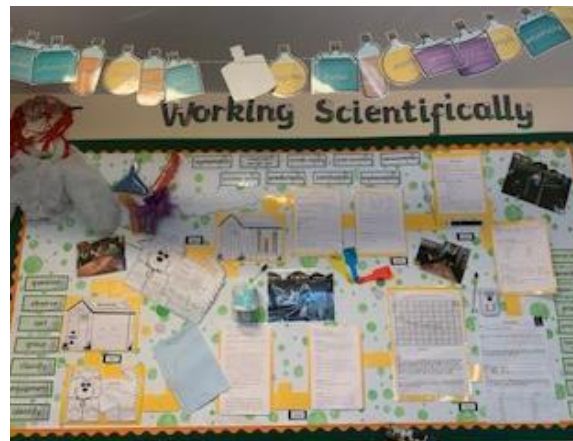








Science

Curriculum Progression

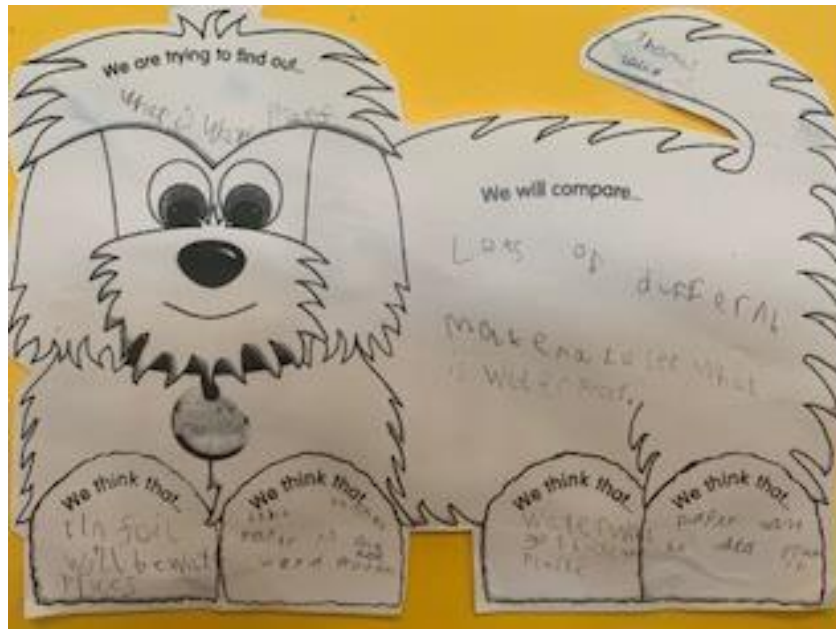
Strand- working scientifically



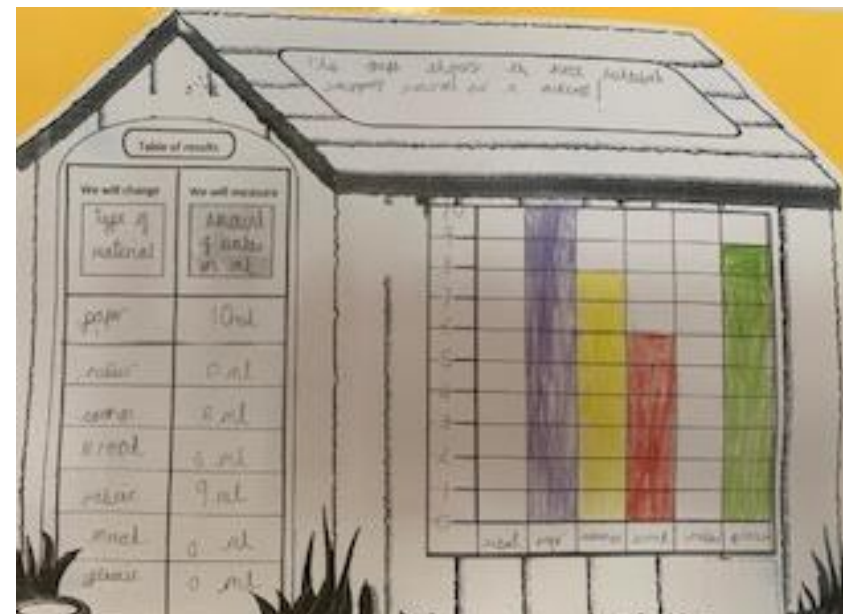
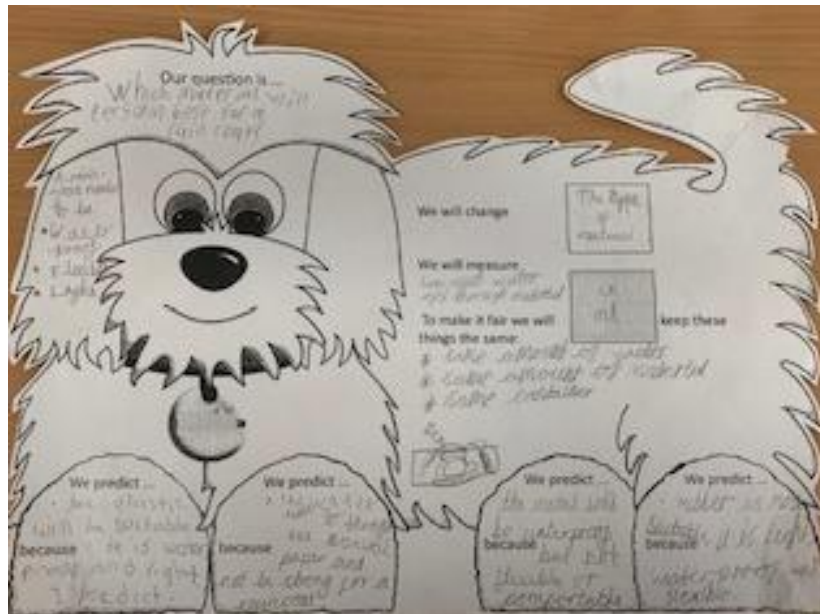
Foundation Stage: Children begin to ask and answer questions as a class. For example, which would be the most suitable material?

	Material	Prediction	Total
	Paper		3
	Plastic		11
	Wood		7
	Foil		3

Year 1: children perform simple tests.



Year 2: children use observations and ideas to suggest answers to questions. Then gather and record data to help in answering questions.






Year 3: children set up simple, practical enquiries and comparative and fair tests.

Investigation sheet

We want to find out which material is opaque

To make our test fair we are keeping these things the same: the place where we tested it, the torch, the object which made the shadow.
We are only changing the fabric.

To carry out our test we will need:-

 fabric
 torch
 object

First we will get some fabric.

Then we will shine a torch through the fabric to see if we make a shadow.
This is what we think will happen: we think the black fabric will be opaque and will not create a shadow.

We can record our results by using

diagrams bar charts drawings tables tally charts writing lists photographs

blue fabric	yellow cloth	dark cover	rainbow blanket
quite dark the shadow.	the shadow was grey. and the light was bright.	it did not make a shadow and it was dark.	it makes a dark shadow and it is light.

We found out that:- we found that the black cover was the best for Mr Brown's curtains.

We think this because:- the light did not shine through and it did not make a shadow. This means material is opaque.

Year 4: set up simple, practical enquiries and comparative and fair tests. Then make accurate measurements using standard units, using a range of equipment.

Investigation sheet

We want to find out Which temperature do Sugar cubes melt at best?

So that our investigation is a fair test we are keeping these things the same

We will keep the size of the container, the amount of water and the number of Sugar cubes

We will only change the same.

The variable we will change is the temperature of water.

We will need this equipment and these resources:-

- 1 Thermometer
- 2 Measuring container
- 3 water
- 4 3x cups
- 5 Sugar cubes
- 6 Kettle

This is what we will do-

Firstly, I will measure 50ml of cold, hot and room temperature water. Next I will take the measurement of the temperature in degrees. Then I will add the sugar cubes at the same time. At this point, I will make careful observations to discover how quickly the sugar melts in each cup.

We predict that
I predict that the sugar cube will dissolve quickest in the hot water.

We can record our results by using

cup, bottle, glass, can, tub, bowl, tray, tin, pot, jug, canister, jar, etc.

room temperature 34°	dissolved 2nd
cold water 17°	dissolved 3rd
hot water 67°	dissolved 1st

We found out that-

My prediction was correct because I predicted that the sugar cube would dissolve quickest in the hot water and that is exactly what happened. The sugar cube was the worst at dissolving in the cold water.

We think this is because-

The hot water is a higher temperature so the sugar melts quicker.

Year 5: children plan enquiries, including recognising and controlling variables where necessary.

THAT was scientific

Question How can we keep water even for longer?

hypothesis If we were to make a cup of water with different materials it would stay warmer for longer.

method

We needed a cup to put around a beaker cup of water, we used polystyrene that we would think would keep the water for a longer period of time. Next we filled 100ml of the water into the beaker and I took it away. After that I waited for three hours until it became

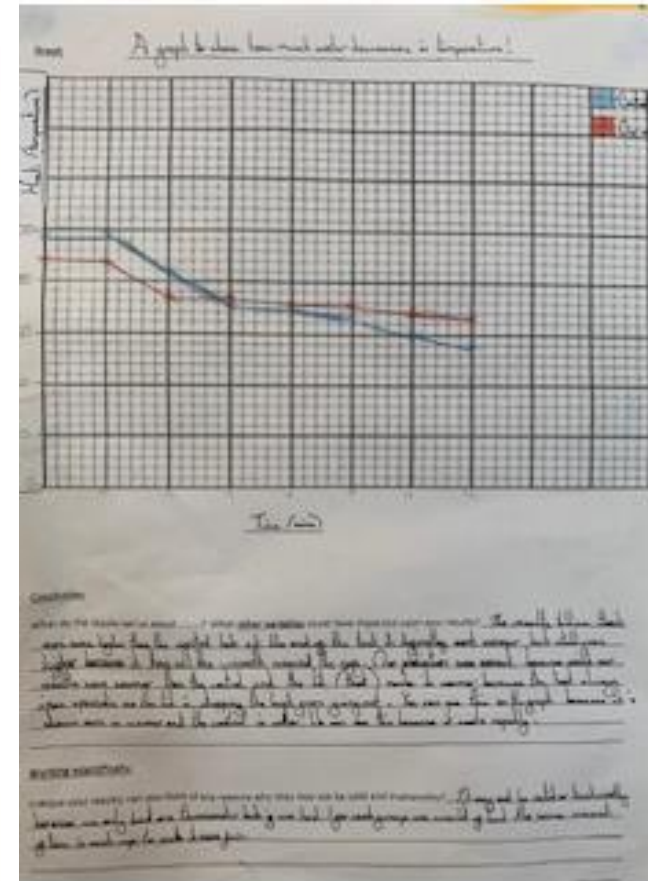
Materials

- Polystyrene
- Glass cup
- Water
- Thermometer
- Stopwatch
- Paper
- Paper clips

Results

I predicted that our cup would be really warm because we had lots of things around it and that a lot of water would keep it warm. I think the bit with the paper clip was the best because the heat always came up. We also made it out of that material so that will help too.

Time	Temperature
0mins	82.5%
2mins	76.5%
4mins	75.5%
6mins	70.5%
8mins	69.2%
10mins	65.8%
12mins	63.5%



Year 6: children report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.

Topic: What's Happening?
How does exercise affect heart rate?

Hypothesis
 We believe that our heart rate will increase. We believe this because our bodies need more oxygen when we are running vigorously.

Method
 Exercise for 30 seconds whilst wearing an electronic heart rate monitor. Did participants and graph an electronic heart rate monitor which told us the start time for 30 seconds, without stopping and at a constant rate.

Materials Used
 Electronic heart rate monitor/app, Stopwatch and participants.

Prediction
 We predict that the heart rate will increase so long as the participants jump at the same rate. We think this because our bodies are more oxygen when we exercise.

Independent variable: The amount of time we started for.

Dependent variable: Pulses/heart rate.

Controlled variable: Factors and the counts completed.

Conclusion
 In conclusion, from the graph we see that heart rate increases rapidly when we begin to exercise. We know this because the graph shows a very steep curve at the beginning. However, towards the end of the experiment the graph began to level out, showing us the heart rate was reaching its maximum. In our prediction we stated that the heart rate will increase so long as the participants jumped at the same rate. It is hard to say whether this happened or not but the graph did begin to level out.

Limitation
 It is hard to improve the validity of our results. We could use more than one participant, compare repeat readings at complete intervals. It is hard to say if this is valid, improve the validity of the experiment.

