**Physics 1.1 AS 90935 Investigation leading to linear relationship**



Planning the Investigation

**Success Criteria:** We know we have achieved this when we can:

* Understand a method must be 'repeatable'
* Explain how variables can be controlled
* Define a 'range' for independent variables
* Explain the importance of multiple trials

**1.** An author of a cookbook is very careful to write out recipes that produce the same result every time someone uses it to cook food. Explain how this is **similar to writing the method** of an investigation and **why this is important.**

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**2.** given the following Aim of an investigation: write down the variables that **need to be controlled** and **how you will control them**: How does the roughness (grade) of sandpaper effect the distance a marble will roll along it?

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| **Variables controlled** | **How will you control them?** |
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**3.** Decide on a **suitable range** (and units) for the **Independent variable** in following investigations:

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| **Investigation** | **Range and units** |
| a. Dropping a rubber ball at various heights and measuring how high it bounces |  |
| b. Changing the concentration of hydrochloric acid to see what effect it has on the reaction rate of magnesium metal (for a 1cm piece to disappear) |  |
| c. How will the number of bulbs affect the voltage in a series circuit? |  |

**4.** Discuss how increasing the number of trials, (times you repeat the investigation/ measurement for each value of the independent variable) can help make the **investigation more reliable**: