

# AQA ACCELERATION REQUIRED PRACTICAL

## MEASURING ACCELERATION USING A TROLLEY AND LIGHT GATES

### EQUIPMENT



Trolley



Ramp



Light Gates



Pulley & Weights



Timer

### 1. SET UP THE APPARATUS

Place a trolley on the ramp with a string attached over a pulley connected to hanging weights.



### 2. POSITION THE LIGHT GATES

Place two light gates as shown, one near the start and one further down the ramp.



### 3. RELEASE THE TROLLEY

Let go of the trolley and allow it to accelerate down the ramp.



### 4. RECORD THE TIMES

Use the timer to record the times as the trolley passes through each light gate.



### 5. CALCULATE ACCELERATION

Use the formula:

$$\text{Acceleration} = \frac{v_2 - v_1}{t}$$

$$\text{Acceleration} = \frac{v_2 - v_1}{\text{Time}} = a - \text{m/s}^2$$

## ANALYSE THE RESULTS!

Calculate the acceleration and analyse the data to understand the relationship between force, mass, and acceleration.