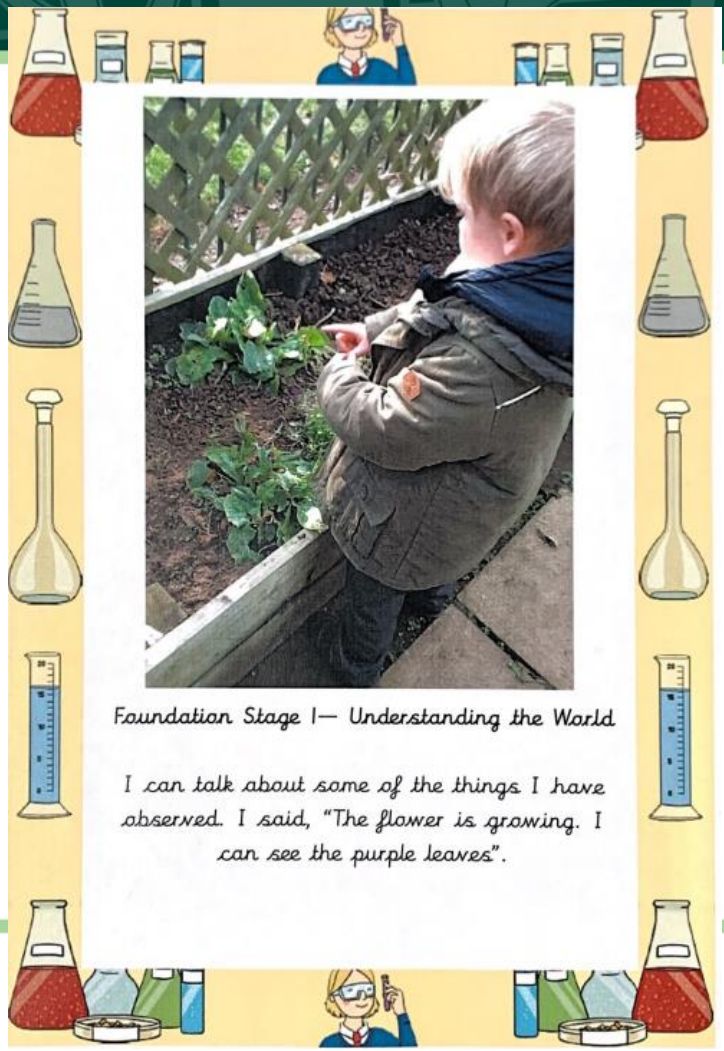
Progression in Science

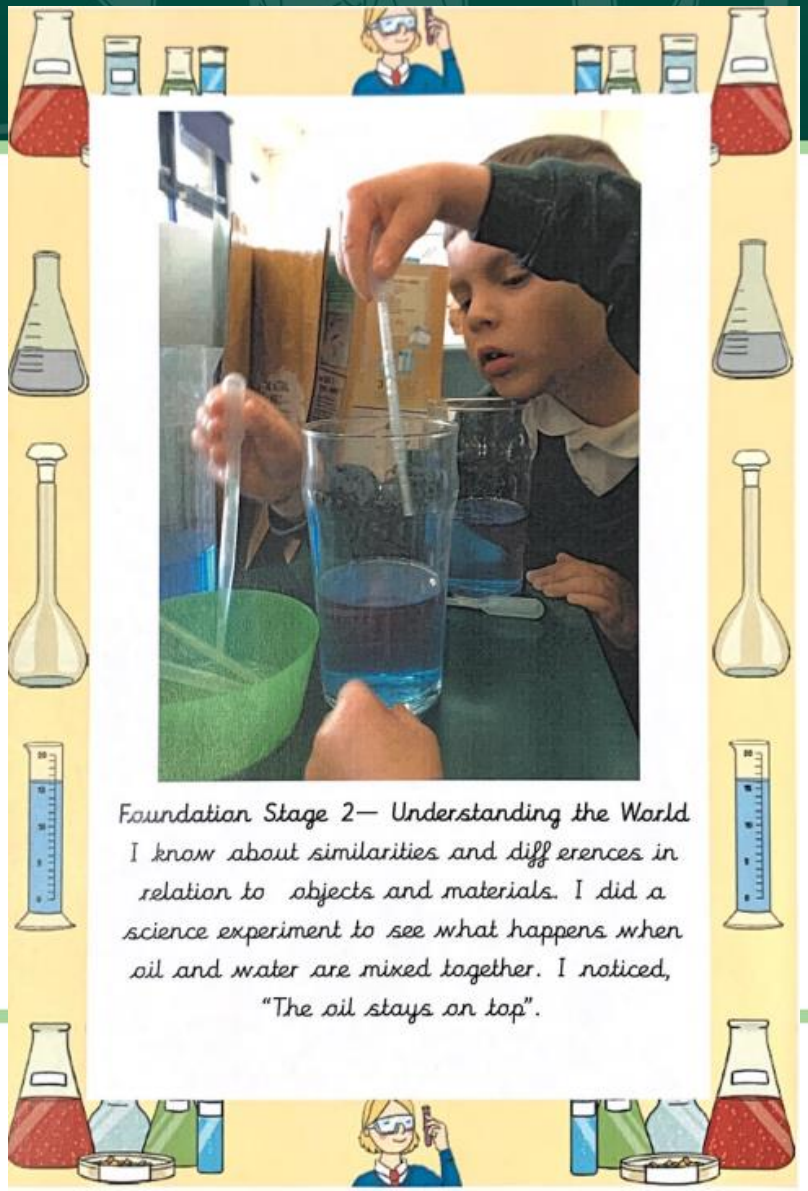
Working Scientifically

FS1



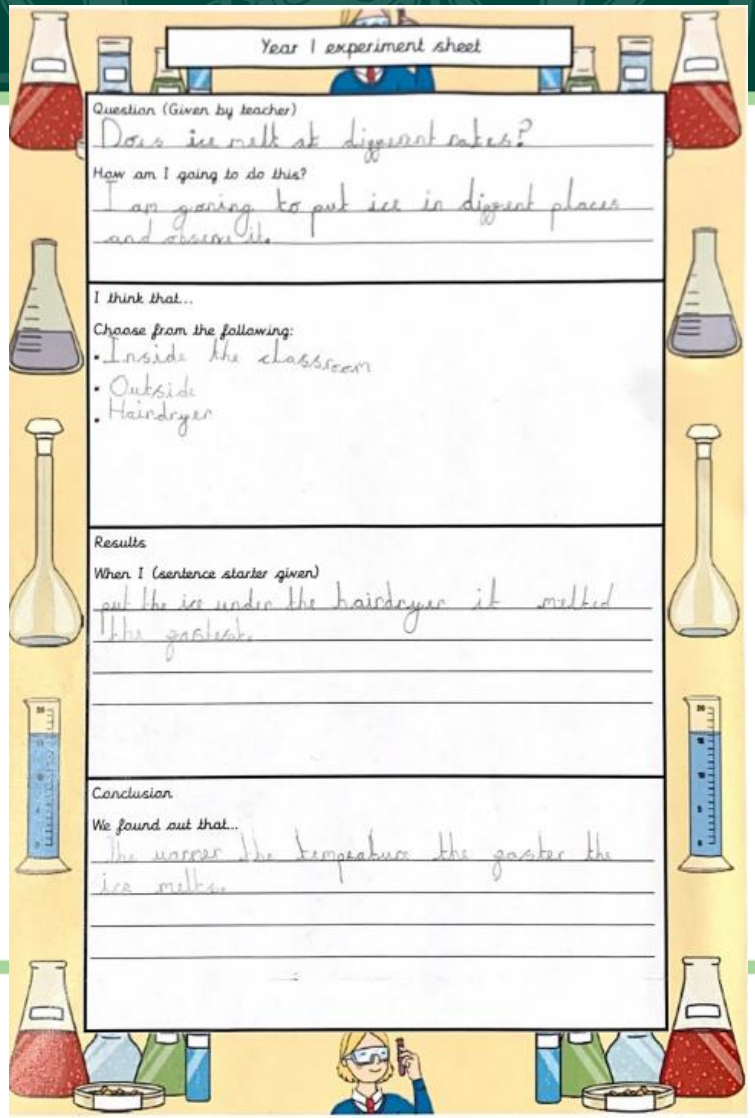
I can carry out an investigation

FS2



I can carry out an investigation

Year 1



Year 1 experiment sheet

Question (Given by teacher)

Does ice melt at different rates?

How am I going to do this?

I am going to put ice in different places and observe it.

I think that...

Choose from the following:

- Inside the classroom
- Outside
- Hairdryer

Results

When I (sentence starter given)

put the ice under the hairdryer it melted the fastest.

Conclusion

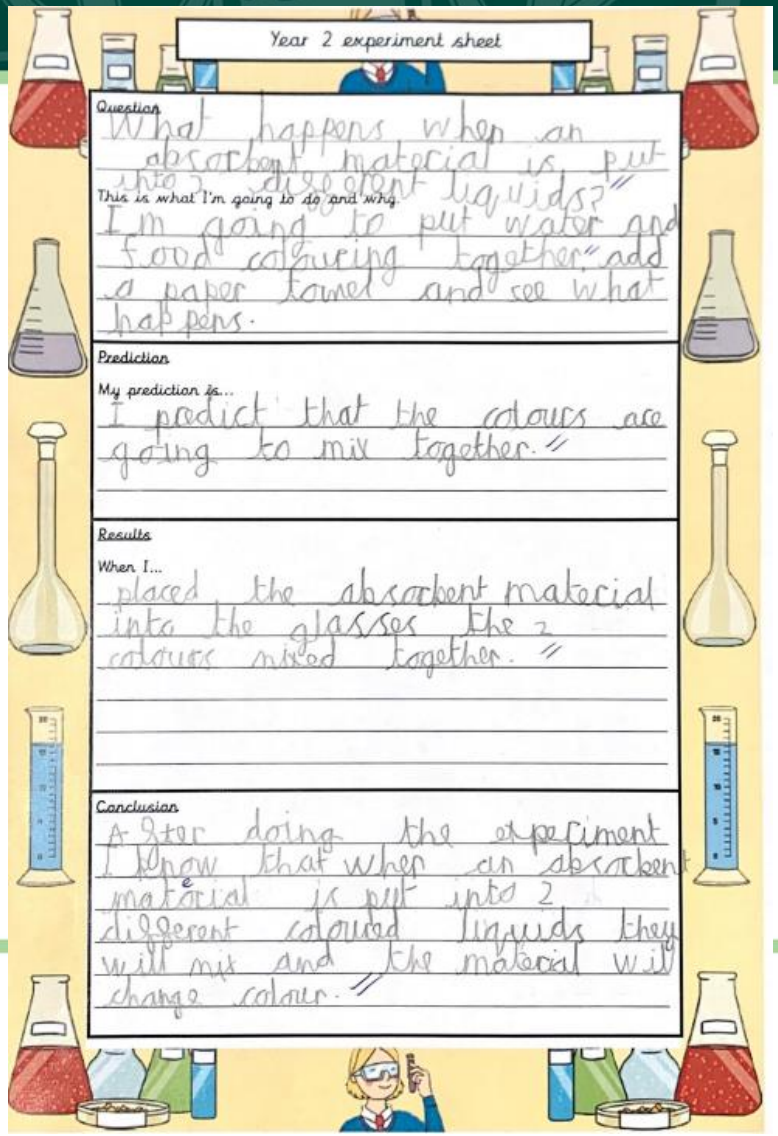
We found out that...

the warmer the temperature the faster the ice melts.

I can carry out an investigation

PENSHURST SCHOOL

Year 2



Year 2 experiment sheet

Question

What happens when an absorbent material is put into 2 different liquids?

This is what I'm going to do and why

I'm going to put water and food colouring together, add a paper towel and see what happens.

Prediction

My prediction is...

I predict that the colours are going to mix together.

Results

When I...

placed the absorbent material into the glasses the 2 colours mixed together.

Conclusion

After doing the experiment I know that when an absorbent material is put into 2 different coloured liquids they will mix and the material will change colour.

I can carry out an investigation

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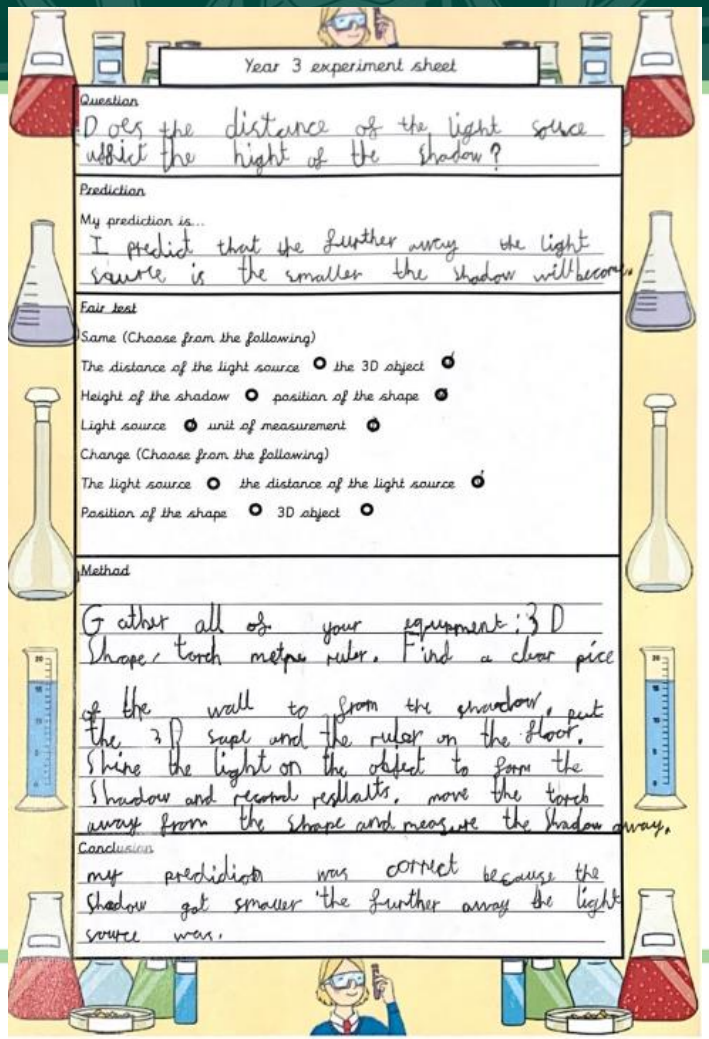
Year 3



Year 3 experiment sheet

Question

Does the distance of the light source affect the hight of the shadow?

Prediction

My prediction is...

I predict that the further away the light source is the smaller the shadow will become.

Fair test

Same (Choose from the following)

The distance of the light source ○ the 3D object ○

Height of the shadow ○ position of the shape ○

Light source ○ unit of measurement ○

Change (Choose from the following)

The light source ○ the distance of the light source ○

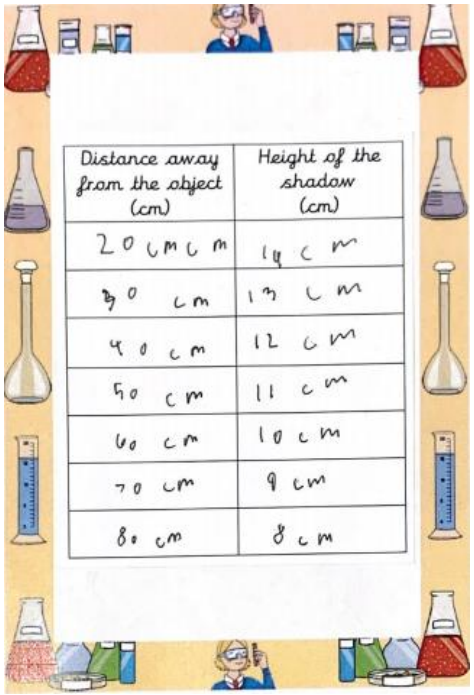
Position of the shape ○ 3D object ○

Method

Gather all of your equipment: 3D Shape, torch metre ruler. Find a clear pice of the wall to from the shadow, put the 3D sape and the ruler on the floor. Shine the light on the object to form the shadow and record resllults, move the torch away from the shape and measure the shadow away.

Conclusion

my prediction was correct because the shadow got smaller the further away the light source was.



Distance away from the object (cm)	Height of the shadow (cm)
20 cm	14 cm
30 cm	13 cm
40 cm	12 cm
50 cm	11 cm
60 cm	10 cm
70 cm	9 cm
80 cm	8 cm

I can carry out an investigation

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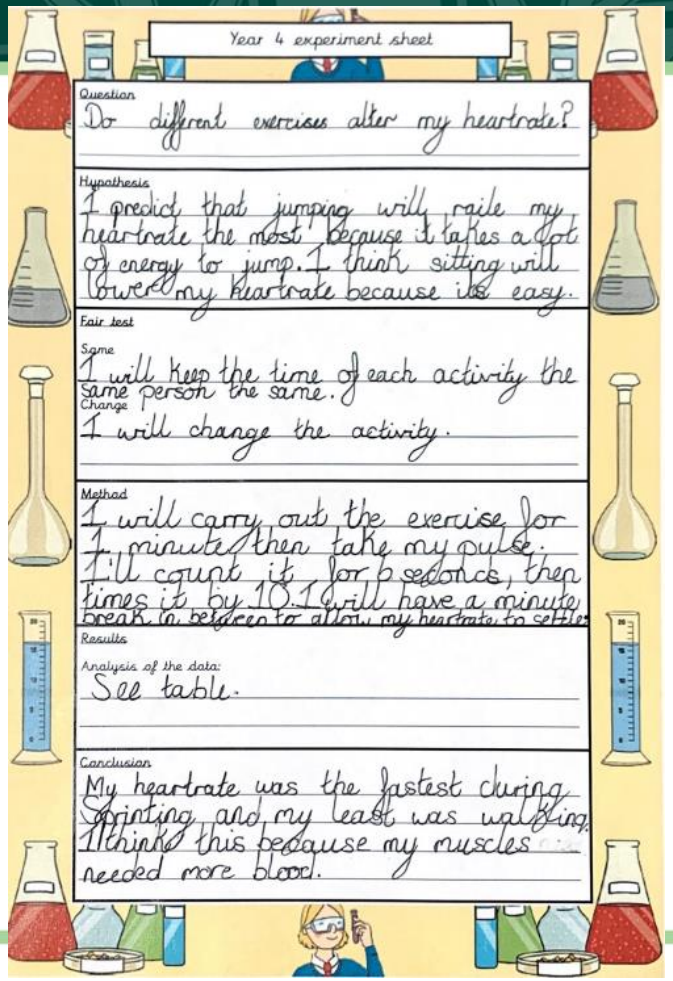
Year 4



Year 4 experiment sheet

Question
Do different exercises alter my heartrate?

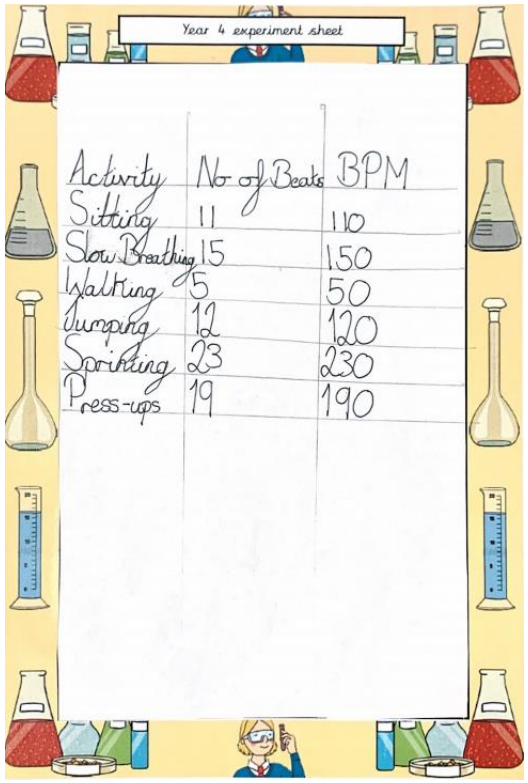
Hypothesis
I predict that jumping will raise my heartrate the most because it takes a lot of energy to jump. I think sitting will lower my heartrate because its easy.

Fair test
Same
I will keep the time of each activity the same person the same.
Change
I will change the activity.

Method
I will carry out the exercise for 1 minute then take my pulse. I'll count it for 6 seconds, then times it by 10. I will have a minute break in between to allow my heartrate to settle.

Results
Analysis of the data:
See table.

Conclusion
My heartrate was the fastest during Sprinting and my least was walking. I think this because my muscles needed more blood.



Year 4 experiment sheet

Activity	No of Beats	BPM
Sitting	11	110
Slow Breathing	15	150
Walking	5	50
Jumping	12	120
Sprinting	23	230
Press-ups	19	190

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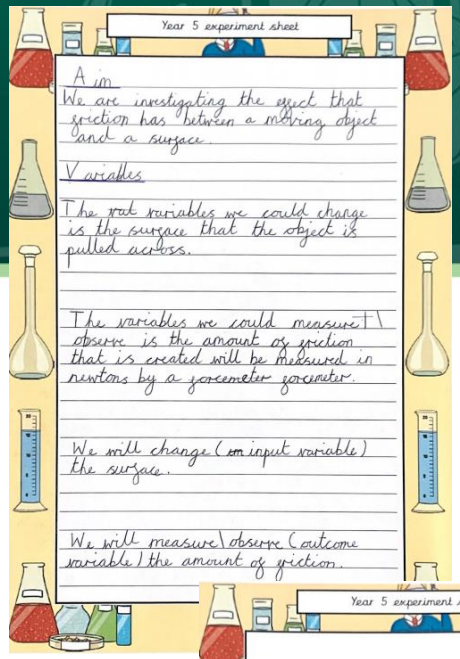
Year 5


Year 5 experiment sheet

Aim

We are investigating the effect that friction has between a moving object and a surface.

Variables

The risk variables we could change is the surface that the object is pulled across.

The variables we could measure / observe is the amount of friction that is created will be measured in newtons by a forcemeter forcemeter.

We will change (an input variable) the surface.

We will measure / observe (outcome variable) the amount of friction.

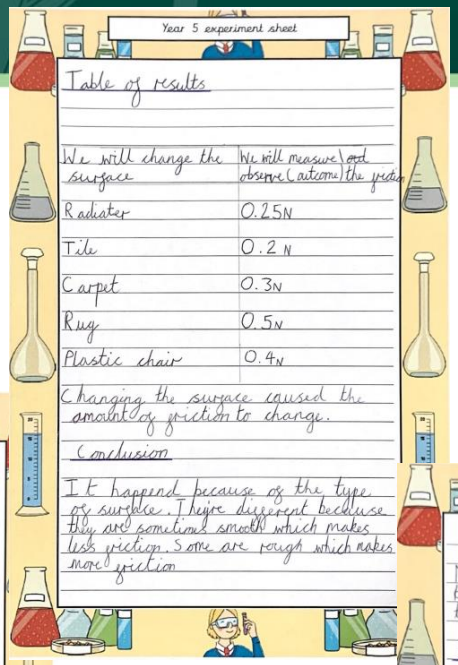

Year 5 experiment sheet

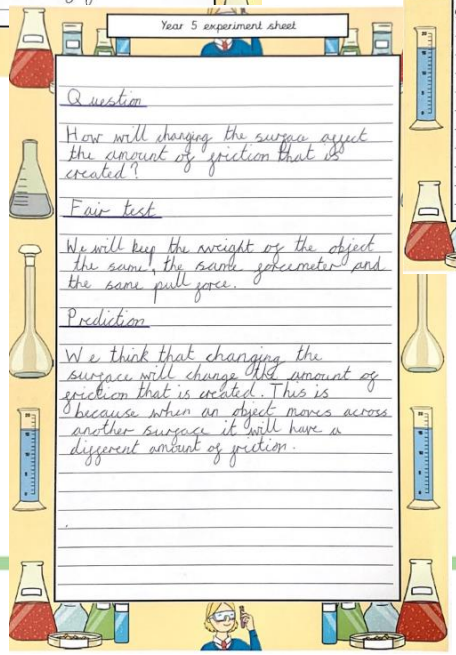
Table of results

We will change the surface	We will measure / observe (outcome) the friction
Radiator	0.25N
Tile	0.2 N
Carpet	0.3N
Rug	0.5N
Plastic chair	0.4N

Changing the surface caused the amount of friction to change.

Conclusion

It happend because of the type of surface. They're different because they are sometimes smooth which makes less friction. Some are rough which makes more friction


Year 5 experiment sheet

Question

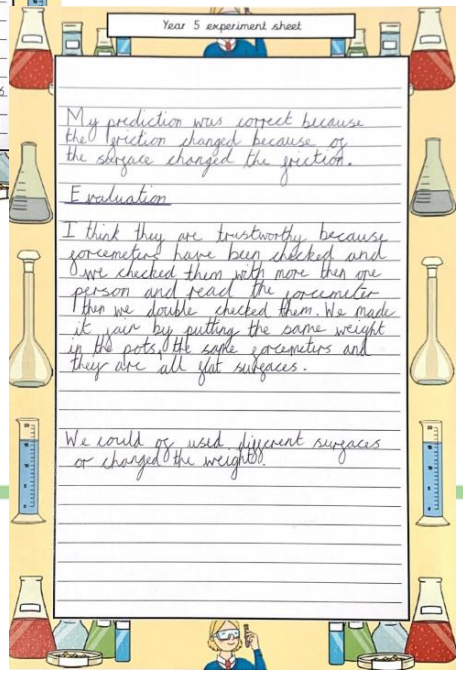
How will changing the surface effect the amount of friction that is created?

Fair test

We will keep the weight of the object the same, the same forcemeter and the same pull force.

Prediction

We think that changing the surface will change the amount of friction that is created. This is because when an object moves across another surface it will have a different amount of friction.


Year 5 experiment sheet

My prediction was correct because the friction changed because of the surface changed the friction.

Evaluation

I think they are trustworthy because forcemeters have been checked and we checked them with more than one person and read the forcemeter then we double checked them. We made it fair by putting the same weight in the pots, the same forcemeters and they are all flat surfaces.

We could of used different surfaces or changed the weights.

I can carry out an investigation

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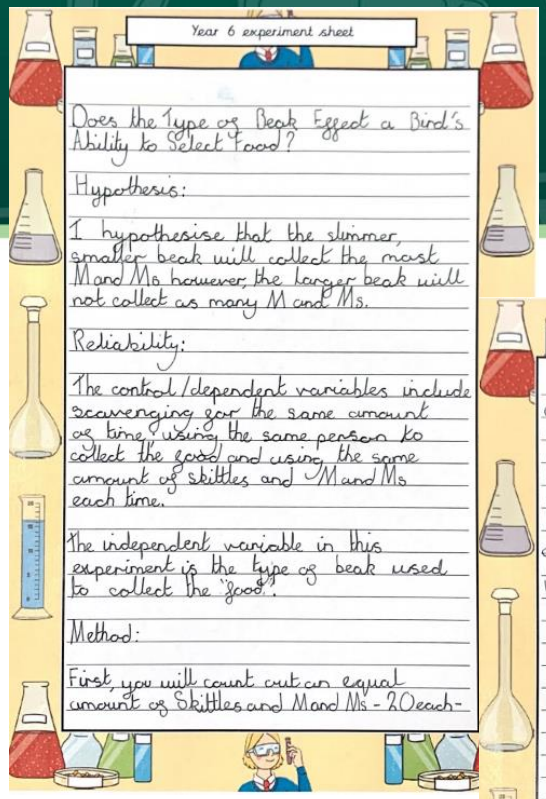
Year 6



Year 6 experiment sheet

Does the Type of Beak Effect a Bird's Ability to Select Food?

Hypothesis:

I hypothesise that the slimmer, smaller beak will collect the most M and Ms however the larger beak will not collect as many M and Ms.

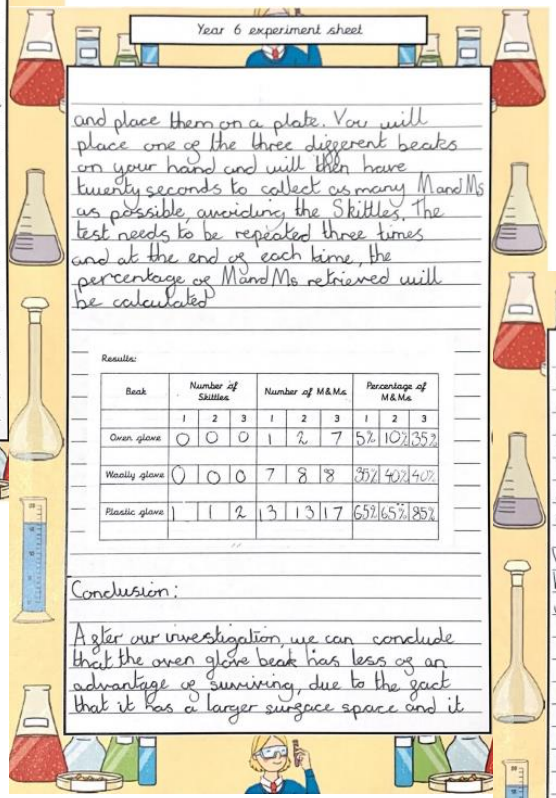
Reliability:

The control/dependent variables include scavenging for the same amount of time, using the same person to collect the food and using the same amount of skittles and M and Ms each time.

The independent variable in this experiment is the type of beak used to collect the "food".

Method:

First, you will count out an equal amount of Skittles and M and Ms - 20 each -



Year 6 experiment sheet

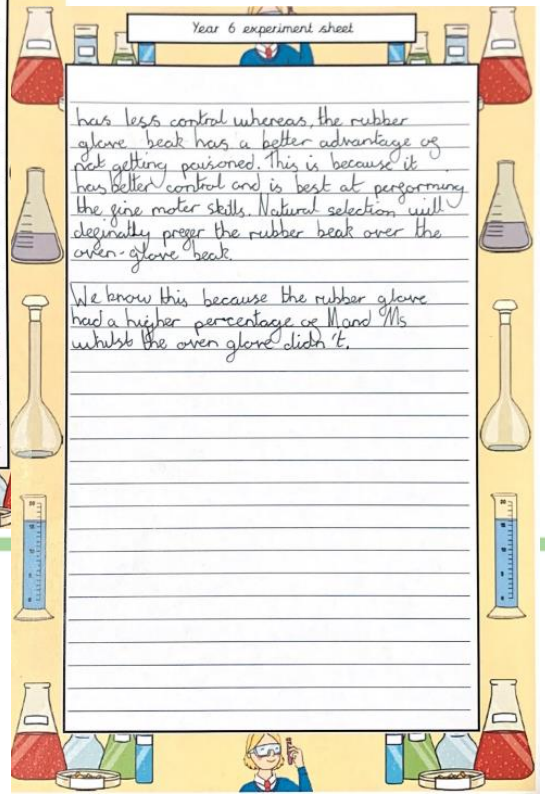
and place them on a plate. You will place one of the three different beaks on your hand and will then have twenty seconds to collect as many M and Ms as possible, avoiding the Skittles. The test needs to be repeated three times and at the end of each time, the percentage of M and Ms retrieved will be calculated.

Results:

Beak	Number of Skittles			Number of M&Ms			Percentage of M&Ms		
	1	2	3	1	2	3	1	2	3
Oven glove	0	0	0	1	2	7	5%	10%	35%
Woolly glove	0	0	0	7	8	8	35%	40%	40%
Plastic glove	1	1	2	13	13	17	65%	65%	85%

Conclusion:

After our investigation, we can conclude that the oven glove beak has less of an advantage of surviving, due to the fact that it has a larger surface space and it



Year 6 experiment sheet

has less control whereas, the rubber glove beak has a better advantage of not getting poisoned. This is because it has better control and is best at performing the fine motor skills. Natural selection will degradably prefer the rubber beak over the oven-glove beak.

We know this because the rubber glove had a higher percentage of M and Ms whilst the oven glove didn't.

I can carry out an investigation

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