SASTA OLIPHANT SCIENCE AWARDS

SOUTH AUSTRALIAN SCIENCE TEACHERS ASSOCIATION

Highly Commended

# Models & Inventions

# Year 3-4


## Rose Douglas

## Rose Park Primary School

14/8/2021 Oliphant Science Awards Models & Inventions:

# Colour And Heat Absorption

By Rose Douglas
ID: 0560-006
Rose Park Primary School,Room 1,Year 4

## What I want to achieve:

- ☐ Put in lights.
- ☐ Put in thermometers.
- ☐ Put food colouring in water then put water in jars then put jars in project.
- ☐ Record times
- ☐ Successfully finish project.
- ☐ Bring to school without breaking it.
- ☐ Try to win something(like a mention!)

## WHAT? HOW? SCIENTIFIC PRINCIPLE? RESULTS.

| What? | How? | Scientific principle? | Results |
|---|---|---|---|
| I'm making a project about how colour absorbs or reflects heat. | By putting food colouring in some water in a jar and shining a strong/hot lamp on it and recording the temperature. | When a colour absorbs light, it turns the light into thermal energy. The more light a colour absorbs, the more thermal energy it produces. | Purple is the hottest and the darkest colour is the coolest.<br>Colours like blue, purple and green are hotter and colours like yellow are cooler.<br>What is unusual is that black is the coolest! This is not what I was expecting. I was expecting for the darkest colour to be the hottest, but it is probably how we mixed the colours together. I think the 'black' is more of a green/red than a true black. |

## Procedure:

1. Cut holes in plastic tubs for the lights.(adult needed to cut holes)
2. Insert lights.(adult needed to help)
3. Thermometers.(adult needed to cut holes)

## Problems that occurred:

Light was not spread out evenly. Not all jars would get the same amount of light. We solved this by getting another light.

## How to operate the model.

Step one: Plug in lamp cords. Take off the lid of all jars and insert the probe of the thermometer into all of the jars.
Step two: Put on lids and turn on lamps.
Step three: Wait ten minutes before recording the temperature.

| Temperature recordings | | | | |
|---|---|---|---|---|
| | Before light: | 10 mins after light on: | 20 mins | 30 mins |
| yellow | 20.0°C | 22.2°C | 24.7C°C | 27.2 |
| red | 20.3°C | 25.5°C | 30.2°C | 34.7°C |
| green | 20.1°C | 23.8°C | 26.0°C | 28.2°C |
| blue | 20.5°C | 25.8C°C | 28.1°C | 30.2°C |
| Purple | 20.7°C | 26.4°C | 31.4°C | 36.1°C |
| black | 20.8°C | 22.4°C | 24.4°C | 26.6°C |

# 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: Rose Douglas ID: 0560-006

SCHOOL: Rose Park Primary School

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

~~to~~ Sow Show how temperature of colours change in different ways.

**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 |
|---|---|
| ~~to~~ thermal risk is lamps/bulbs will get very hot. | wait 10 minets after turning off lamp before touching the bulb. |
| Electrical risk: two Power points. | Put powel points in before turning on bulbs. |

(Attach another sheet if needed.)

**Risk Assessment indicates that this activity can be safely carried out**

RISK ASSESSMENT COMPLETED BY (student name(s)): Rose Douglas

SIGNATURE(S): Rose Douglas

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

TEACHER'S NAME: Kellie Mensforth

SIGNATURE: KMenf DATE: 28/6/21