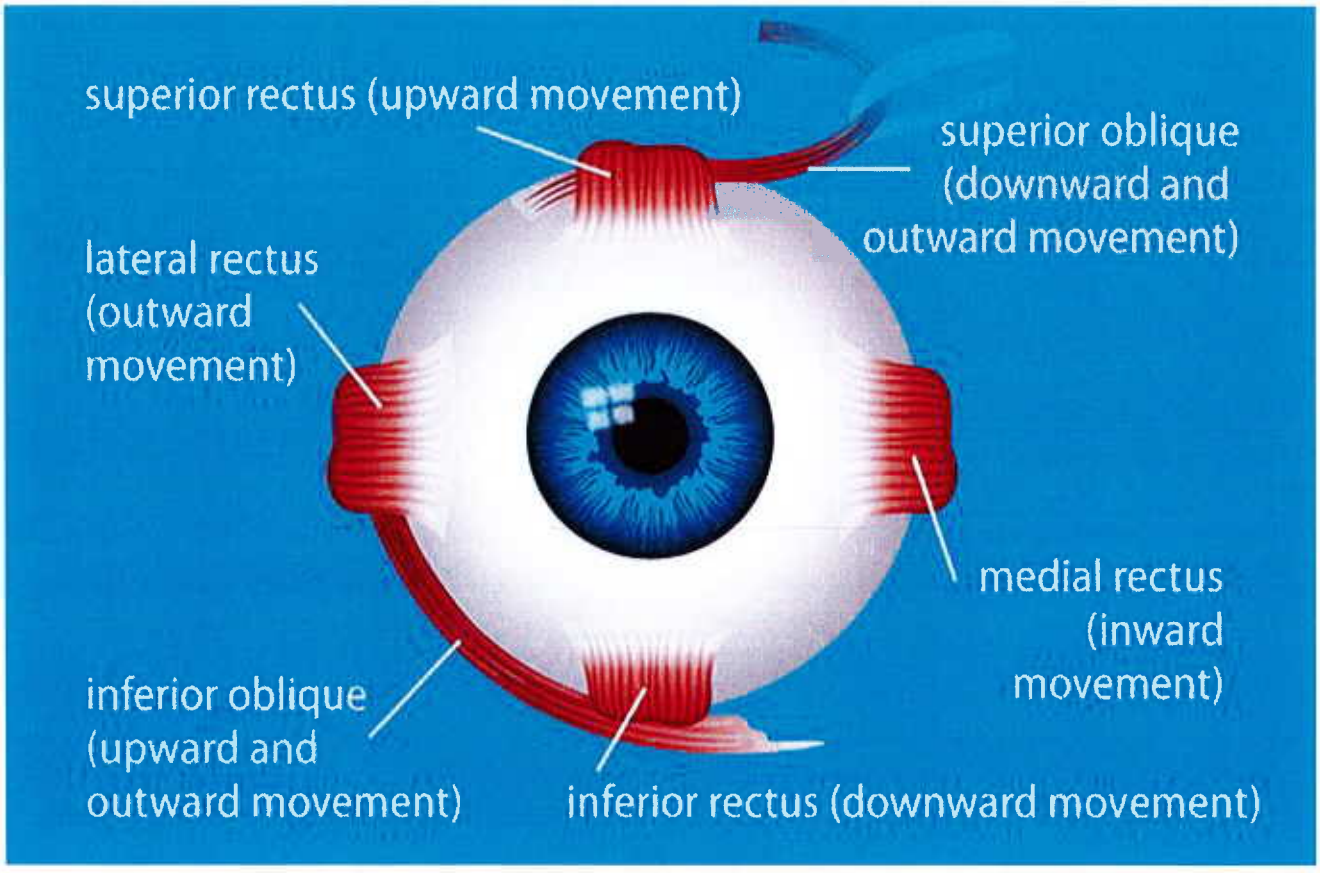
Instructions for the Eye Model

How to operate the 'muscles'

Please be careful

1: Check that all the shoelaces are threaded through the holes in the pink box and that the eye is resting inside. If not, make sure the pink box is sitting on its side and that the top face has a purple T on it. Then slide the model (telescope first) in so that the two openings are lining up with the top left and right edges. Then thread the shoelaces (always start with the bottom ones) through the holes (they have a purple circle around them).

2: GENTLY pull on one of the shoelaces. You should see the eye turning. Each of these shoelaces represent muscles and when the pull them they contract and pull the eye. The rest of the eye muscles are relaxing. This is how your eye turns when you are looking around.



From allaboutvision.com

Instructions for the Eye Model

How to operate the 'lenses'

Please be careful

1: The eye should be out of the pink box and all of the shoelaces hanging loose. If not CAREFULLY pull on the shoelaces from the inside until they come out of the holes. Then slide the eye out with the two openings coming out the top.

2: Inside the model there should be two loose lenses (they are plastic circles and some may have some white paint on them). Take them out (by sticking your hand in). There are three lenses, one of them is clear and the other two have white paint on them. The painted ones are cataract lenses.

3: Look through the telescope. If you want to see through a different lens, take off the bushings (little grey sliding things) on both sides of a black rod and slide the rod out. If you do this on both sides of the structure, the lens will drop out. Then to replace it with another, line up the hole of the lens and the hole in the technic piece, slide the rod through and attach the bushings on both sides. If you do this on both sides of the structure then the new lens will not fall out.

4: Look through the telescope and try out different lenses.

My eye model shows how eye muscles function and how cataract develops. The pink box represents eye socket and the shoelaces represent muscles. If you pull a shoelace (for example the top left), the eye moves in that direction. This shows when a muscle contracts, the eye moves in that direction. Sliding the eyeball out of the socket, you can see inside the model. The Lego structure holds the lens. The lens can be changed by taking off the bushings and sliding the rod out of the structure and replace it with any of the three lenses, a clear lens, growing cataract lens or cataract lens. Through telescope at the back you can look through the model with a cataract or normal lens, to see what it would look like. The plastic lid on top of the iris represents the cornea. After looking through, you can slide it back in the box (telescope side first) and thread the shoelaces back through the holes to store or to show the muscles. I made this model using a lampshade. Glued paper created the sclera. I used a lot of hot glue (and almost ran out) to stick down the technic Lego that holds the lens. The most challenging part was sticking the glue gun (and my hand) through the opening and hot gluing the Lego patiently. A piece was missing too, so I had to awkwardly slide it in and cover it with hot glue. My first plan was to use styrofoam instead of a lampshade. Me and my dad were looking for spherical styrofoam in Bunnings and saw lampshades. He helped me change my idea, find shoelaces and the pink box.

OSA RISK ASSESSMENT FORM

for all entries in (✓) ☐ Models & Inventions and ☐ Scientific Inquiry

This must be included with your report, log book or entry. One form per entry.

NAME: Saiesha Ganu ID: 3329702 0765 046

SCHOOL: Walford Anglican School for Girls

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

A model of the eye with a changeable lens and working outer muscles.

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
Hot Glue Gun	Gloves worn
Scissors	Care taken with sharp tools

(Attach another sheet if needed.)

Risk Assessment indicates that this activity can be safely carried out

RISK ASSESSMENT COMPLETED BY (student name(s)): _____

SIGNATURE(S): Saiesha Ganu

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

TEACHER'S NAME: Sam Bartram

SIGNATURE: _____ DATE: 19/8/21