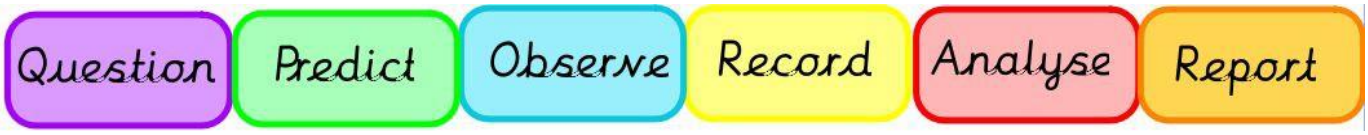
Science activity 1:
Enquiry Type - Pattern Seeking

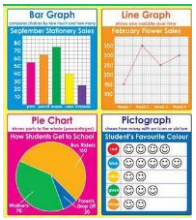
Question

Do people with longer legs run faster?

Measure the length of the legs of the people in your house to try and answer the question above. You might measure in centimeters or in the number of pencils long. Once you have measured someone's legs ask them to run a distance of your choice (not to far) and time how long it takes. Do people with longer legs run faster?



Younger Children	Older Children
Create a poster that explains what you found out. Can you include in your poster: your equipment, what was easy and hard to carry out, your result.	Write a report of your investigation. When analysing your results, was your prediction correct? How could you have improved the investigation? What other investigations could you carry out?

Challenge	About this type of Scientific Enquiry
Draw a graph to show your results  	*One of the main types of enquiry that scientists carry out is Pattern Seeking. This is when scientists make observations and measurements and then try to see if there are any patterns or ways to link what they observe.* *Astronomers use pattern seeking to discover new planets and celestial objects.* *Sport scientists use pattern seeking to help improve athletes' performance.*

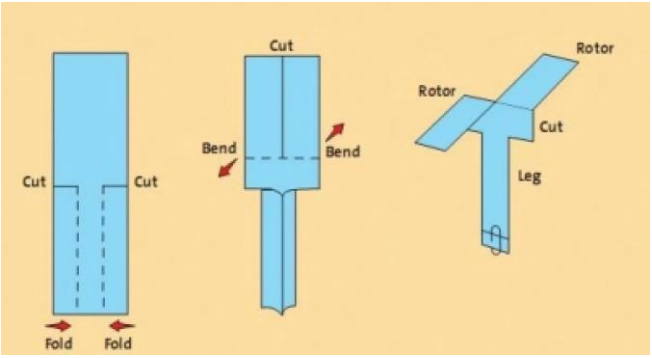
Science activity 2:
Enquiry Type - Fair Test

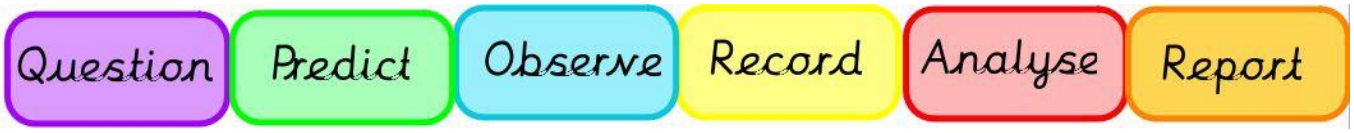
Question

How can you change a paper spinner to make it accurately hit a target?

Carry out a fair test to explore what makes the spinner fall most accurately. Make a paper spinner and drop it from a height above the target. Does it land in the center every time?
Make sure to only change one thing so that you can say what improved the spinner. . Eg. The height dropped, number of wings, number of paperclips, size of paper OR the type of spinner.

1. Cut an A4 piece of paper into 3 equal rectangles
2. Cut and fold rectangle as shown below: Fold along dotted lines, cut solid lines
3. Attach a small amount of mass to the bottom of your spinner eg. paper clip or blue-tac/playdoh
4. Draw a target zone on another piece of paper or place a target on the floor.
5. Drop the spinner above the target and watch where it falls.





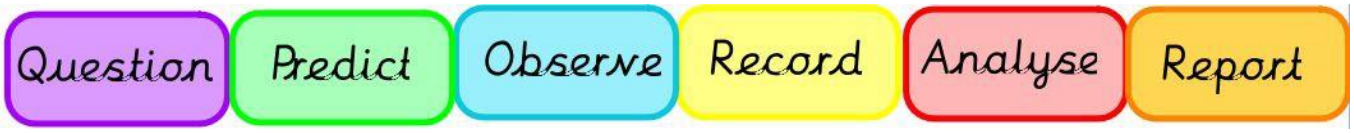
Younger Children	Older Children
Create a poster that explains what you found out. Can you include in your poster: your equipment, what was easy and hard to carry out, your result.	Write a report of your investigation showing your question, hypothesis, method, results. When analysing your results, was your hypothesis correct? How could you have improved the investigation? What other investigations could you carry out?
Challenge	**About this type of Scientific Enquiry**
Imagine you are trying to advertise the spinner. Create a leaflet on how to make the best spinner making sure you use the evidence you have recorded to support your claim that it is the best type of spinner.	*A fair test is when scientists look at all the different things (variables) that could affect the result. Then only change one of them to see if it affects the outcome. By only changing one variable, scientists are able to confidently say that that caused the result. Eg. If they changed the number of wings and the mass of the spinner they would not know if it was the mass or the number of wings that changed their result.* *Fair testing is used to develop new medicines.*

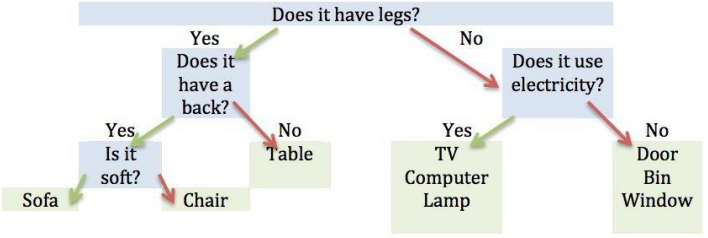
Science activity 3:
Enquiry Type - Identifying and Classifying

Question

How can you identify objects in your house?

Select at least 10-15 random objects in your house. Consider how they are similar and how they are different to each other.



Younger Children	Older Children
Draw the selected objects into groups based on what they have in common. Eg. Size, colour, shape,	Create a classification key to identify your selected objects.eg: 

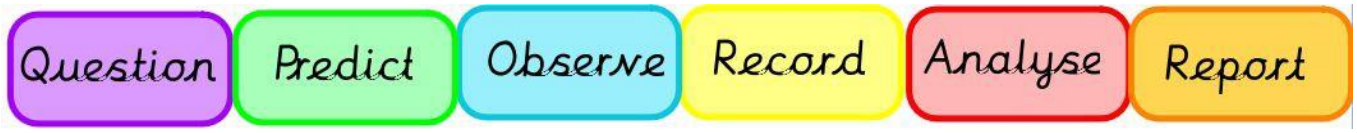
Challenge	About this type of Scientific Enquiry
Research Carl Linneaus who created the system of taxonomy, which is how we classify living things. https://www.linnean.org/learning/who-was-linnaeus https://www.bbc.co.uk/teach/class-clips-video/science-ks2-the-work-of-carl-linnaeus/zhnjf4j	*Identifying and classifying is how we can make sense and order of the world around us. This enquiry type requires using observation and reasoning skills. Examples of classifying include how we classify animals, plants and foods.* *Identifying and classifying is used by scientists to help learn about the natural world and therefore assist in conservation projects. You can often help scientists to identify and classify using websites such as Zooniverse.org*

Science activity 4: Enquiry Type - Observation over Time

Question

How does a shadow change over time?

Shadows change due to the Earth rotating on its axis. Attach a thin object to your window, eg a pen, ruler or opaque tape. Place a piece of white paper on the windowsill directly below the object. Make sure the object is in the centre of the page. A shadow should appear on your paper. Draw around the shadow and label it with the time. Check on the shadow every hour or half hour throughout the day, each time drawing and labelling the shadow.



Younger Children	Older Children
Look at the shadows that you have drawn. When was the shadow longest? When was it shortest? Create a labeled drawing showing how you set up your experiment.	Use your observations to make a sundial. What distance is there between each hour? Is each hour the same distance apart? Would the clock be correct all year around? Would your clock work if it were used in a different country eg. Australia, South Africa, Algeria?

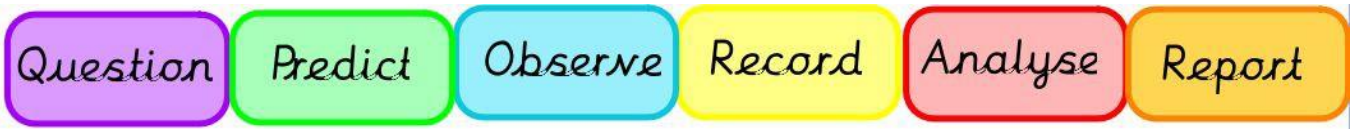
Challenge	About this type of Scientific Enquiry
Can you make a shadow puppet theatre?	*Observation over time enquires help us to identify and measure events and changes in the natural world as well as physical processes. This enquiry type requires using observation, reasoning and analysis skills.* *Jane Goodall used observation over time to research how chimpanzees behave.* *NASA carried out a 'Year in Space' experiment to find out the effect of gravity on humans.* *Since 1840 a bell has been ringing at Oxford University to test its battery duration.*

Science activity 5:
Enquiry Type -Research

Question

What nutrients are in your food?

It is important to eat the right amounts of a variety of different food types. Look in your kitchen to find out what different types of food you can find.
https://www.nhs.uk/change4life
https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/



Younger Children	Older Children
Separate the foods that you find into the below categories: Fruit and Vegetables; Meat & Fish; Dairy; Carbohydrates and Starch; Sugars and Fats. Count how many of each category you have. Can you make a poster or chart to show how many different nutrients you found?	Look at the labels of the food that you find. Which foods have the highest fat/sugar/carbohydrate/fibre content? Which foods have the lowest fat/sugar/carbohydrate/fibre content? Do the portion sizes match the packet size?

Challenge	About this type of Scientific Enquiry
Record all the food you eat for a week. Then, work out the nutritional value of your food. Are you eating a balanced diet?	*Scientists use research to investigate their hypotheses (predictions) and answer their scientific questions. In this task we used secondary sources to find the answer. This enquiry type requires using skills to compare and evaluate information; separating fact from opinion; recognising bias; and an ability to extract key information.*