Bridging Work Year 10 September 2020

Physics

The tasks below are designed to support you as you prepare to start GCSE *Physics*.

These tasks have been developed to build on your knowledge and help with the transition to IKB Academy in September, using your time wisely over the coming months to ensure you maintain a level of education that will be needed to be successful in your subjects.

Pendulum Investigation

1. Research task: Name the different "energy stores". Describe the four ways in which energy can be transferred from one store to another. Describe the ways in which energy can be transferred when a pendulum is swinging.

2. Investigation: How does the length of a pendulum affect the time it takes to swing?

   Equipment
   - A piece of string/cotton or ribbon.
   - Any mass that can be attached to the string (a piece of plasticine would be ideal)

   Method
   - Fix your piece of string to your mass to make a pendulum.
   - Hold the pendulum at an approximately 20 – 30 degree angle and let it go (you may find this easier if you can hang the pendulum from something stable).
   - Time how long it takes to swing back to its original position 10 times. Think: Why don't we just time one swing?
   - Divide your total time by 10 to get the time for one swing.
   - Change the length of the pendulum and repeat the experiment.

   You need to:
   a) Decide how you will gather valid results (THINK: what are your control variables, how many times will you repeat each length)
   b) Design a results table.
   c) Carry out your experiment
   d) Produce a graph to show your results.
   e) Write a conclusion to summarise your findings.

   Extension: Write an evaluation for your experiment. How could you improve your method in future?

For some background information on energy and the energy changes in a pendulum click here:
https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1

Here is a video taking advantage of many different length pendulums to create a crazy effect.
https://www.youtube.com/watch?v=7_AiV12XBbI