Transforming Data - Examples and Suggestions

Topic: *The amount of litter found in the nature reserve at school.*	
Location/s:	Suggestions include: • School nature reserve • Gardens • Areas prone to litter accumulation • The whole school (using sample locations throughout) • Community areas: parks, creeks, car parks etc.
Variable: (i.e. what are you going to be collecting?)	Suggestions include: • Number of items • Weight of items • Volume of items (using a waste-paper bin) • Type of litter (all litter, plastic bags, plastic bottles etc.) This video may help students choose a variable and variable type, especially if they are unfamiliar with the terms discrete and continuous: https://www.youtube.com/watch?v=_yAQb8g-WBpU
Variable type:	Discrete - whole or specific numbers (e.g. number of items) Continuous - numbers with any number of decimals (e.g. weight, volume)
How will you collect this data?	Survey people - Students to design survey questions and collect data from students, teachers, school, admin, etc. Survey an area - Students to use quadrats or transect lines to approximate rubbish in numerous sample areas of the school/ location
How much data will you need? (i.e. how many people? how much space?)	Students to consider fair tests when designing investigation. For surveying people: • How many people need to be surveyed to represent a population? • Do you need a mixture of people? (e.g. students, teachers, groundskeepers) • Any other special conditions? For surveying an area: • What size quadrat/transect line? • How many samples to represent a whole area? • Use of sub locations (e.g. grass, dirt, leaf litter, shrub) • Any other special conditions?
How will you use your data to make projections? (e.g. I will multiply the average of my sample by the school size to make projections for the whole school)	Students to consider how they can combine their data to produce one (or a few) statistics as a focal point for their artwork. Suggestions include: • Measures of centre: mean, median or mode • Multiplying by population or area size • Multiplying by relevant time frames to represent weeks, months, years • Consideration of error or confidence intervals (extension only