

Below are some examples of science investigations which can be carried out at home. (Do check what you are going to do with an adult first).

The Plan > Do > Review cycle of science enquiry helps to organise our thinking:

- Plan:** Try out, raise questions, plan enquiry
- Do:** Observe and/or measure, record results
- Review:** Interpret, report, conclude, evaluate



For each investigation, we can do the whole cycle, but we just choose one part to focus on for writing down or drawing.

Paper planes

Plan focus in Physics context

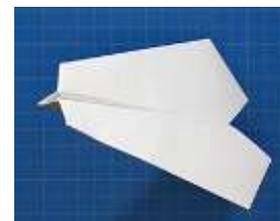
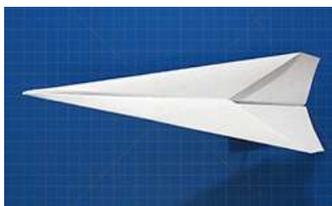
TASK: Make and test some paper planes.

Design ideas here: www.foldnfly.com

Choose a design and pick one thing to change e.g. paper size, wing size, nose point/cut, bigger/smaller flaps etc.

Does your change variable make a difference to the flight distance or time? How can you compare the planes fairly – what will you try to keep the same?

What to record: List the variables you changed, measured and kept the same. Or write/draw instructions for how to compare plane designs fairly.



Changing materials hunt

Do focus in Chemistry context

TASK: Go on a changing materials hunt around the house or keep a diary of changing materials at mealtimes. E.g. what has been melted/mixed/dissolved (mostly reversible) or cooked (mostly non-reversible).

What to record: You could record the reversible and non-reversible changes you observe in a table, with a camera or in labelled diagrams.

Info to help: Changes in materials can be **reversible changes** like e.g. melting/freezing ice cubes or dissolving sugar in tea (because you could get the sugar back by evaporating the water). Or changes can be **non-reversible** like toasting bread or boiling eggs (because new materials are formed and you can't get the raw bread/egg back).



Reaction catches

Plan focus in Biology context

TASK: Test your reactions with a 30cm ruler or a straight stick by asking a partner to hold the ruler/stick above your hand and then drop it without warning. Your 'catch distance' is how far up the ruler/stick you catch it. Have a few practise goes and come up with some questions to investigate e.g. does it matter which hand/eyes open/if countdown/saying your times tables at the same time!

What to record: Write down the questions you investigated and briefly say what you found out.



Bottle flip

Do focus in Physics context

TASK: Find a plastic bottle and put some water inside. Practice flipping the bottle to land on its base. Now explore a variable which may have an effect on how often it lands. For example, you could try different: amounts of water, bottles, landing surfaces, start positions (stand/kneel/sit) or flipping techniques.

What to record: Make a table to record how many attempts it took to land the bottle flip for each condition.



Cleaning coins

Review focus in Chemistry context

TASK: Find some old 1p or 2p coins and some different sauces e.g. ketchup, mustard etc. Investigate which sauce/liquid is the best coin cleaner.

Important: check with an adult that you can use the sauces/liquids - no household cleaners because the challenge is to find out if other things can clean coins.

What to record: Write or draw about your conclusions: out of the sauces you tested, which was the best coin cleaner?



Research

Review focus

TASK: Choose an area to research:

Biology e.g. animal groups and their life cycles.

Chemistry e.g. scientists who have discovered or invented new materials like Alfred Nobel who invented dynamite or Stephanie Kwolek who invented Kevlar.

Physics e.g. planets in the solar system.

What questions do you have about your chosen area?

Use books or the internet to answer your questions and find out key facts and science vocabulary in your chosen area.

What to record: Choose how to present your research e.g. a poster, labelled diagrams, model, information leaflet etc.

