

## CBA1 Extended Experimental Investigation

### Introduction

I chose to do an egg drop in which the variables were height we use a plastic bag as the parachute I was actually surprised at how good it worked as a parachute worked the height were 4.5m, 3.5m and 2.5m. Here are my results.

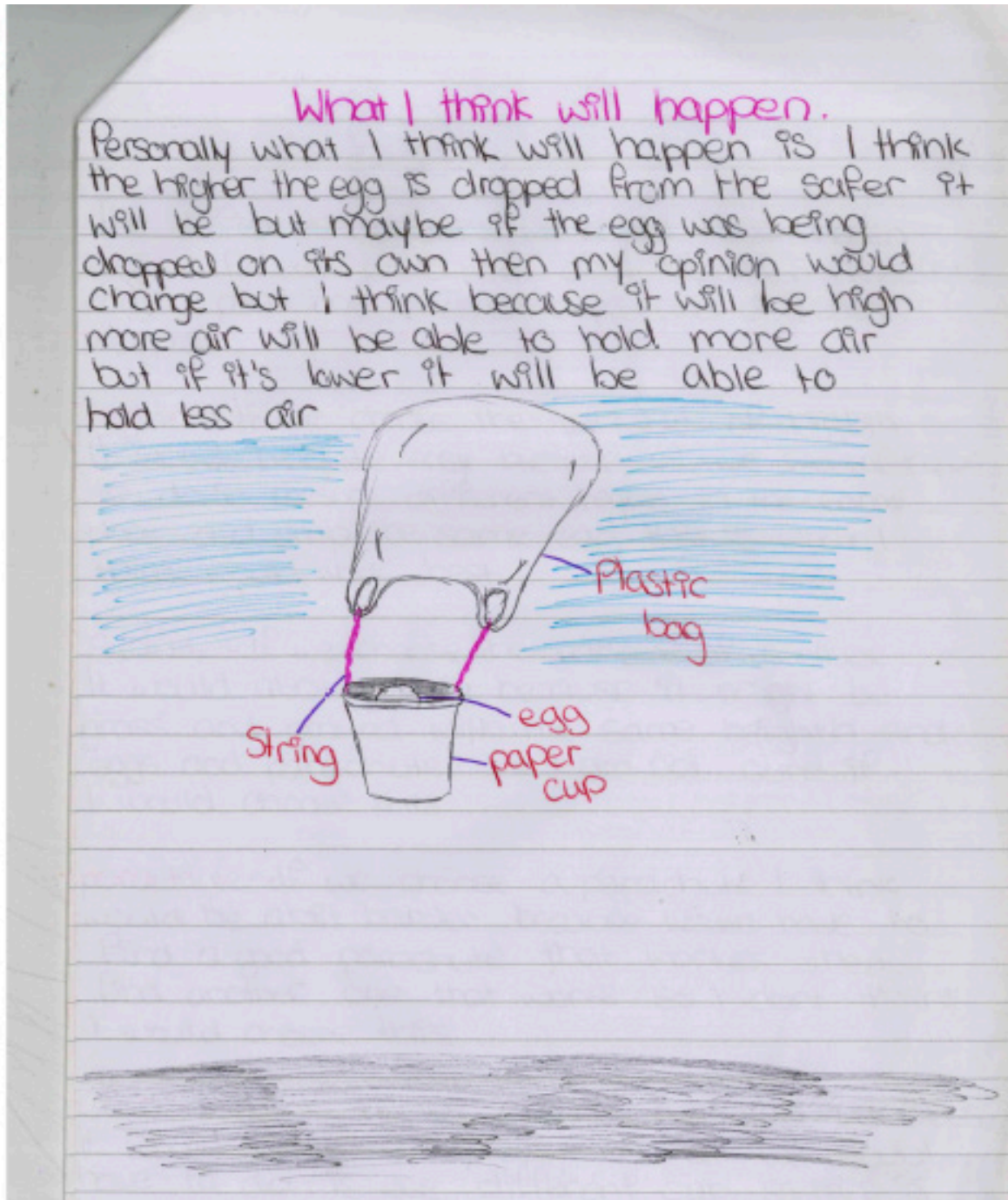
### Investigation

The topic we chose was to see at which height would be the best to drop an egg from I have always found eggs interesting because of how fragile they are when we're thinking about eggs and heights like high, medium and low we automatically think low would be the safest I investigated whether that was true or not.

### Background Research

You may be wondering why I pick an egg drop my main reason is because we did a minor egg drop in primary school and I found it very fascinating how the slightest impact to an egg can make it break.

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1. The student makes a simple prediction with justification.

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### Variables

The different variables we could have chosen are a few, we could have done height, surface (grass/rd), the parachute, different cups and different weights.

**height** ~ If we choose the variable of height it would be quite easy because all we would have to do is measure different heights in the same place and drop the same egg this is what I think would work best.

**Surface** ~ If we choose the variable of surface it would also be easy because it might be grass and ground with the same height and eggs and parachute but I am not sure if I would choose this.

**parachute** ~ If we choose a parachute I think would be a bit harder because would have to find a good parachute that works then find another one that works so I don't think I would choose this.

**Cups** ~ I think if we choose the cup variables it would be extremely easy as all we would have to do is use different cup so this is one I will definitely have as an option.

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**weights** ~ If we chose the weight variable it wouldn't be too hard as all we would have to do is get two eggs at two different weights.

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### Equipment

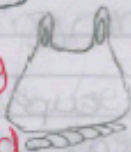
The equipment wasn't alot but wasn't very small either.

I used

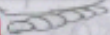
- eggs



- plastic bag



- wool thread



- paper cup



- Kitchen tissue



- Screw driver



- Markers



- Weighing machine



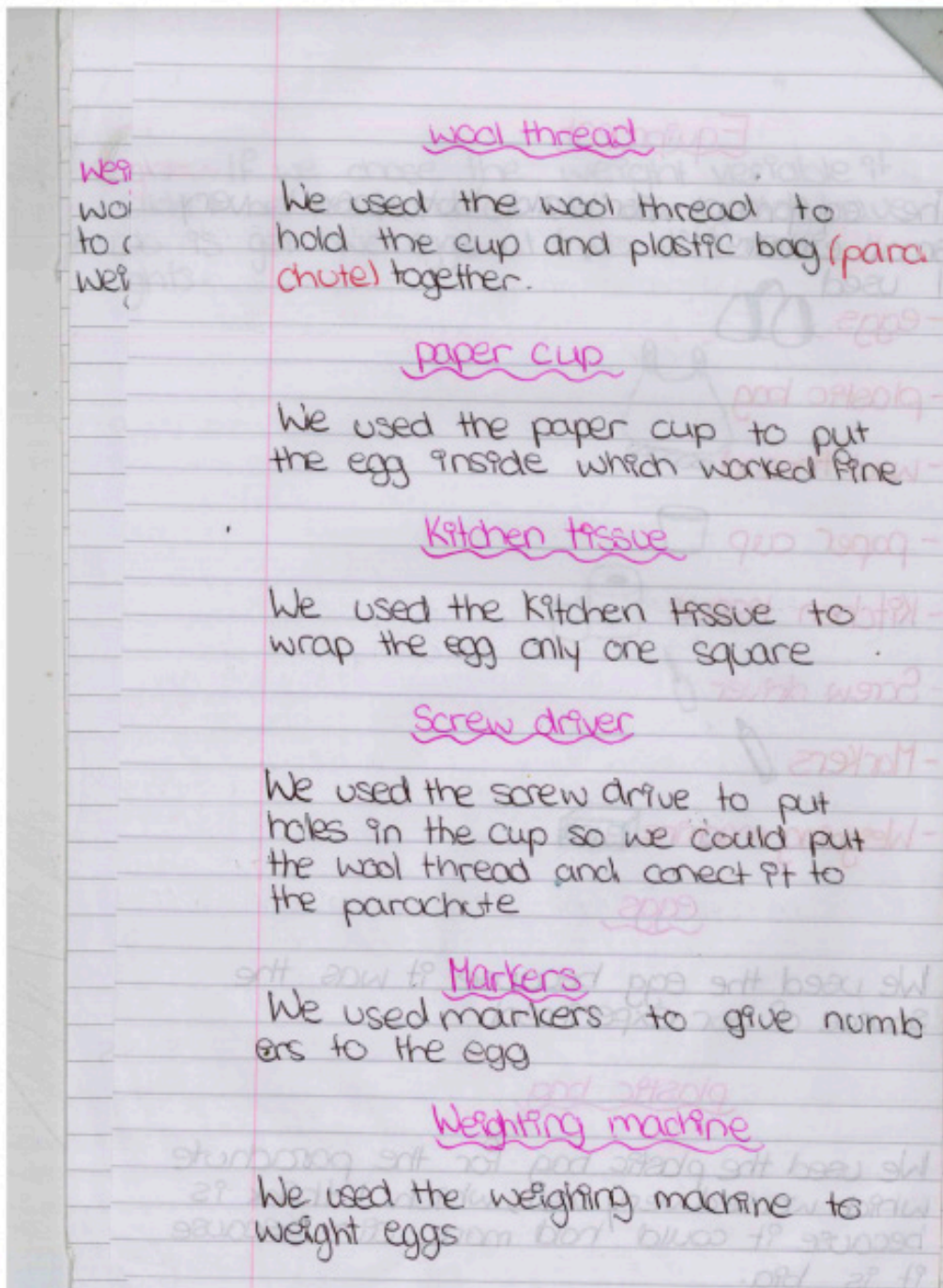
eggs

We used the egg because it was the source of our experiment.

plastic bag

We used the plastic bag for the parachute which worked very well, which I think is because it could hold more air because it is big.

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### Tasks

The first task that needed to be carried out was making the parachute which did not take long as all we had to do was connect the plastic bag with the cup which we did by connecting them with string.

The next task we faced was finding a good place to drop the egg from which we picked an open space towards the back of the school and with finding where to drop it from we also had to pick which heights we would drop it from

In which we chose 4.5m, 3.5m and 2.5m We also needed to count up all of our results for our graph which you will see in the next few pages

Overall we were able to do all of the tasks required.

2. The student describes a simple method to record data although the process lacks some detail.

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### Safety Procedure

The main safety procedure was mainly about where we were dropping the egg from because it was quite high so we had to make sure what ever we were standing on was sturdy or else someone might've hurt themselves.

### Procedure

The procedure we used was drop the egg then take down results then repeat that process over and over again we used a lot of eggs because we had to make sure our results were accurate.

We each brought in about 4 eggs and weighed them to make sure they were the same weight the people I worked with were

3. Outlines main safety consideration.



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Raw Data

	Broke	Safe
2.5m		
3.5m		
4.5m		

4. Raw data recorded


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### Observation

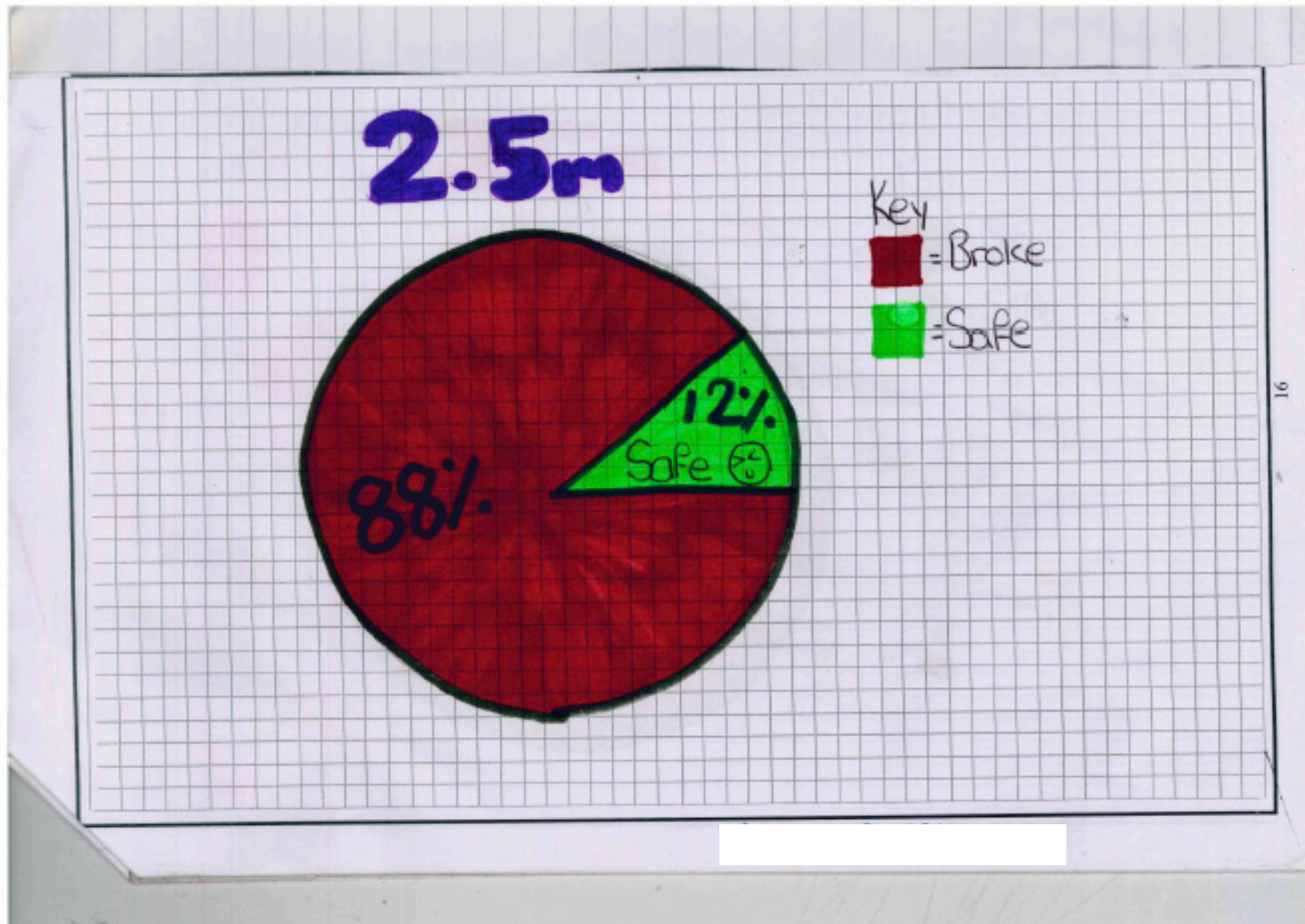
In the first week we started, we started with 4.5m which was the highest the first thing I noticed was that because it had more time to float down it was able to hold more air which made it come down even slower which was good as it helped the egg not to crack.

In the second week we tried it from 3.5 metres which worked a bit overall it wasn't the best because just when the air would get in the bag it would hit the floor and would sometimes break.

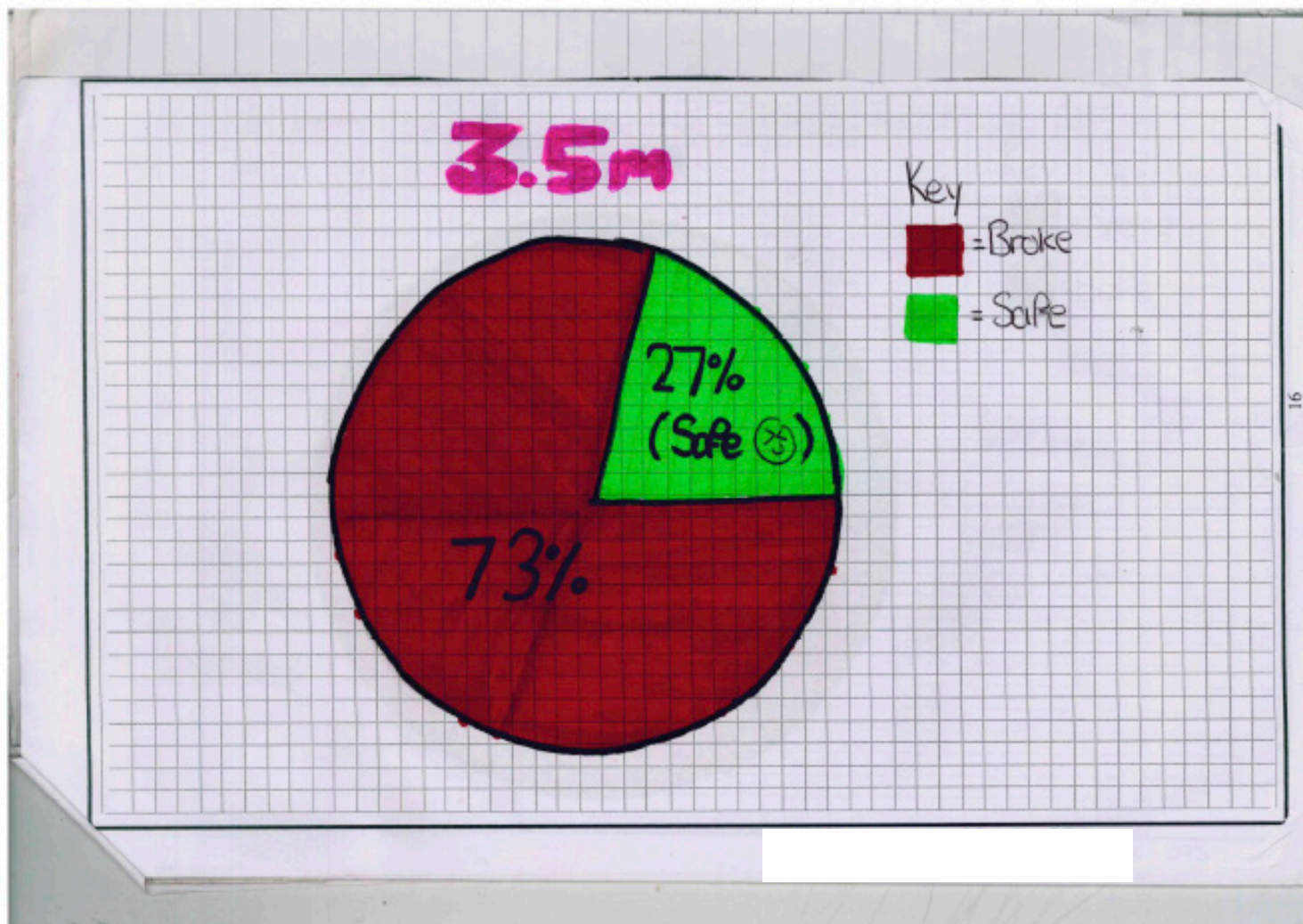
In the third week we tried it from 2.5 metres which didn't really work very well as the parachute wasn't able to catch any air which made it hit the ground more forcefully but some times it wouldn't break but most of the time it did.

on the next page there are some pie charts to show how the went 

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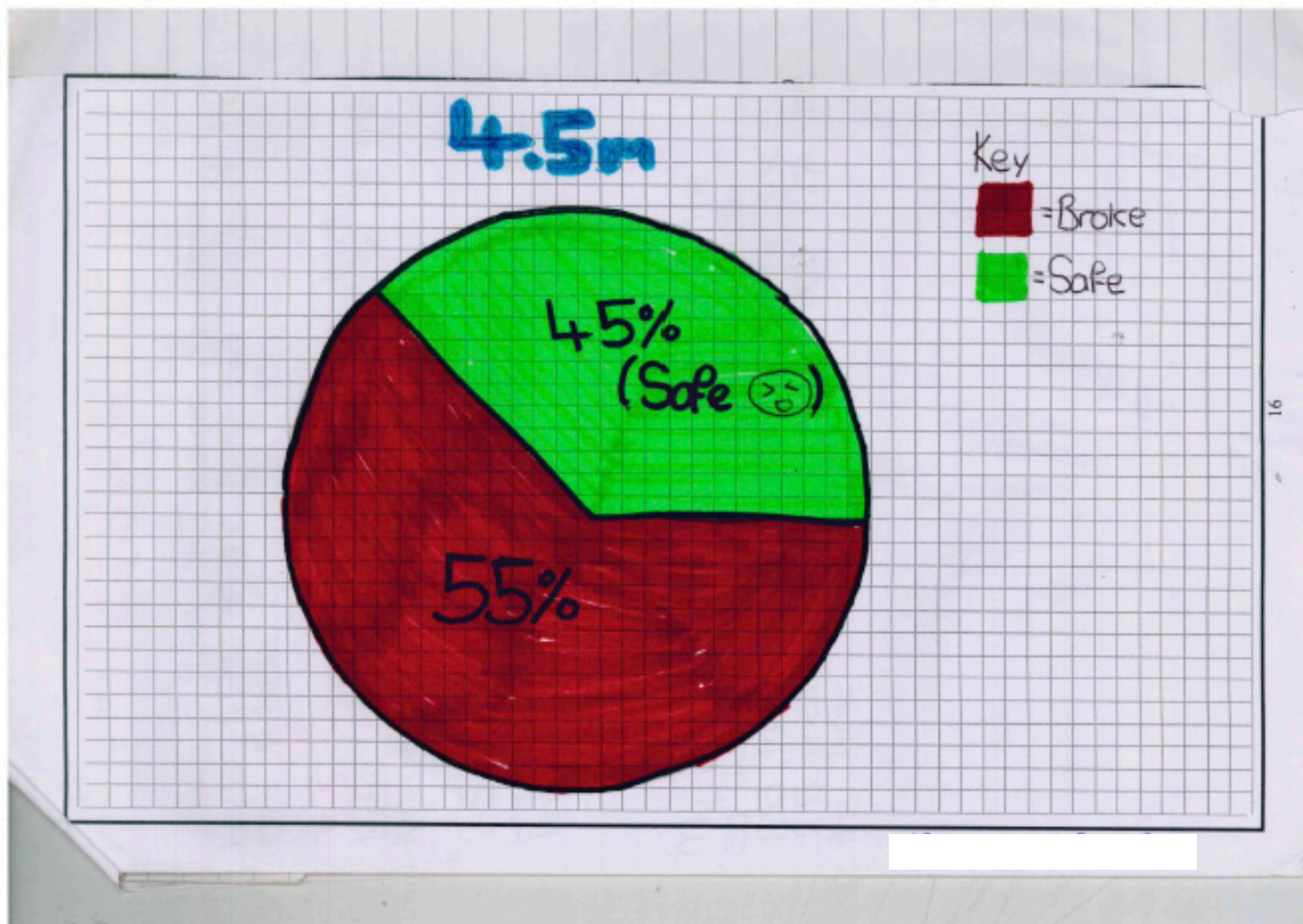


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5. Simple charts are used to present results but there are errors; the 27% sector is drawn smaller than a quarter of the pie-chart

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### Calculations

4.5 → From 4.5 metres it didn't break 45% of the time but 55% of the time it broke.

3.5 → From 3.5 metres it didn't break 27% of the time but 73% of the time it broke.

2.5 → From 2.5 metres it didn't break 12% of the time but 88% of the time it broke.

### Evaluation of results

My evaluation of results are that the egg was safest at 4.5 metres because it had the biggest percentage of safety the 2.5 metres did the worst as only 12% of the time it was safe.

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### Comments.

I wish we had a bit more time so we could do the drop more times to be more positive but overall I am happy with how the investigation went.

### Final report

My final report is my hypothesis was right the highest height was the safest because the parachute was able to catch more air but maybe if the parachute was different or the variables were different our results would change but overall 4.5 metres out of the rest was the best height to drop the egg from.  
So **is the lowest height the safest?**  
The answer is no. This is what the answer to my investigation is:

Thank you for reading

6. Draws a conclusion based on data collected

Overall judgement:  In line with expectations