

Project group	Project name	Diffi- culty (5=hard, 1= easy)	Hypothesis	Importance	Ideal study area	Methodology	Equipment list
Ecology	Tree species distribution	4	There are more of X tree species near to water/shade/fences etc.	Paragraphs 3 and 4 of info sheet	Any area with lots of different trees	Measure tree species using a worksheet or app. Look at all trees in study area. Record other impacting factors (see paragraph 2 on info sheet) e.g. sun/shade, near water?, exposed/sheltered	Notebook, pencils, tree species sheet or app. Depending on question - tape measure?
Ecology	Tree height differences	3	Most trees are tall. (can compare species)	Paragraphs 1 and 2	Any area with lots of trees	Measure tree height using the stick method, or DBH or an app. Also record other factors (see paragraph 3 on info sheet) e.g. tree species, sunlight, exposure etc.	Sticks, tape measure, app (height and/or tree species), ruler, notebook and pencil
Ecology	Plant species richness	3	Higher plant species richness is found in shaded areas/wet areas. OR more daisies are found on the edge compared with the centre of the field.	Paragraph 2	Any grassed area - ideally with some different flowers	Stand at a point in the field/playground, throw the quadrat in a direction, within the quadrat area count the number of a certain species (e.g. daisies) or count the total number of different species. Note if this area is shaded or sunny or other important factors (paragraph 3).	Quadrat (can make with sticks, string and a ruler), notepad, pencil
Ecology	Bird species distribution	1	There are more types of birds away from a road (or other location)	Paragraph 2	Anywhere	Bird survey - select several locations, sit quietly in pairs and record the number (and type) of birds in set time (e.g. 30 min). Repeat at different locations/times of day	Clipboard/notebook, pencils, binoculars (optional), bird identification sheet/book/app
Ecology	Insect types	2	There will be more insects near places with lots of plants than in other places.	Paragraph 2	Anywhere - ideally somewhere with vegetation	Make a pitfall trap using an old yogurt pot or similar. Fill it with leaves and bury it in the ground so the top is level with ground. Leave it overnight and then identify and count which insects are trapped. Repeat in a different location.	Yogurt pots, a trowel, a tray, some leaves (maybe even food), insect identification sheet/book/app

Weather	Rainfall	1	It will rain more at the end of the week than at the start because a weather front is predicted then.	Paragraph 1	Anywhere	Make a rain gauge (see instructions). Place it in the open, record the amount of rain every day. Look at weather forecast and compare.	Plastic bottle, scissors, a ruler, tape or glue, a permanent marker pen, small stones or pebbles, notebook and pencil, weather forecast
Weather	Clouds	2	There will be more clouds on some days (e.g. when low-pressure weather is forecast.)	Paragraph 1	Anywhere	Draw a circle on tracing paper, split it into 8 sections, hold it up to the sky and count how many of the sections are covered by clouds. Record the type (or description) of clouds. Look at weather forecasts. Repeat at different points during the day or over several days.	Tracing paper, pens, notebook, pencil.
Weather	Wind	3	It will be windier on days with high pressure forecast.	Paragraph 2	Anywhere	See instructions from met office on how to make a wind vane. Place in open area, align with north, record wind direction each day at same time, compare with weather forecasts.	Plastic bottle, cork, knitting needle, sand, matchsticks, sand (or stones), blue-tack, a ruler, a pen top.
Weather	Temperature	1	It will be hotter in the afternoon compared with the morning	Paragraph 2	Anywhere	Use a liquid or digital thermometer to measure outdoor temperature every hour. Leave for 5 min to adjust and place on ground. You could also compare thermometer types.	Thermometer, notepad, pencil
Weather	Air pressure	2	There will be falling air pressure before a storm	Paragraph 2	Anywhere	Make a barometer using a glass jar and a balloon. Record if the straw is moving up or down every hour. Compare with forecast.	a glass jar, a balloon, a rubber band, a straw, tape, paper and pen
Geography	Air quality	3	There will be higher CO2 levels at the start and end of the day due to more cars from pick up and drop off.	Paragraph 2	Anywhere with a CO2 monitor	Read the CO2 monitor in your classroom every hour and record the reading. You could compare with different rooms. Compare with AQI measurements online. Think about what could be causing the changes.	CO2 monitor (should be in most schools)
Geography	Soil types	4	There will be more loamy soils under trees because leaves add organic matter	Paragraph 1	Anywhere with soil	Use the squeeze method - dig up some soil at around 10cm depth, add some water, squeeze into a ball, open your hand and see how the soil behaves. Alternatively use the jar method.	Trowel, water, notebook, pencil.

Geo- graphy	Soil pH	5	The soil in flower beds will be more acidic in flower beds as compost is likely to have been used.	Paragraphs 3 and 4	Anywhere with soil	Dig up some soil from different locations, put the soil from one location in two separate cups. Add vinegar to one and baking soda to the other. Watch to see if bubbles appear. Repeat for a new location. Alternatively buy pH test strips.	Trowel, cups, vinegar, baking soda OR pH test strips (see https://www.amazon.co.uk/Indicator-Strips-Litmus-Paper-Testing)
Geo- graphy	River levels/ speed	4	Rivers will be deepest at the middle Or Rivers will flow faster upstream compared with downstream	Paragraphs 2 -4	A safely accessible river	For depth: make a staff gauge by marking measurements along a long stick, using a permanent marker. Put a tape measure across the river, at regular intervals put the stick in the water to get a depth measurement. For speed: find a floating object, mark 10 m on the river bank, let go of the floating object in the middle of the river at the start mark, use stopwatch to time how long it takes to reach the end point, speed = distance/time.	Depth: Bamboo/long stick, measuring tape, permanent marker Speed: floating object (e.g. orange, rubber duck), stopwatch (on phone), measuring tape.
Geo- graphy	Infiltration rates	4	The infiltration rate will be slower under a path compared with the middle of a field	Paragraph 3	Anywhere with soil	Use the drainpipe test to measure the infiltration rate at several locations. Time how quickly it takes for water to drain through a bit of a pipe pushed into the ground.	short piece of drainpipe, plastic tube, or a large tin can (with both ends cut off), a ruler, a measuring jug with water, a stopwatch or timer, and a notebook and pencil