Space Physics

	Working towards Mastery (W)	Meeting Mastery (M)	Beyond Mastery (B)
Gravity	-Mass and weight are different but related. Mass is a property of the object; weight depends upon mass but also on gravitational field strength. - Every object exerts a gravitational force on every other object. The force increases with mass and decreases with distance. Gravity holds planets and moons in orbit around larger bodies.	- Explain unfamiliar observations where weight changes. - Draw a force diagram for a problem involving gravity. - Deduce how gravity varies for different masses and distances. - Compare your weight on Earth with your weight on different planets using the formula; weight (N) = mass (kg) x gravitational field strength (N/kg).	- Compare and contrast gravity with other forces. - Draw conclusions from data about orbits, based on how gravity varies with mass and distance. - Suggest implications of how gravity varies for a space mission.
The Universe	- The solar system can be modelled as planets rotating on tilted axes while orbiting the Sun, moons orbiting planets and sunlight spreading out and being reflected. This explains day and year length, seasons and the visibility of objects from Earth. - Our solar system is a tiny part of a galaxy, one of many billions in the Universe. Light takes minutes to reach Earth from the Sun, four years from our nearest star and billions of years from other galaxies.	- Describe the appearance of planets or moons from diagrams showing their position in relation to the Earth and Sun. - Explain why places on the Earth experience different daylight hours and amounts of sunlight during the year. - Describe how space exploration and observations of stars are affected by the scale of the universe. - Explain the choice of particular units for measuring distance.	- Predict patterns in day length, the Sun's intensity or an object's shadow at different latitudes. - Make deductions from observation data of planets, stars and galaxies. - Compare explanations from different periods in history about the motion of objects and structure of the Universe.