# Lesson Plan

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| **Title:** Weight on Planets | **Date:** |
| **Learning objective/s:*** To understand the relationship between mass and weight.
 | **Curriculum links:** |
| **Learning outcomes****I want evidence children can:*** Distinguish between weight and mass.
* Record results in a table.
* Plot a line graph.
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| **Notes on children who have exceeded the performance expected:** | **Action to be taken:** |
| **Notes on children who did not achieve the performance expected:** | **Action to be taken:** |
| **Essential vocabulary:**Gravity, mass, weight. | **Possible misconceptions:** |
| **Cross curricular links:** Physics, ICT, Mathematics. |
| **Teacher resources including ICT:** * Activity Sheet Document
* Computer, projector, board
* Weight on Planets Tool (NSO Website)
 | **Children’s resources including ICT:** * Graph paper
* Ruler
* Pencil
* Calculator
* Access to a computer
* Weight on Planets Tool (NSO Website)
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| **Organisation and class management:** | **Teaching points:** | **Notes:** |
| **Introduction:** Whole class discussion | * Introduce learning objectives and task.
* Discuss the ideas of gravity and weight vs mass.
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| **Main phase:**Independent work  | **Task 1:** Students determine their weight in kg. This may require them to be told 2.2lbs per kg, and 14lbs in a stone.* Students use the Weight on Planets tool to calculate their weight on the different planets.
* Students record their results in a table.
* On which planets do they weigh the least/most? Students to discuss any correlation.

**Task 2:** Students plot straight line graphs of W against m for each planet. They should plot these on the same graph so they can immediately see which planets have similar gravity to Earth.**Task 3:** Using the results from task 1 and the graphs from task 2, students should consider how the size of the planets affects the gravity. |   |
| **Plenary/Conclusion:**Whole class discussion  | * Discuss the idea that the smaller planets is where the weigh less and bigger planets is where they weigh the most.
* Discuss how the mass of a planet plays a role in the force that gravity applies.
* The equation: $F=G \frac{(m\_{1}×m\_{2})}{r^{2}}$ could be introduced at this point.
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