

# Planetary Mini-Project

## Introduction

Mathematics is used in all walks of life. Every business requires people skilled in handling numbers and dealing with data: accountants, computer programmers, engineers, architects, scientific researchers, investors, managers and analysts are just a few.

This Planetary Mini-Project is intended to get you involved with applied maths, and teach some crucial parts of “real-world numeracy”, such as handling formulae, interpreting data, understanding graphs, and thinking logically. You’ll also have a chance to design, present and/or manage a team if that’s more your thing - all numerical jobs are important!

## Instructions

1. You have been allocated a team, and you will know whether or not you are “Moon”, “Saturn”, “Jupiter” or “Earth”.
2. From the graph you’ve been given, discuss what the data means - why does the graph look the way it does? Did you expect it to look like this or is there anything unusual about it? What does it tell you about the inside of your planet?
3. Work out and sketch the internal structure of your planet from the density-depth plot you have drawn. Do this to scale on a poster page - leave room on the poster to cut & stick your graph on!
4. Calculate the thicknesses and volumes of each (roughly spherical) ‘section’ of your planet. Add these values to the poster. Calculate the total volume of your planet and the percentage volume in each section.
5. Using the density-depth plot, find out the average density of each section of the planet. Can you use these to estimate the masses of each section? What is the total mass of the planet?

6. Present as much or as little of the information you've worked out about the planet on the poster as you think is important. Consider these questions:
  - What are the most important features to understand about the planet?
  - What's the most interesting or unexpected thing that came up?
  - What thoughts did you have/what methods did you use to come up with your conclusions?
  - Is there anything you still don't understand but would like to know about your planet?
  - How do you think the data-handling skills you learned in this Mini-Project are applied by businesses in the real world? What were the most important bits?
7. Present these findings in a quick presentation to the rest of the class.