Knowledge Organiser: Scientific Enquiry

Careers connected to scientific enquiry: lab technician, research scientist



Lesson Sequence



1. How can a solar oven be made more effective: posing questions and writing predictions



2. How can a solar oven be made more effective: recording and presenting results



3. Cleaning coins: writing a method and carrying out a practical test



4. Cleaning coins: writing a method

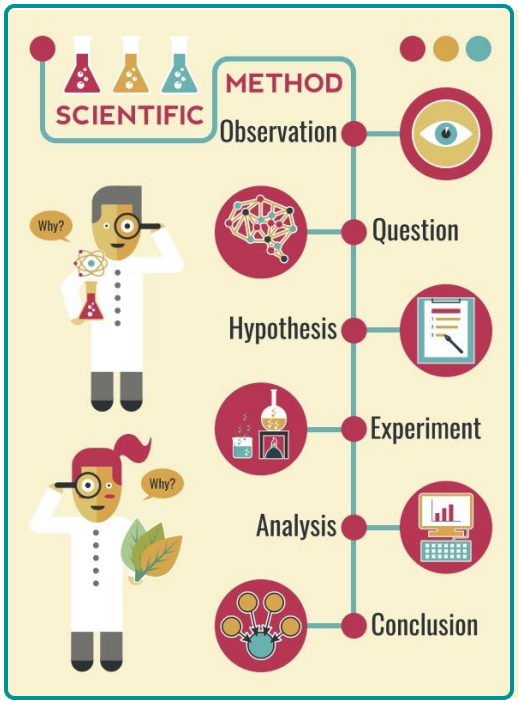


5. Making a cake: fair testing, controls and variables



6. Making a coin: scientific enquiry

The Scientific Method

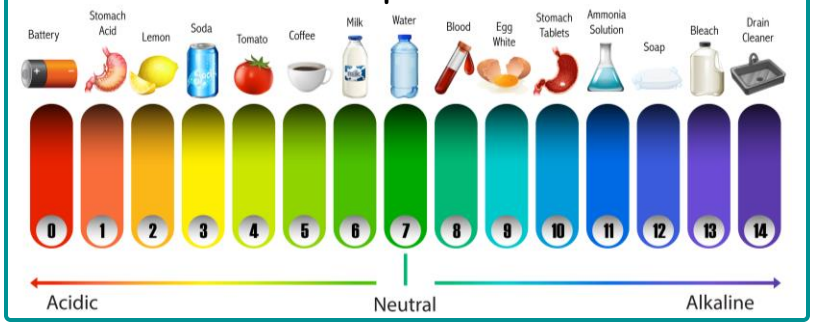


fair test – where one variable is changed, and all other elements are kept the same

variable - something that is changed

control experiment - an experiment that is used to compare other experiments where there are variables

The pH Scale



The Scientific Method

Comparative / fair testing
Changing one variable to see the effect on another, whilst keeping all others the same.

Research
Using secondary sources of information to answer scientific questions.

Observation over time
Observing changes that occur over a period of time, ranging from minutes to months.

Pattern-seeking
Identifying patterns and looking for relationships in enquiries where variables are difficult to control.

Identifying, grouping and classifying
Identifying observations to name, sort and organise items.

Problem-solving
Applying prior scientific knowledge to find answers to problems.

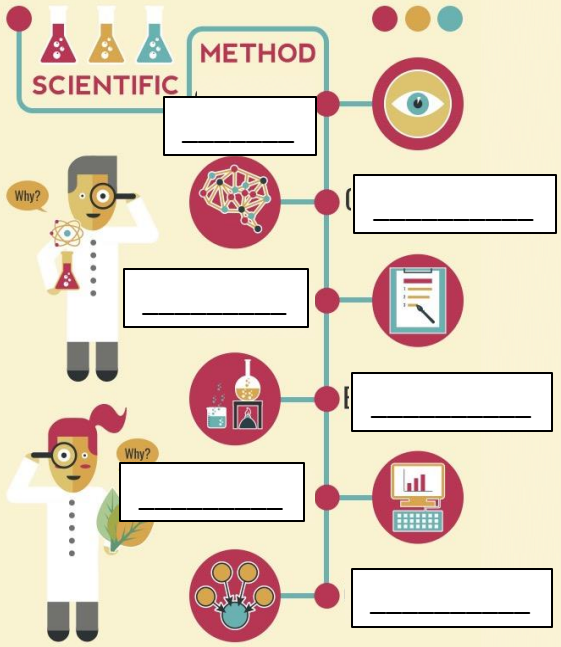
Developing Experts Copyright 2022 All Rights Reserved

Knowledge Organiser: Scientific Enquiry

Before and After Test



Name the stages of the Scientific Method



What can you learn from the data shown in the table?

_____

_____

_____

_____

_____

_____

Katie wants to know 'Which materials are the bounciest?'

Katie's method: To drop a range of balls from a certain height and then measure how high they bounce. Draw the possible variables might Katie use.

Variable 1	Variable 2	Variable 3	Variable 4	Variable 5

Katie has recorded her results in the table below. Draw a graph for the data in the table.

Type of ball	Height the ball was dropped from	Height the ball bounced
Ping pong ball	60 cms	30 cms
golf ball	60 cms	40 cms
tennis ball	60 cms	42 cms
football	60 cms	60 cms

Developing Experts Copyright 2022 All Rights Reserved

Unit Rocket Words: Year 3 – Scientific Enquiry



Rocket Words

scientific investigation	finding answers to questions using research methods
prediction	explaining what you think might happen
plausible	having a reason
record	writing the measurement of something
data	a set of facts or numbers used to learn about something
method	instructions for carrying out an experiment
control experiment	an experiment that is used to compare other experiments where there are variables
equipment	tools or items that are needed
enquiry	a question to find something out
practical	the performing of a scientific experiment
conclusion	the end result or outcome
fair test	where one variable is changed and all other elements are kept the same

Developing Experts Copyright 2022 All Rights Reserved