

Science Week 1: Enquiry Type - Pattern Seeking

Question



Is there a link between the length of your outstretched arms and your height?

Take measurements 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 outstretched arms and their height compare the measurements.

How about other body parts eg. Foot length and height, Foot and forearm, Hand and Leg length etc.

Question

Predict

Observe

Record

Analyse

Report

Younger 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.

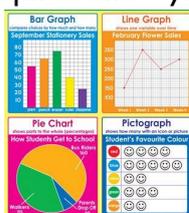
Older Children

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

Draw a graph to show your results



About this type of Scientific Enquiry

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 Week 2: Enquiry Type - Fair Test

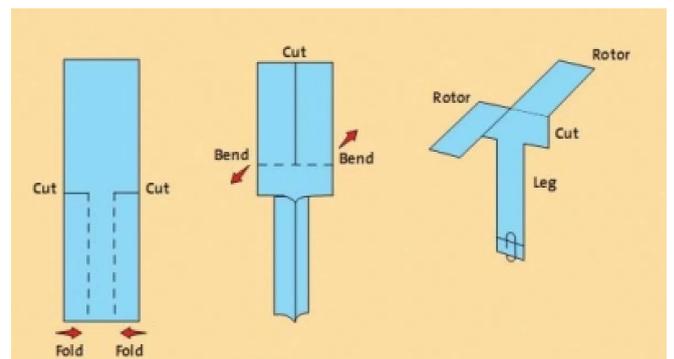
Question



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 centre every time? Make sure to only change one thing at a time so that you can say what improved the spinner. . Eg. The height dropped, number of wings, number of paperclips, size of paper, 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
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.



Question

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Older Children

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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 Week 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.

Question

Predict

Observe

Record

Analyse

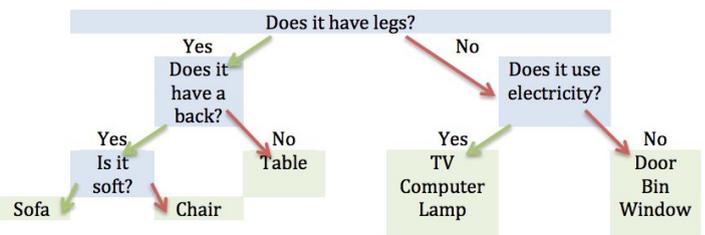
Report

Younger Children

Draw the selected objects into groups based on what they have in common. Eg. Size, colour, shape,

Older Children

Create a classification key to identify your selected objects.eg:



Challenge

Research Carl Linnaeus 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>

About this type of Scientific Enquiry

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 Week 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.

Question

Predict

Observe

Record

Analyse

Report

Younger 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.

Older Children

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

Can you make a shadow puppet theatre?

About this type of Scientific Enquiry

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 Week 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/>

Question

Predict

Observe

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Analyse

Report

Younger 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?

Older Children

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

Record all the food you eat for a week. Then, work out the nutritional value of your food.
Are you eating a balanced diet?

About this type of Scientific Enquiry

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.