SASTA OLIPHANT SCIENCE AWARDS

SOUTH AUSTRALIAN SCIENCE TEACHERS ASSOCIATION

Highly Commended

Scientific Inquiry

Year R-2

Moss Crone

Dara School

ROWE SCIENTIFIC PTY. LTD. www.rowe.com.au

Australian Government
Department of Defence

Government of South Australia
Department for Education

SASTA South Australian Science Teachers Association

Scientific Report

(Dictated by Moss, typed by mum)

Questioning and Predicting

How far can a balloon rocket go across a string with a Lego car attached?

One year ago, when I did HIPPY (Home Interaction Program for Parents of Youngsters) I had to make a balloon rocket and that's where I got my idea from.

I wanted to test different ways it can go. I wanted to test straight string, upwards sloped string and string going down. I also wanted to do 2 balloons because I thought it would go further.

My prediction is that downwards would go the furthest because of the slope going down and the balloon's air and the force.

Planning and Conducting

I will be measuring how far the balloon goes. The things I will change are the size of the balloon and the slope of the string.

Steps:

1. Put chairs on opposite sides of a room and tie string on one.
2. Before you tie the string to the other chair you need to put a straw through the string.
3. Tie the string to the other chair and get a balloon. Tape the balloon under the straw. Make a Lego car and stick it on the top of the balloon.
4. Blow the balloon up and get the balloon into the starting position. Measure the balloon to make sure it is the right size. You can use a peg to hold the balloon shut if you want.
5. Let go!
6. Measure how far it travels.
7. Blow the balloon up again and take it back to the start. Before letting go measure the balloon so it's the same as the other tests.

Equipment and materials

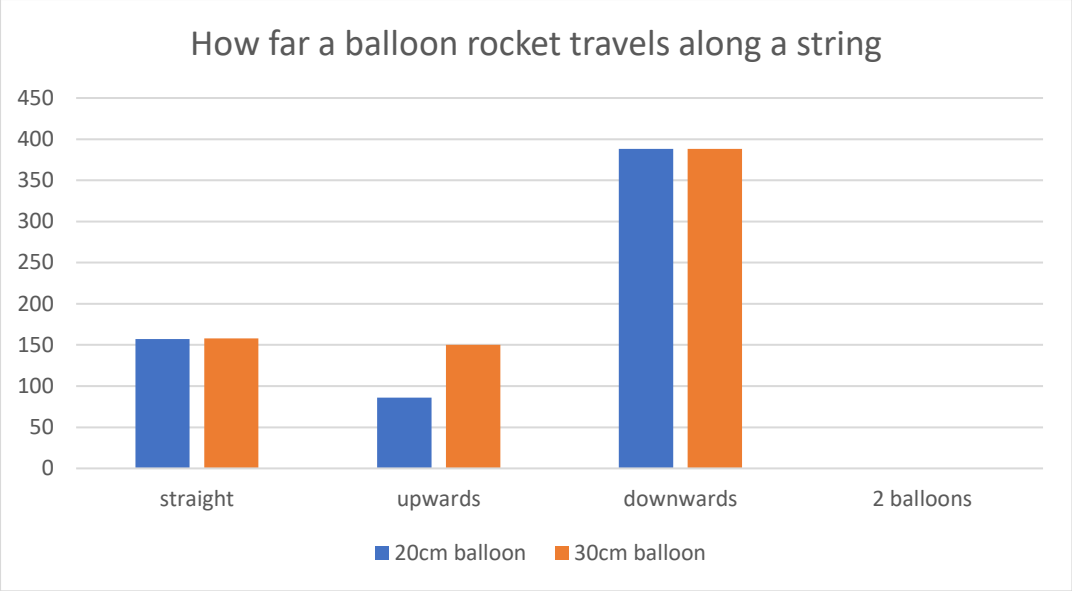
- Chairs
- String
- Straw
- Lego car
- Tape
- Balloon
- Measuring tape

Risks

- If you let go of the measuring tape you could you cut your finger or hurt it. You might have to have 2 people hold the measuring tape. The person holding the end bit slowly walks over to the other person to make the measuring tape go back in.
- The balloon could burst if there's too much air. You need to have a 30cm and 20cm balloon.

Processing and analysing data and information

Test condition	**Measurement**
Straight – 1 balloon, 20cm	90cm – I decided to redo this test because I didn't let go of the balloon properly and it made me think I should try it again.
Straight – 30cm balloon	158cm
Upwards – 20cm balloon	186cm
Upwards – 30cm balloon	150cm
Downwards – 20cm balloon	388cm
Downwards – 30cm balloon	388cm
2 balloons	Test didn't work
Straight – 20cm balloon	157cm



The straight string didn't go that far. The big balloon and the small balloon went nearly the same length.

The 20cm balloon going up didn't go that far compared to the 30cm balloon.

The downwards balloons both went very far.

This is what I thought would happen.

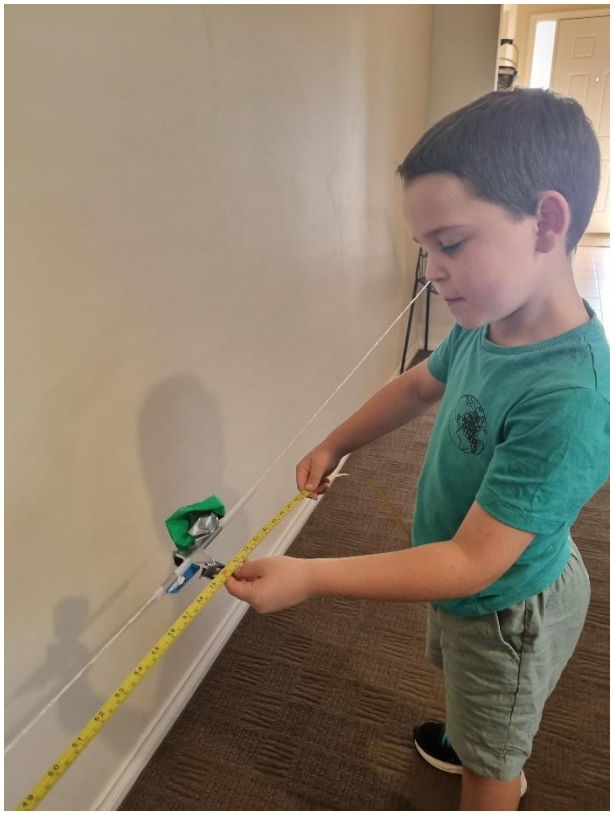
We couldn't fit 2 balloons on to the Lego car so we couldn't do that part of the experiment. That's why you don't see any columns for 2 balloons.

Evaluating

Next time we might change the down slope test so that slope isn't as big. It might change how far the balloon goes. This means I could check the difference of the big and small balloons for that test.

I wonder how far could a balloon go without the Lego car on it. Does the Lego car make a difference?

I think it is a good science experiment for children to do because it is fun and it teaches people how forces can work.



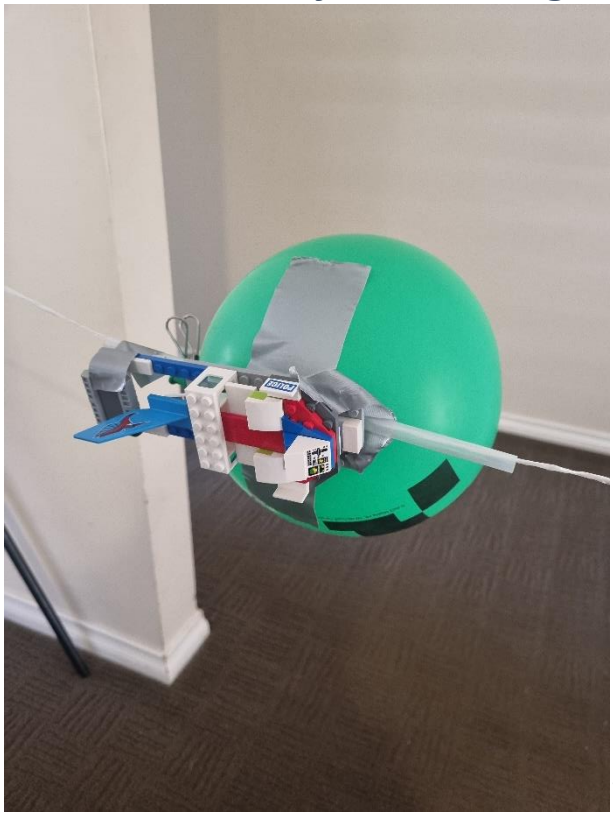
This is me measuring how far my balloon went

We were trying to see if 2 balloons could fit, but they couldn't!

Testing the upwards slope

Watching the test happen

This is me holding the end of the balloon with a peg so the air didn't come out for the straight slope

 *This is a picture of my creation and the balloon together, held with duct tape*

References

Book	**Information found**
Experiments with Forces by Isabel Thomas 2016	"When the air rushes out of the balloon in one direction it pushes the balloon in the other direction" page 19 I learnt that friction is a force when thing rubs together, and friction tries to stop the movement.
Forces and Motion by Steve Parker 2004	I learnt about when the balloon is moving forwards then the air moves backwards which is the same amount of force, but they are going in the opposite way. This is Isaac Newton's rule.
Air and Water by Chris Oxlade 2018	The small balloon goes not as far as the big balloon because the big balloon has more pressure. Long balloons might be better than big fat balloons because the air comes out of them differently. Next time I would try a different shape balloon for my experiment.

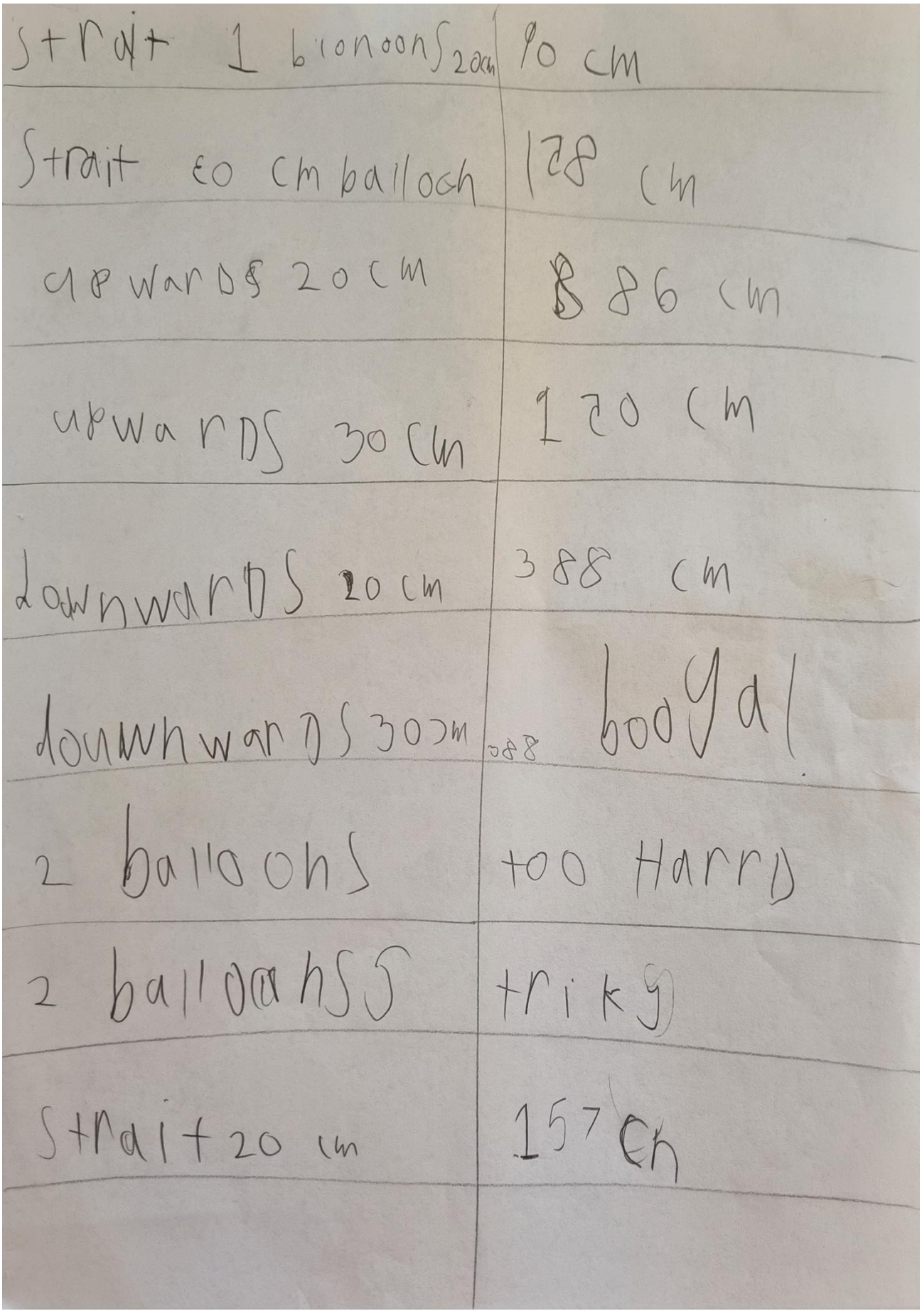
Word Count: 809

Moss's Logbook

(Typed by Moss)

3 April	Mum told me about the science competition. We looked at the categories. I chose science inquiry.
15 April	Came up with a good plan. We made a list of things that we need.
16 April	We collected the data.
17 April	We started my report.
27 April	We did more of the report. We added photos to the report!
29 April	We put some books on hold at the library about forces.
9 May	I got the books that I put on hold at the library.
11 May	We read some of the books I put on hold from the library.
20 May	Did the risk assessment.
25 May	Finished the report.

Raw Data


strait 1 balloons 20cm 90 cm
strait 60 cm balloch 178 cm
upwards 20 cm 886 cm
upwards 30 cm 120 cm
downwards 20 cm 388 cm
downwards 30cm 388 boyal
2 balloons too Harry
2 balloons tricky
strait 20 cm 157 cm

OSA RISK ASSESSMENT FORM

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

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

STUDENT(S) NAME: Moss Crone ID: 0131-003

SCHOOL: Dara School

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

test how far can a balloon locket go With a lego car on top.

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? **Only batteries can be used for Models & Inventions entries*
- 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
balloon could pop	don't blow it up too big
sarp Measuring tape	Careful and slow, two People
~~the~~ trip on the sting	watch where your going

(Attach another sheet if needed.)

Risk Assessment indicates that this activity can be safely carried out

RISK ASSESSMENT COMPLETED BY (student name(s)): Moss Crone

SIGNATURE(S): Moss

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

TEACHER'S NAME: Sue Gerschwitz

SIGNATURE: DATE: 27.5.24.