Key Stage 1: Science | **Title of Topic: Investigation Skills** | **Term: Summer 2027**

National Curriculum: Science

Working Scientifically:

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions.

Key Learning

Ask simple questions.

Use observations and ideas to suggest answers to questions.

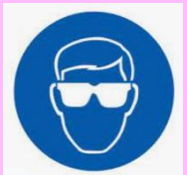
Plan and perform simple tests.

Observing closely, using simple equipment

Identify and classify objects into groups

Gather and record data to help in answering questions

Safety



Wear goggles

Wash hands

Do not climb

Do not run

Do not eat/ drink

Listen carefully

Follow instructions

Wear gloves

Vocabulary

Question -a sentence that asks for a reply.
Answer -a reply to a question.
Observe -to watch closely; make a careful observation of.
Equipment -things made, or used, for a particular activity.
Identify -to figure out or show who someone is or what something is.
Classify -to assign (something) to a particular category or group.
Sort -to place or separate into groups or types.
Group -a collection of people, things, or ideas that are in one place or are related by characteristics: cluster.
Record -to put in writing.
Diagram -a drawing or plan that shows the parts of something or how the parts work together.
Chart -a sheet that gives information in the form of a graph or table.
Data -facts, figures, or other pieces of information that can be used to learn about something. The word "data" is the plural form of "datum," but is often used with a singular verb.
Compare -to note or describe the similarities or differences of.
Contrast -to compare in order to make differences clear.
Describe -to tell or write about; create a picture of in words.
Biology -the science that studies the growth and life processes of living things.
Chemistry -the science that studies the form and function of basic elements and their compounds.
Physics -the science that deals with matter and energy, their qualities, and the relationships between them.

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Key Questions

Which materials are absorbent?

Can you grow your own edible crystals?

How far can a marshmallow fly?

Can you make sand waterproof?

Can you change the properties of materials?

Equipment

Edible crystals

- Sugar
- Water
- A saucepan
- Lolly sticks
- Pegs
- Plastic cups
- Food colouring

Mini-marshmallow shooters

- Paper cups
- Balloons
- Mini Marshmallows
- Large marshmallows
- Measuring tapes
- Sellotape

Rainbow paper

- Kitchen roll
- Food colouring
- Plastic cups
- Water
- Testing materials

Waterproof sand

- Sand
- Fabric protector
- Newspaper
- Plastic cups
- Paper plates
- Water

Fizzy colours

- Trays
- Bicarbonate of soda
- Vinegar
- Food colouring
- Goggles
- Syringes

Slime

- PVA glue
- Water
- Glitter
- Food colouring
- Borax substrate
- Bowls
- Spoons

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Key Learning:	
1	**Which materials are absorbent?** In teams, pupils will investigate which materials are absorbent. Pupils will then make their own rainbows by experimenting with the absorbency of paper towels. Water moves up the paper towel because the paper is absorbent, it sucks up water. The colour travels with the water making the paper change from white to red or blue. Colours mix when they are joined together, red and blue make purple. See what colours can be made with just the primary colours. Pupils can then experiment with different materials, such as foil, fabric, plastic and foam. Learning: To define what is meant by absorbent. To investigate the absorbency of different materials. To identify and classify objects into groups.
2	**Can you make sand waterproof?** Individually, the children will coat a cup of sand with fabric protector. Once dry, they can pour the sand into the water. When they remove the sand it will be dry again. The fabric protector is able to repel any water introduced. Learning: To ask simple questions. To observe changes to the sand.
3	**Can you grow your own edible crystals?** Individually, children will observe the growth of their crystal lollipop over a week. The sugar and water solution will be added to a plastic cup and food colouring will be added. The lolly stick will then be suspended in the sugar solution for a week. The children observe and record any changes to the solution. After a week, the newly grown crystals can be removed from the solution, dried and consumed. Learning: To use observations and ideas to suggest answers to questions. To gather and record data to help in answering questions
4	**Can you change the properties of materials? (Part 1 – Fizzy colours)** The children will investigate how bicarbonate of soda changes properties after vinegar is introduced. Additionally, they will investigate the changing properties of vinegar when bicarbonate of soda is added. Learning: To observing closely, using simple equipment.
5	**How far can a marshmallow fly?** The children will each make their own marshmallow shooter, using a plastic cup and a balloon. They will then shoot marshmallows and measure the distance flown They will also investigate whether larger marshmallows, or extra balloons, make the flight distance longer or shorter. Learning: To gather and record data to help in answering questions.
6	**Can you change the properties of materials? (Part 2 - Slime)** Children will combine PVA glue, water, glitter, food colouring and borax substrate to make slime. They will observe the property changes of the materials used as they mix. Learning: To plan and perform simple tests. To use observations and ideas to suggest answers to questions.