Finding a Good Relationship /35

PART ONE – TAKE HOME

Your task through this entire investigation is to choose two numerical variables between which you think there is a linear relationship and then determine whether or not you are correct. There are two parts – Part One needs to be done at home and brought with you to class. You will then complete Part Two of the investigation in class under test conditions.

Decide what to explore

Choose your variables. You might decide to use the Census at Schools website to find two variables you would like to explore. Or you might like to choose one of the suggestions below:

- Neck circumference and wrist circumference
- Length of a potato and its maximum circumference
- Length of a chilli and its heat
- Car age (up to 10 years) and value (as percentage of purchase price when new)
- Vehicle weight and average fuel consumption
- Vehicle engine size and horsepower
- Time spent studying and test score
- Hours of sleep and reaction time
- Reaction time left hand and reaction time right hand
- Number of followers/friends on social media and number of posts per week
- Heart rate before exercise and heart rate after exercise
- Height from which a ball is dropped and rebound height
- Number of people in a household and the electricity consumption

In science, a hypothesis is a theory or a guess that you then test or conduct an experiment in order to either prove or disprove. In other words, it is a guess. For example, if you decided to look at the relationship between height and weight, your hypothesis might be that for human beings, as height increases, weight also increases, ie there is a positive linear relationship between height and weight for human beings.

1. Once you have decided on your variables, write a hypothesis about the relationship between them. It does not matter if your hypothesis turns out to be right or not, only that you write a clear statement describing the relationship that you think may exist. [2]

Data collection

2. Identify the independent variable and the dependent variable. [1]
3. Set up a table to record your collected data. [1]
4. Decide how many values would be sufficient to test your hypothesis and justify your choice. [2]
5. How will you collect the data you need? [2]
6. Collect your data and record it in your prepared table. [4]