

Lesson 8 - Investigating speed

Physics - KS3

Forces and Motion

Mrs Wolstenholme



Complete the task

A parachute

1. Which force pulls the parachute towards the Earth?
2. Which force eventually stops the parachute accelerating?
3. As the speed increases, what happens to the air resistance?



Investigation

As the area of the parachute increases, the drop time will (**increase/decrease**)

$$\text{Area} = \text{length} \times \text{width}$$



Method

Read the method and identify these:

- a) Independent variable – the variable you will change
- b) Dependent variable – the result that you will measure
- c) Control variables – the variables that must stay the same for every test

1. Attach the smallest parachute to the tennis ball using sellotape.
2. Drop the parachute and make sure the drop height is the same each time.
3. Measure the time taken to for the parachute to fall to the floor and record the result into your results table.
4. Repeat this measurement 3 times
5. Repeat steps 1 – 5 with each different size of parachute



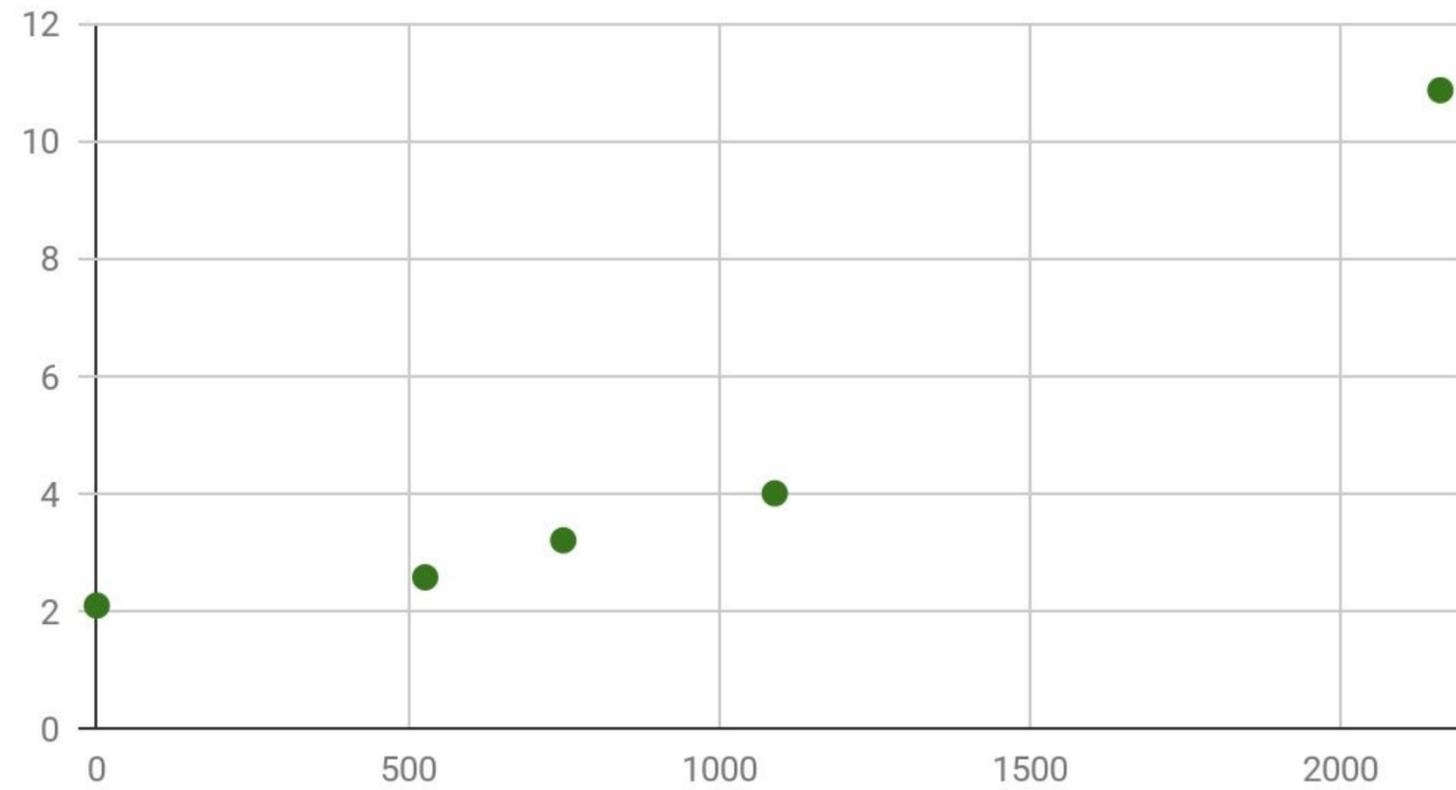
$$\text{Mean} = \frac{(\text{Test 1} + \text{Test 2} + \text{Test 3})}{3}$$

Area (cm ²)	Drop Time (s)			
	Test 1	Test 2	Test 3	Mean
0	2.12	2.05	2.10	
528	2.53	2.62	2.57	
750	3.13	3.18	3.30	
1090	3.83	4.02	4.15	
2160	11.19	10.53	10.87	



Area (cm ²)	Mean Drop Time (s)
0	2.09
528	2.57
750	3.20
1090	4.00
2160	10.86

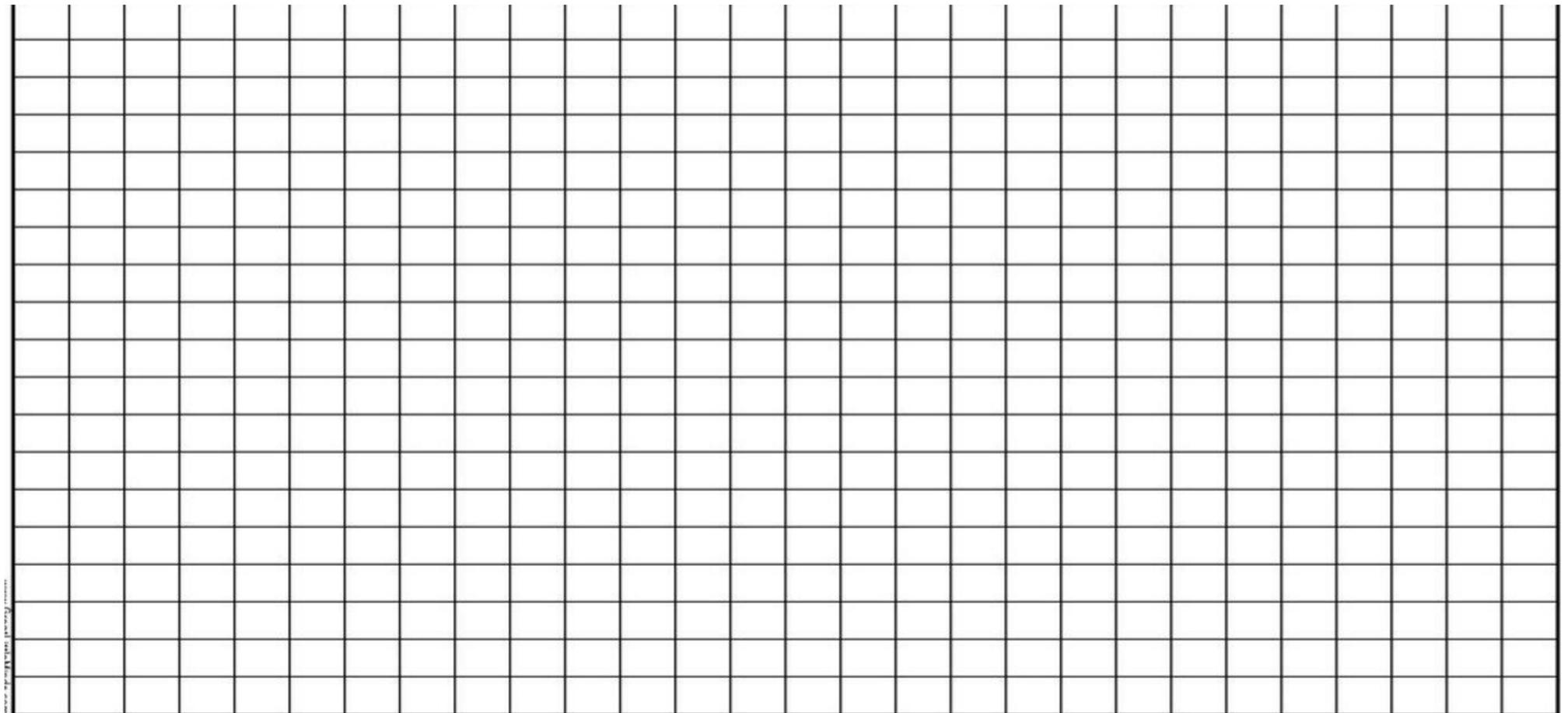
Mean Drop Time (s)



Area (cm2)



Area (cm ²)	Mean Drop Time (s)
0	2.09
528	2.57
750	3.20
1090	4.00
2160	10.86



Conclusion

1. How did the area of the parachute affect the drop time?
2. What is the evidence (use at least 2 sets of results as example)
3. Does this support/ agree with your hypothesis?
4. Can you explain why the surface area affects the drop time this way?



Conclusion

1. How did the area of the parachute affect the drop time?
The larger the area the _____ the drop time.
2. What is the evidence (use at least 2 sets of results as example)
When the area was _____ the drop time was _____. When the area was _____ the drop time was _____.
3. Does this support/ agree with your hypothesis?
This means my hypothesis was _____.
4. Can you explain why the surface area affects the drop time this way?

