

GREENHILL ACADEMY SECONDARY

S.5 PHYSICS TERM 2 HOLIDAY WORK

INSTRUCTIONS TO STUDENTS:

Answer **all** the three items

Item 1

You are required to design a functional crane model; which can lift a 500g mass off the table, raise the mass to 30cm height and rotate the load through 90 degrees

Materials required: Use cheap materials like popsicle sticks, strings and cardboard,

Written Report: Draw a free body diagram of the design model and explain where the tension and compression happen and list two ways to make the design stronger.

Item 2

In car tyre industry, oxygen gas cylinders in hospitals and many other areas of gas and oil industry use gas laws for effective storage of gases, manufacture of relevant materials and purification of liquids.

You are one of upcoming engineers that needs to understand gas laws before you join the engineering industry.

Task:

Using locally available materials (plastic containers, balloons, rubber band, and source of air). Design and carry out scientific investigations about **any one** of the gas laws and make a detailed report with clear procedures followed, observations and conclusions. Clearly indicate the email where you have sent your work in the report.

Note: You can watch some of the guidelines on internet (you tube) as reference.

Send your video clips involving you actively performing various experiments and photos on details below.

Email: jpkatesigwa@greenhillacademy.ac.ug or
anabimanya@greenhillacademy.ac.ug

Item 3:

While at home, design a **model** of a **gold leaf electroscope** using locally available materials. Include a report on how you made the model and how it works. Take a short video as you make the model and send to the email address below:
jpkatesigwa@greenhillacademy.ac.ug

Note: the actual model is to be presented on reporting day.

END